

Accidents at work in the Health and Social Care sector

Report

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Executive summary

Context and objectives

The health and social care (HeSCare) sector and its activities play a very important role in the overall health and wellbeing of society in the EU. This report provides an in-depth analysis on accidents at work in the HeSCare sector to:

- obtain a better understanding of why the prevalence of non-fatal accidents is so high in the HeSCare sector and why the accident rate remains high over the years;
- provide a comprehensive overview about accidents and accident prevention in the HeSCare sector;
- increase visibility and awareness about the impact of organisational or psychosocial risks on the occurrence of accidents at work in the HeSCare sector;
- provide a better understanding and a comprehensive, cross-national insight on the state of art in accident prevention in the sector; and
- **identify gaps in terms of research and knowledge** on the prevention of work-related accidents in the HeSCare sector.

In addition to the report, four standalone case studies have been developed that provide concrete examples of strategies, initiatives, approaches and practical tools to prevent accidents at work.¹

State of play of accidents at work in the HeSCare sector

To obtain insight into the prevalence of accidents in the HeSCare sector, the European Statistics on Accidents at Work (ESAW) have been analysed.

Non-fatal accidents

- In 2022, 2,973,646 non-fatal accidents at work (at least four full calendar days of absence from work) occurred in the EU, of which **469,685 accidents** were in the HeSCare sector. Of these accidents, 234,202 occurred in healthcare, 125,834 in residential care and 109,648 in social work.
- In 2012, non-fatal accidents in the HeSCare sector accounted for 9% of all non-fatal accidents in the EU (**sector positioned fourth overall**). This share almost doubled to 16% in 2022 (**sector positioned second overall**).
- The **incidence rate of non-fatal accidents** (accidents per 100,000 workers) increased in the HeSCare sector substantially from 1,462 in 2012 to 2,134 in 2022. From 2020 onwards the incidence rates are consequently higher than prior to 2020.
- The risk of non-fatal accidents in the sector is nearly equal for **male and female workers**, though men in social work have a slightly higher risk.
- In the HeSCare sector, the incidence rates in the first three age categories (18-24, 25-34, 35-44) are approximately the same, however these rates increase from 45 years of age onwards (45-54, 55-64). In 2022, almost a fifth (22.7%) of non-fatal accidents at work were associated with **the physical activity** of movement (movement by the victim: walking, getting into or out of a vehicle, moving (the legs or arms, etc.) on the spot, turning around, etc.) and around a tenth (9.2%) were linked to **carrying something by hand**.
- **Common injuries** in 2022, according to ESAW categorisations, include: dislocations, sprains and strains; poisonings and infections; concussions and internal injuries; wounds and superficial injuries; and shocks. Over the past 10 years, poisoning and infections have increased substantially.
- The most commonly affected **body parts** in 2022, according to ESAW categorisations, include: whole body and multiple sites; back, including spine and vertebra in the back; upper extremities; and head.

¹ The four cases are available at:

<https://osha.europa.eu/en/publications/home-and-residential-care-france-how-tutoprev-approach-prepares-new-hires-and-supports-teachers>
<https://osha.europa.eu/en/publications/raising-awareness-prevent-workplace-violence-against-healthcare-professionals>
<https://osha.europa.eu/en/publications/new-dutch-approach-investigating-and-learning-accidents>
<https://osha.europa.eu/en/publications/back-school-spanish-initiative-protect-back-health-among-workers-residential-care>

Fatal accidents

- In 2022, there were 79 **fatal accidents** leading to the death of a victim within one year of the accident in the HeSCare sector (29 in healthcare, 18 in residential care, 31 in social work).
- The fatal accident incidence rate in the HeSCare sector remained stable over 10 years (0.38 in 2012 to 0.36 in 2022), with a brief increase in 2020 due to the COVID-19 pandemic.
- Although the majority of workers are **females**, **males** account for more than half of all fatal accidents.
- Over the last 10 years, the most common types of **fatal injuries** are: wounds and superficial injuries; bone fractures; concussions and internal injuries; and multiple injuries. The effects of sound, vibration and pressure became less common, whereas poisoning and infections have become more common.

One of the specific objectives of this study was to assess the reasons for the high prevalence of non-fatal accidents over the years. Analysis of ESAW data alone – because of its limitations – does not allow us to provide an answer to this question. However, findings from EU-OSHA's 2024 study 'OSH in figures in the HeSCare sector' can help to address this question. Generally, in the HeSCare sector, all OSH risks are present, with MSK risks and PSRs having a particularly high prevalence. Moreover, these OSH risks interact with each other, which also contributes to making the HeSCare sector a high-risk sector in terms of work-related accidents. There are also additional factors that could help explain why the prevalence of accidents is high (such as digitalisation, the ageing population and the ageing workforce).

Main types of accidents at work in the HeSCare sector

Based on a triangulation of evidence (data, literature review and stakeholder consultations), the following types of accident can be distinguished in the study:

- slips, trips and falls (STFs),
- sharp and needlestick injuries,
- accidents due to workplace violence,
- accidents due to physical overload,
- accidents when operating machinery,
- accidents resulting in exposure to hazardous substances and biological agents, and
- accidents with vehicles in the course of work.

For each accident a description is prepared including: the causes and related risk factors; the groups of workers most affected; the health outcomes on workers; and practice and guidance on how accidents can be prevented (including examples of good practices).

Prevention measures

For this study, a cause-and-effect model has been developed based on the Swiss cheese model (SCM)². The SCM determines three categories of prevention measures: **technical** (relating to the physical environment and equipment as well as upkeep and necessary measures to ensure a safe working environment), **organisational** (relating more generally to how work is organised and what employers can do), and **human behaviour** (related to personnel and how they can behave to prevent accidents).

Based on the accident descriptions presented in the study, an overall summary of prevention measures is presented here.

² The Swiss cheese model (SCM), as first introduced by James Reason in 1987-1988, was heavily relied on to develop the cause-effect model used in this study. Since its conception, the SCM has been applied in several different fields to evaluate accident causations and to develop risk analyses and risk management practices. According to the SCM, organisations/institutions have several layers of barriers to prevent accidents from occurring. Naturally, the types of barriers can depend on the field where the SCM is being applied, and in the context of this study, the barriers have been divided into three types: organisational, human behaviour and technical. While each of these barriers can prevent accidents, they can also have 'holes' that can increase the chances of an accident occurring. Accordingly, whenever a hole from one barrier aligns with a hole from another barrier, the chances of an accident occurring increases. Based on the SCM, accidents ultimately occur when all three types of barriers have been bypassed. As such, when one barrier fails, another has the potential of upholding safety and preventing accidents.

Technical prevention measures

- Ensure that workspaces are ergonomic and safe by focusing on the proper layout and design of workspaces (including ambulances and laboratories) in light of the activities being conducted.
- Ensure regular maintenance and upkeep of medical equipment and vehicles.
- Implement technical solutions aimed at addressing specific risks such as the use of safety-engineered devices, appropriate disposal containers and decontamination areas.
- Check that different elements of the work environment meet appropriate standards for safe work, such as making sure floors are not slippery and do not have holes.

Organisational prevention measures

- Develop clear safety policies and protocols that implement standard operating procedures for activities that are identified to have a high risk of accident, based on risk assessments.
- Implement health surveillance and monitoring, which monitors, for example, workers' exposure to risks, and provides medical follow-up when necessary.
- Provide appropriate workforce planning and shift management to avoid fatigue, overwork and/or working alone.
- Establish easy-to-use systems for reporting accidents and near misses, ensuring they are followed by investigations and corrective action.
- Ensure cooperation among employers to ensure the appropriate implementation of health and safety standards as set out by EU law.
- Organise regular and up-to-date trainings for staff to adapt to their changing world of work and emerging risks.

Human behaviour prevention measures

- Ensure that workers have access to personal protective equipment and that they make proper use of gloves, masks, gowns and eye protection based on the risks identified for different activities.
- Reinforce adherence to rules, such as not recapping needles, careful handling of waste and safe patient-handling techniques.
- Promote a safety-first mindset through education, awareness-raising campaigns and peer support.
- Encourage clear and proactive communication among staff, especially in high-risk environments and/or activities.
- Discourage the normalisation of risky behaviours that may arise from familiarity or time pressure.
- Ensure staff are aware of risks and prevention measures so that they can better implement a safety culture in the workplace.

Impact on workers, organisations and societies

The SCM also demonstrates that accidents in workplaces can affect workers, organisations and society.

Impacts on workers

- Accidents at work in the HeSCare sector can lead to both physical and psychological health outcomes for workers. These include physical health outcomes such as bruises, cuts, fractures, back injuries, musculoskeletal injuries, burns, allergic reactions and infections like HIV and hepatitis, and psychological health outcomes such as emotional distress, anxiety, feelings of shame, anger, sadness and burnout.
- In the longer term, workers who experience an accident at work in the HeSCare sector may experience chronic conditions, absenteeism, presenteeism, permanent disability and lower work ability.
- For workers in the HeSCare sector, injuries resulting from accidents can also lead to lost wages or medical expenses.

Impacts on organisations

- Accidents at work in the HeSCare sector result in increased absenteeism and presenteeism, disrupting workflow and leading to operational inefficiencies. These inefficiencies often require remaining staff to take on additional tasks, potentially compromising the quality of patient care.
- Organisations must absorb costs related to medical treatment, compensation claims, preventive measures, additional staff training and return-to-work accommodations for vocational rehabilitation.

Impacts on society

- Workplace accidents create significant economic and social challenges across the EU.
- The time lost due to sick leave, combined with compensation payments, indicates a reduction in overall productivity, which can affect service delivery and increase strain on the healthcare system.
- Reduced quality of care and delays in services, especially in critical care, affect community health outcomes.
- The injuries sustained by healthcare workers not only affect individual employees but can also have wider societal repercussions, such as reduced healthcare availability.

Policy pointers

EU-level policy pointers

- Improve data collection and reporting conducted on accidents at work in the EU for informed policy action.
- Promote the adoption of a multi-layered prevention strategy, such as the SCM of accident causation (or similar such models) to encourage the implementation of technical, organisational and human behaviour prevention measures.
- Encourage continuous training and skills development to build a safety culture throughout Member States.
- Encourage Member States to better address psychosocial and organisational risk factors when preventing or analysing accidents at work.
- Strengthen workforce sustainability by tackling staff shortages and demographic challenges.
- Provide guidance and set standards to enable a safe and supportive digital transition in HeSCare.
- Enable the exchange of knowledge and experiences between Member States.
- Implement EU-targeted initiatives such as research, funding and campaigns to protect workers' health and to safeguard the quality of care and public health.

National- and sectoral-level policy pointers

- Stimulate the implementation and updating of comprehensive risk assessments and accident analyses in HeSCare.
- Encourage and reinforce the behaviour of reporting accidents by workers to enable further analysis within HeSCare workplaces.
- Invest in safer equipment, infrastructure and technologies that can be supported by national programmes or funding.
- Provide regular safety training for all workers.
- Ensure that staffing levels and work schedules do not lead to excessive workloads and are reasonable.
- Explicitly implement psychosocial risks and violence prevention into workplace safety programmes. This can be done by employers as well as national authorities.
- Ensure that safety measures are tailored to the specific needs of healthcare, residential care and social work.
- Improve monitoring, enforcement and continuous improvement in safety management at both national and sectoral level.

1. Introduction

1.1 Objectives, scope and goals of this report

1.1.1 Objectives of the study

It is recognised that the health and social care (HeSCare) sector and its activities play a very important role in the overall health and wellbeing of society in the EU. Furthermore, given its scale and importance, the HeSCare sector is also a very important source of employment for numerous people, and it has a significant impact on the Union's economy. As of 2022, over 21 million people are employed in this sector with 12 million being employed in healthcare, 4 million in residential care and 5 million in social work (EU-OSHA, 2024a).

This study contributes to a major research activity currently being carried out by the European Agency for Safety and Health at Work (EU-OSHA) regarding the HeSCare sector. This research activity aims to provide evidence-based knowledge on the diverse challenges faced by the sector when it comes to the safety and health of its workers in order to increase awareness and guide the policymaking process. In this specific study the focus is put on accidents at work in the sector. The specific objectives of this study are as follows:

Box 1: Specific objectives pursued by this study

- To provide an answer to the general question: **why the prevalence of non-fatal accidents is so high in the HeSCare sector and why the accident rate remains high over the years** (when the tendency — for most of the other sectors — is to decrease).
- To provide a **comprehensive overview about accidents at work in the HeSCare sector** (including, among others, the most common types of accidents and the impact of the accidents on HeSCare workers, their organisations and the society as a whole).
- To provide a **comprehensive overview of accident prevention in the sector**: from occupational safety and health (OSH) management/accident prevention management and development of a safety culture to the preventive measures to be adopted to address accidents in the sector.
- To **increase visibility and awareness about the impact organisational risks or psychosocial risks (PSRs)** may have on the occurrence of accidents at work in the sector.
- To provide policymakers, social partners, OSH practitioners and researchers with a **better understanding and a comprehensive, cross-national insight into the state of art in accident prevention in the sector**.
- To contribute to **identifying gaps in terms of research and knowledge** when it comes to the prevention of work-related accidents in the sector.

Source: Study Tender Specifications

The main target groups of this study are policymakers at EU and national levels, which includes the European Commission and other EU institutions as well as active social partners and public authorities within the EU. The secondary target groups of this study are OSH researchers, experts and practitioners.

As part of the study, good practices have been identified and presented in short boxes in this report. Four practices have been studied more in-depth and are published separately from this report. These long case studies cover the following practices:

- How EU Member States can raise awareness to protect against workplace violence towards healthcare professionals.³
- 'Back school'— a Spanish initiative to protect back health among workers in residential care, Gestión de Servicios Residenciales Sociedad Cooperativa (GSR S Coop, Spain).⁴
- The new Dutch approach to investigating and learning from accidents, Netherlands Labour Authority

³ Available at: <https://osha.europa.eu/en/publications/raising-awareness-prevent-workplace-violence-against-healthcare-professionals>

⁴ Available at: <https://osha.europa.eu/en/publications/back-school-spanish-initiative-protect-back-health-among-workers-residential-care>

(NLA), the Netherlands.⁵

- Home and residential care in France — how the TutoPrév' approach prepares new hires and supports teachers, French National Research and Safety Institute (INRS), France.⁶

1.2 Scope of the sector

This study is focused exclusively on the **HeSCare sector** (NACE code Q). In the EU, the HeSCare sector is composed of three separate types of overarching activities: healthcare activities (NACE code Q86), residential care activities (NACE code Q87) and social work activities (NACE code Q88). Together, the three subsectors encapsulate several different types of work, including: hospital activities, specialist medical practice activities and dental practice activities (NACE code Q86); residential nursing care activities, and residential care activities for the elderly and disabled (NACE code Q87); and social work activities without accommodation for the elderly and disabled, and child day-care activities (NACE code Q88). Table 1 provides a more detailed overview of the activities in each subsector.

Table 1: Main sectors comprising HeSCare activities (NACE Rev. 2 Section I)

Division	Class	Description
Q86 - Human health activities (Referred to as: <i>Healthcare</i>)	Q86.1	Hospital activities
	Q86.2	Medical and dental practice activities
	Q86.2.1	General medical practice activities
	Q86.2.2	Specialist medical practice activities
	Q86.2.3	Dental practice activities
	Q86.9	Other human health activities
Q87 - Residential care activities (Referred to as: <i>Residential care</i>)	Q87.1	Residential nursing care activities
	Q87.2	Residential care activities for mental retardation, mental health and substance abuse
	Q87.3	Residential care activities for the elderly and disabled
	Q87.9	Other residential care activities
Q88 - Social work activities without accommodation (Referred to as: <i>Social Work</i>)	Q88.1	Social work activities without accommodation for the elderly and disabled
	Q88.9	Other social work activities without accommodation
	Q88.9.1	Child day-care activities
	Q88.9.9	Other social work activities without accommodation n.e.c.

Source: Eurostat's NACE classification

In the context of this report, simplified terms are used — human health activities are referred to as **healthcare**; residential care activities are referred to as **residential care**; and social work activities without accommodation are referred to as **social work**.

⁵ Available at: <https://osha.europa.eu/en/publications/new-dutch-approach-investigating-and-learning-accidents>

⁶ Available at: <https://osha.europa.eu/en/publications/home-and-residential-care-france-how-tutoprev-approach-prepares-new-hires-and-supports-teachers>

1.3 Cause–effect model used in the context of this research

To better understand the mechanisms concerning accidents at work in the HeSCare sector, a cause–effect model was developed in the context of this study. The Swiss cheese model (SCM), as first introduced by James Reason in 1987-1988, was heavily relied on to develop the cause–effect model used in this study (Reason et al., 2006). Since its conception, the SCM has been applied in several different fields to evaluate accident causations and to develop risk analyses and risk management practices. The conceptual model is adapted to this assignment and presented in Figure 1.

The risk assessment forms the base for preventing OSH risks at the workplace (EU-OSHA, 2015). A risk assessment is defined as ‘the relationship between the likelihood of an event occurring and the severity of the possible consequences: work accident, occupational or occupational-related disease’ (Boariu et al., 2020, p. 410) and is based on two parts:

- the collection of all risk factors in the work system (work equipment, work environment, tasks, etc.); and
- quantifying their impacts based on the following parameters: severity and frequency of the maximum possible consequences on the human body (Boariu et al., 2020).

The risk assessment is mandated by EU legislation (EU-OSHA, 2015). Its role is emphasised in Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work (the Framework Directive), setting guidelines to be followed by all employers (Council of the European Union Directive 89/391/EEC, 1989a).

In the directive, it is stipulated that: ‘The employer shall:

- (a) be in possession of an assessment of the risks to safety and health at work, including those facing groups of workers exposed to particular risks;
- (b) decide on the protective measures to be taken and, if necessary, the protective equipment to be used;
- (c) **keep a list of occupational accidents resulting in a worker being unfit for work for more than three working days;**
- (d) **draw up, for the responsible authorities and in accordance with national laws and/ or practices, reports on occupational accidents suffered by his workers.’**

Member States have the discretion to establish stricter provisions to protect their workers, in line with EU legislation. The risk assessment is a process that must represent all parties to a work setting. Respectively, it must not be conducted unilaterally by the employer alone. The employees’ perspectives are crucial, but so are the perspectives of external employees (cleaners, private security guards, maintenance workers) and outsiders (clients, visitors, passers-by). In situations where multiple enterprises share one workplace, employers should collaborate when conducting risk assessments. The risk assessment is the key first step to establishing preventive measures in the workplace acting as the stepping stone for successful safety and health management and as a building block for other measures (EU-OSHA, 2008).

According to the SCM, organisations/institutions have several layers of barriers to prevent accidents from occurring. Naturally, the types of barriers can depend on the field where the SCM is being applied, and in the context of this study, the barriers have been divided into three types:

- organisational,
- human behaviour, and
- technical.

While each of these barriers can prevent accidents, they can also have ‘holes’ that can increase the chances of an accident occurring. Accordingly, whenever a hole from one barrier aligns with a hole from another barrier, the chances of an accident occurring increases. Based on the SCM, accidents ultimately occur when all three types of barriers have been bypassed. As such, when one barrier fails, another has the potential of upholding safety and preventing accidents. In the context of this model therefore, the best approach for prevention is to either implement new types of barriers or to strengthen pre-existing barriers, both of which should ultimately diminish the risks and occurrence of accidents

Determining what new barriers can be implemented or how pre-existing barriers can be strengthened depends on the execution of risk assessments and accident analyses.

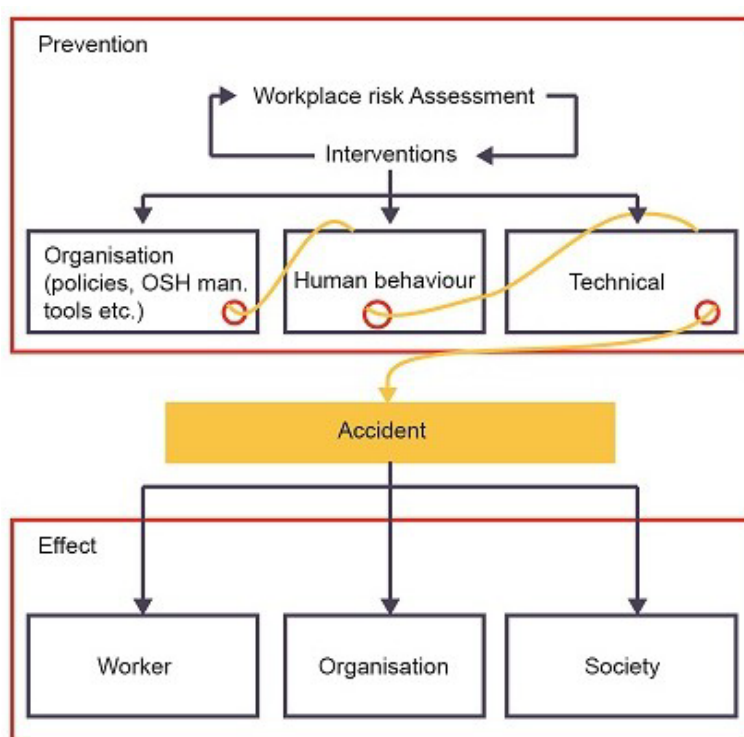
When an accident does occur, effects can then be felt by three types of stakeholders:

- the involved worker,
- the organisation/institution, and
- society at large.

Through the SCM, it is assumed that the effects of the accident on these stakeholders will be considered when developing policies and practices to prevent accidents.

A visual representation of the application of the SCM in the context of this study can be seen in Figure 1.

Figure 1: Cause–effect model for accidents at work in the HeSCare sector



Source: Swiss Cheese Model (Erik Hollnagel et al., 2006), adapted by Panteia and vhp, 2025

1.4 Methodology used

To answer the different research questions outlined above and to meet the objectives of this study, a mixed methodological approach was used, comprising the following three main methods.

1.4.1 Data processing and analysis

To gain a better insight into the situation of accidents at work in the HeSCare sector in the EU, this study started with analysing data from the European Statistics on Accidents at Work (ESAW). In this database, information on a wide variety of elements concerning accidents at work are provided. Accordingly, the data relevant for this study were extracted and then analysed to determine the rate of accidents at work in the HeSCare sector, the types of accidents, the individuals affected by these accidents, the causes and circumstances linked to these accidents, and the types of injuries inflicted by these accidents.

Other data sources used in the context of this study are the European Survey of Enterprises on New

and Emerging Risks (ESENER), the European Working Conditions Telephone Survey (EWCTS), the EU Labour Force Survey (LFS) and the EU-OSHA OSH Pulse survey.

1.4.2 Review of studies and literature

Desk research was conducted to collect relevant information on accidents in the HeSCare sector and its subsectors focusing on studies and grey literature carried out in the last 10 years and some beyond.

1.4.3 Stakeholder consultation

Finally, in-depth interviews were carried out with selected stakeholders, some to provide general information regarding accidents at work in the sector, and some in the context of the good practices that have been studied more in-depth.

- Ordem dos Enfermeiros (Union of Nurses), Portugal
- Bordeaux University Hospital (CHU de Bordeaux), Occupational Health Psychologist, France
- INRS – department ‘Help and care for the person’, France
- INRS – ‘Design and development of Health and Safety Training Programme’, France
- NLA, the Netherlands
- Berufsgenossenschaft für Gesundheitsdienst und Wohlfahrtspflege (BGW), Germany
- GSR S Coop, Spain
- Regional Health Authority of Castille and Leon (SACYL) – department Occupational Health and Safety Service, Spain
- University of Obuda, Faculty of Mechanical and Safety Engineering, Hungary

1.5 Overview of the structure of the report

This report is divided into five chapters. **Chapter 2** presents the state of play regarding accidents at work in the HeSCare sector based on data on non-fatal and fatal accidents collected by Eurostat through ESAW. Data are presented on the evolution of the number of accidents during the last 10 years, the causes and circumstances under which these accidents took place, and the effects and health outcomes. Where possible, data are presented by subsector and by type of worker (gender and age). **Chapter 3** provides a detailed description of the accidents based on the most common risk factors and hazards identified in the framework of this study and to which workers in the HeSCare sector are exposed. It also provides measures to be taken to prevent these accidents. For each type of accident, good practices of prevention measures are presented. Based on the information provided in Chapters 2 and 3 as well as through additional desk research, the impact of non-fatal accidents on workers, organisations and society is presented in **Chapter 4**. Finally, **Chapter 5** includes the main conclusions and policy pointers as to how accidents in the EU in the HeSCare sector can be prevented.

Annex 1, the Methodological annex, provides more details on how the ESAW database has been used, and Annex 2 presents the results of an analysis of changes over time in the distribution of different causes and circumstances by gender and age group.

2. State of play regarding accidents at work in the HeSCare sector – ESAW data

2.1 Introduction

This chapter presents the state of play of fatal and non-fatal accidents at work in the HeSCare sector in the EU based on ESAW. The objective of this chapter is to provide insights into the evolution of accidents at work in the HeSCare sector during the past 10 years (mainly focusing on non-fatal accidents).

ESAW statistics contain harmonised data on accidents at work from all EU-27 Member States. The data are collected at national level by the Member States. ESAW is the only database that collects data on accidents that include all EU Member States on an annual basis.

Within the ESAW database, an accident at work is defined as ‘a discrete occurrence in the course of work which leads to physical or mental harm’. The data include only fatal accidents (accidents leading to the death of a victim within one year of the accident) and non-fatal accidents involving at least four

full calendar days of absence from work. This definition means that the accidents registered are accidents with relatively more severe consequences. As such, they underestimate the total number of accidents that actually take place at the workplace (as accidents that do not lead to any absence, or to absence of three days and less, are not included in the figures). Therefore, the number of accidents, the causes and circumstance, and the effects and impacts of these accidents are not comparable with data used in studies that use other definitions of accidents.

In this chapter, data are presented on the number of accidents and on the incidence rates (the number of accidents per 100,000 workers). When data on the number of accidents over time are presented, special care must be taken on how to interpret these numbers. Changes over time in the number of accidents are the result of two different variables:

- changes in the number of accidents per 100,000 workers, and
- changes in the total number of workers.

Since the ESAW database does not distinguish between these two variables, trends in the evolution of the number of accidents are to be interpreted with care.⁷ In the case of fatal accidents, statistics on the number of fatal accidents may provide better insight into the matter than incidence rates, because of the low number of fatal accidents in the HeSCare sector.

In the case of changes over time, the evolution is presented over a 10-year period (2012-2022). As well as the most recent available data — data for 2022 — data are presented for 2012 and 2019. The reasoning behind the selection of these years is that in 2020, Eurostat created a new code in the ESAW database to capture occupational COVID-19 cases (where possible). This has led to a break in the time series for 2020, as indicated in all of the ESAW tables provided by Eurostat. In the case of data on causes and circumstance of accidents at work, data will only be presented for 2019 and 2022. Since these data are only available from 2014 onwards, it is not possible to present data for 2012 on these topics.

Eurostat indicates that data on non-fatal accidents are considered of limited comparability across certain groups of countries. This is due to expected under-reporting in some countries and different insurance systems between countries. More information on ESAW is included in the methodological note included in Annex 1.

In section 2.2, data for **fatal accidents** are presented on:

- all NACE activities and HeSCare sector and subsectors over the last 10 years (number of accidents and incidence rates);
- gender and age group, in 2019 and 2022 (number of accidents and incidence rates);
- size class, over the last 10 years (number of accidents); and
- type of injury and part of body injured, over the last 10 years (number of accidents).

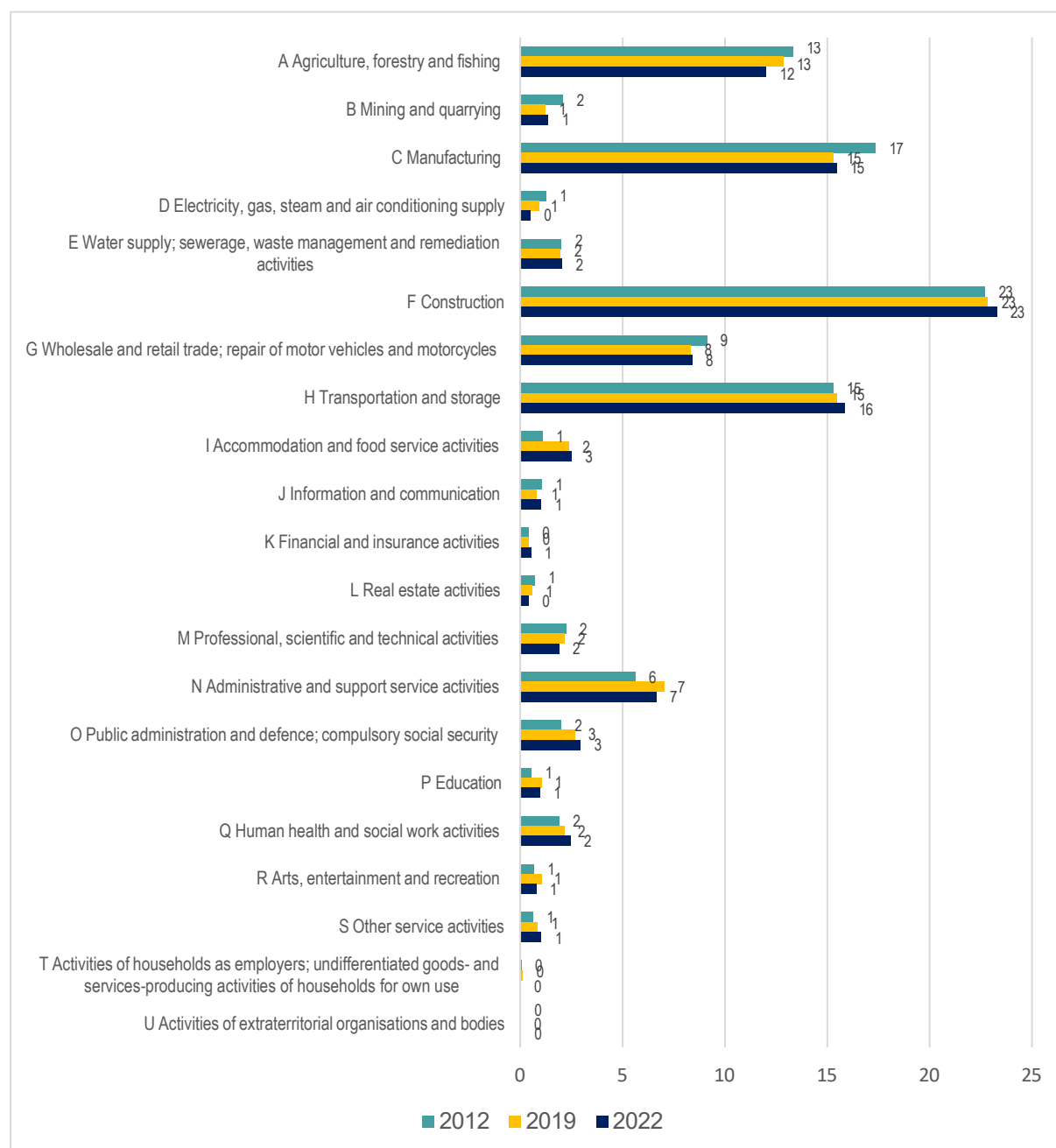
In section 2.3, data for **non-fatal accidents** are presented on:

- all NACE activities and HeSCare sector and subsectors:
 - in total, over the last 10 years;
- HeSCare subsectors by gender, over the last 10 years (incidence rates);
- size class, over the last 10 years (number of accidents);
- causes and circumstances of accidents at work in 2022 (% of non-fatal accidents); and
- effects and health outcomes.

2.2 Fatal accidents in the HeSCare sector

The distribution of fatal accidents at work in the EU-27 across all sectors shows a very different picture, as can be seen in Figure 2. The HeSCare sector accounts for approximately 2% of all **fatal** accidents in the EU-27 each year, a share that is considerably lower than the shares of the six sectors with the highest fatality rates during this period (construction; manufacturing; transportation and storage; agriculture, forestry and fishery; wholesale and retail trade; and administrative and support service activities).

Figure 2: Fatal accidents at work by NACE section, EU-27, 2012, 2019 and 2022 (% of fatal accidents)



Source: Panteia based on ESAW, version 27/01/2025

Note: Fatal accidents are defined as accidents leading to the death of a victim within one year of the accident.

In 2022, the total number of fatal accidents among workers in the EU-27 was 3,286. Of these accidents, 79 took place in the HeSCare sector (29 in healthcare, 19 in residential care and 31 in social work) (see Table 2). While the number of fatal accidents in all NACE activities has decreased from 2012 to 2022 (by 13%), the number of fatal accidents within the HeSCare sector has increased (by 14%). Although this indicates an increase in the share of all fatal accidents that occur within the HeSCare sector (from 1.8% to 2.4%), the share remains very small (as can also be seen in Figure 2).

Table 2: Fatal accidents at work in all NACE activities and HeSCare sector and subsectors, EU-27, 2012, 2019 and 2022 (number of accidents)

Sector	2012	2019	2022
Total – all NACE activities	3,757	3,408	3,286
All NACE activities excluding HeSCare sector	3,688	3,337	3,207
Q HeSCare sector	69	71	79
Q86 Healthcare	29	31	29
Q87 Residential care	11	17	19
Q88 Social work	29	23	31

Source: Panteia based on ESAW, version 27/01/2025

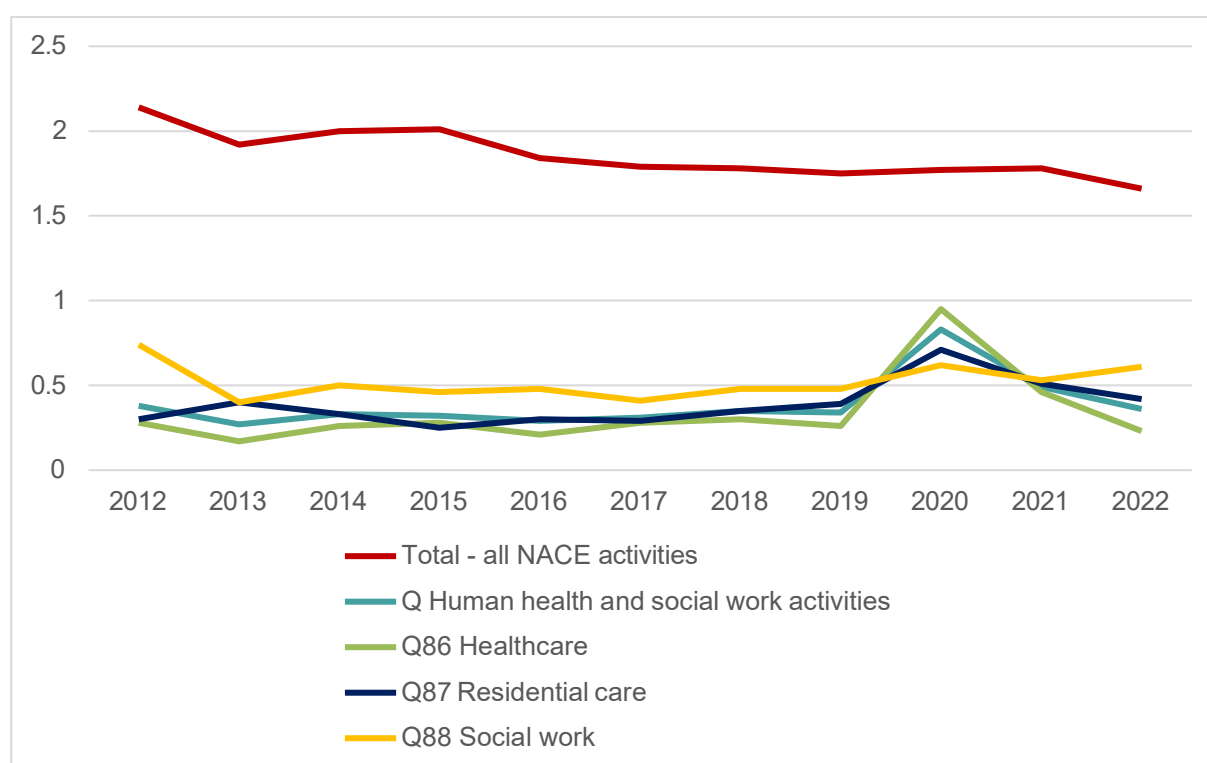
Note: Fatal accidents are defined as accidents leading to the death of a victim within one year of the accident.

The incidence rate of fatal accidents in the HeSCare sector in 2022 is somewhat lower than in 2012 (see Figure 3). This implies that **the increase in the number of fatal accidents in the HeSCare sector between 2012 and 2022 is solely due to the increase in the number of people working in the HeSCare sector.**

Between 2012 and 2022, the **incidence rates in the HeSCare sector remained fairly stable with an average of 0.39 recorded deaths per 100,000 persons in employment.** The year 2020 is an exception: in that year the incidence rate more than doubled to 0.83, which shows the impact of the COVID-19 pandemic. This impact only occurs in the HeSCare sector: while two of the three HeSCare subsectors show a similar **peak in the incidence rate of fatal accidents in the first year of the pandemic (2020)**, none of the other NACE sections show a similar peak in that year.

The evolution of the healthcare subsector between 2012 and 2022 is similar to the evolution of the HeSCare sector as a whole. In the **residential care subsector, however, the incidence rate was still higher in 2022 (0.42) than in 2012 (0.3), despite the decrease during the last two years.** The social work subsector shows a different pattern: rather than a sudden peak in 2022, the data indicate that **the incidence rate in social work is consistently higher from 2020 onwards.** In addition, throughout the examined period the incidence rate of fatal accidents is higher in social work than in the other two HeSCare subsectors (apart from 2020), although still considerably lower than across all NACE activities.

Figure 3: Fatal accidents at work in all NACE activities and HeSCare sector and subsectors, EU-27, 2012-2022 (incidence rates)



Source: Panteia based on ESAW, version 27/01/2025

Notes: Fatal accidents defined as accidents leading to the death of a victim within one year of the accident. Incidence rate: number of accidents per 100,000 workers.

Despite the fact that the majority of people working in the HeSCare sector are females, **males account for more than half of all fatal accidents at work in this sector** (Table 3). This is consistent with the finding that the incidence rate in the HeSCare sector is considerably higher for males than for females (although even the incidence rate for males is well below the incidence rate across all NACE activities).

Table 3: Fatal accidents at work in HeSCare sector by gender, EU-27, 2019 and 2022 (number of accidents and incidence rates)

Gender	Number of accidents		Incidence rates	
	2019	2022	2019	2022
Total	71	79	0.34	0.36
Males	43	45	0.86	0.90
Females	28	34	0.18	0.20
Unknown	3	0	n.a.	n.a.

Source: Panteia based on ESAW, version 30/04/2025 - n.a.: not available

Note: Fatal accidents are defined as accidents leading to the death of a victim within one year of the accident.

Looking at age, most fatal accidents at work in the HeSCare sector occur among people aged 25 years or older (Table 4). Although the number of fatal accidents is highest for the middle age group, the

incidence rates of fatal accidents are highest for the oldest age group (55 years or more), indicating that the **oldest age group is most likely to suffer from a fatal accident at work**. This age effect is not specific for the HeSCare sector but also applies to the economy as a whole (in 2022, the incidence rate of fatal accidents at work across all NACE activities was 0.94 for workers less than 25 years, 1.37 for the middle age group and 2.9 for the oldest age group (55 years or more)).

Table 4: Fatal accidents at work in HeSCare sector by age group, EU-27, 2019 and 2022 (number of accidents and incidence rates)

Age group	Number of accidents		Incidence rates	
	2019	2022	2019	2022
Total	71	79	0.34	0.36
Less than 25 years	1	1	0.07	0.06
From 25 to 54 years	42	43	0.29	0.29
55 years or over	28	34	0.59	0.65
Unknown	0	1	n.a.	n.a.

Source: Panteia based on ESAW, version 30/04/2025 -n.a.: not available

Note: Fatal accidents are defined as accidents leading to the death of a victim within one year of the accident.

The absolute number of fatal accidents in the HeSCare sector also varies by size class (Table 5). In 2022, the majority of fatal accidents took place in enterprises with 10 to 49 employees (22), in enterprises with 50 to 499 (21) and in enterprises with more than 500 employees (17). The number of fatal accidents in microenterprises (fewer than 10 employees) is 10. **Overall, the total number of fatal accidents in micro, small and medium-sized enterprises (SMEs) is higher than in larger enterprises (500 employees and more)**. This result holds for the last 10 years. This may be either because SMEs as a whole employ more employees or because the incidence rate is higher in this size class; the ESAW statistics offer no information about the relative importance of these two causes.⁷

Table 5: Fatal accidents at work in HeSCare sector by size class, EU-27, 2012, 2019 and 2022 (number of accidents)

Size class (Number of employees)	2012	2019	2022
Total	69	71	79
0-9	7	7	10
10-49	15	18	22
50-249	15	22	21

⁷ For several topics, including fatal and non-fatal accidents by size class, type of injury and part of body injured, information on the incidence rate is not available.

Size class (Number of employees)	2012	2019	2022
250-499	3	9	8
500 and more	27	12	17
Unknown	2	3	0

Source: Panteia based on ESAW, version 27/01/2025

Notes: Fatal accidents are defined as accidents leading to the death of a victim within one year of the accident. Incidence rates are not available for individual size classes.

Table 6 presents an analysis of data on the type of injury sustained when HeSCare workers in the EU-27 were involved in fatal accidents. In 2022, there was one particularly common injury, namely **concussions and internal injuries**. This was followed by three relatively common types, namely **multiple injuries, poisoning and infections, and wounds and superficial injuries**. In 2012, the effects of sound, vibration and pressure caused the majority of fatalities (13), while this was zero in 2019 and one in 2022.

Considering data over time, **the most common types of fatal injuries are wounds and superficial injuries, bone fractures, concussions and injuries, and multiple injuries**. The effects of sound, vibration and pressure have become less relevant in the last 10 years, whereas poisoning and infections have become more common. The discussion of the evolution over time is complicated by the decrease in the number (and share) of fatal accidents at work for which the type of injury is 'other not elsewhere mentioned'⁹ (from 17 in 2012 to five in 2019 and four in 2022) and the increase in the number (and share) of fatal accidents at work for which the type of injury is unspecified (from seven in 2012 to 30 in 2019 and to 33 in 2022).

Table 6: Fatal accidents at work in HeSCare sector by type of injury, EU-27, 2012, 2019 and 2022 (number of accidents)

Type of injury	2012	2019	2022
Total	69	71	79
Wounds and superficial injuries	3	5	5
Bone fractures	4	7	3
Dislocations, sprains and strains	1	2	1
Traumatic amputations (loss of body parts)	0	0	0
Concussions and internal injuries	9	5	13
Burns, scalds and frostbites	0	0	1
Poisonings and infections	1	1	6

⁹ The word 'elsewhere' is part of the ESAW label for the category 'other not elsewhere mentioned' (as can be seen in the associated table). This should not be confused with 'not mentioned': 'other not elsewhere mentioned' indicates that the type of injury is **not any** of the before-mentioned injury types, while 'not mentioned' suggests that any of the beforementioned injury types may apply.

Type of injury	2012	2019	2022
Drownings and asphyxiations	1	0	3
Effects of sound, vibration and pressure	13	0	1
Effects of temperature extremes, light and radiation	1	1	0
Shocks	4	3	2
Multiple injuries	8	11	7
Other not elsewhere mentioned	17	5	4
Unspecified	7	30	33

Source: Panteia based on ESAW, version 27/01/2025

Notes: Fatal accidents are defined as accidents leading to the death of a victim within one year of the accident. Incidence rates are not available.

In the last 10 years, the **most common parts of the body injured in fatal accidents in the HeSCare sector are: head, torso and organs, and whole body and multiple sites** (Table 7). Also here, the discussion of the evolution over time is complicated by the decrease in the number (and share) of fatal accidents at work for which the part of body injured is 'other not elsewhere mentioned' and especially the increase in the number (and share) of fatal accidents at work for which the part of body injured is unspecified.

Table 7: Fatal accidents at work in HeSCare sector by part of body injured, EU-27, 2012, 2019 and 2022 (number of accidents)

Part of body injured	2012	2019	2022
Total	69	71	79
Head	16	9	14
Neck, inclusive spine and vertebra in the neck	1	1	1
Back, including spine and vertebra in the back	0	1	1
Torso and organs	19	7	6
Upper extremities	0	2	2
Lower extremities	2	1	2
Whole body and multiple sites	14	19	12
Other parts of body injured, not mentioned above	6	2	2
Part of body injured not specified	11	28	39

Source: Panteia based on ESAW, version 27/01/2025

Notes: Fatal accidents are defined as accidents leading to the death of a victim within one year of the accident. Incidence rates are not available.

2.3 Non-fatal accidents at work in the HeSCare sector

This section focuses on non-fatal accidents in the EU-27, and where available, data on the three subsectors of healthcare, residential care and social work are provided.

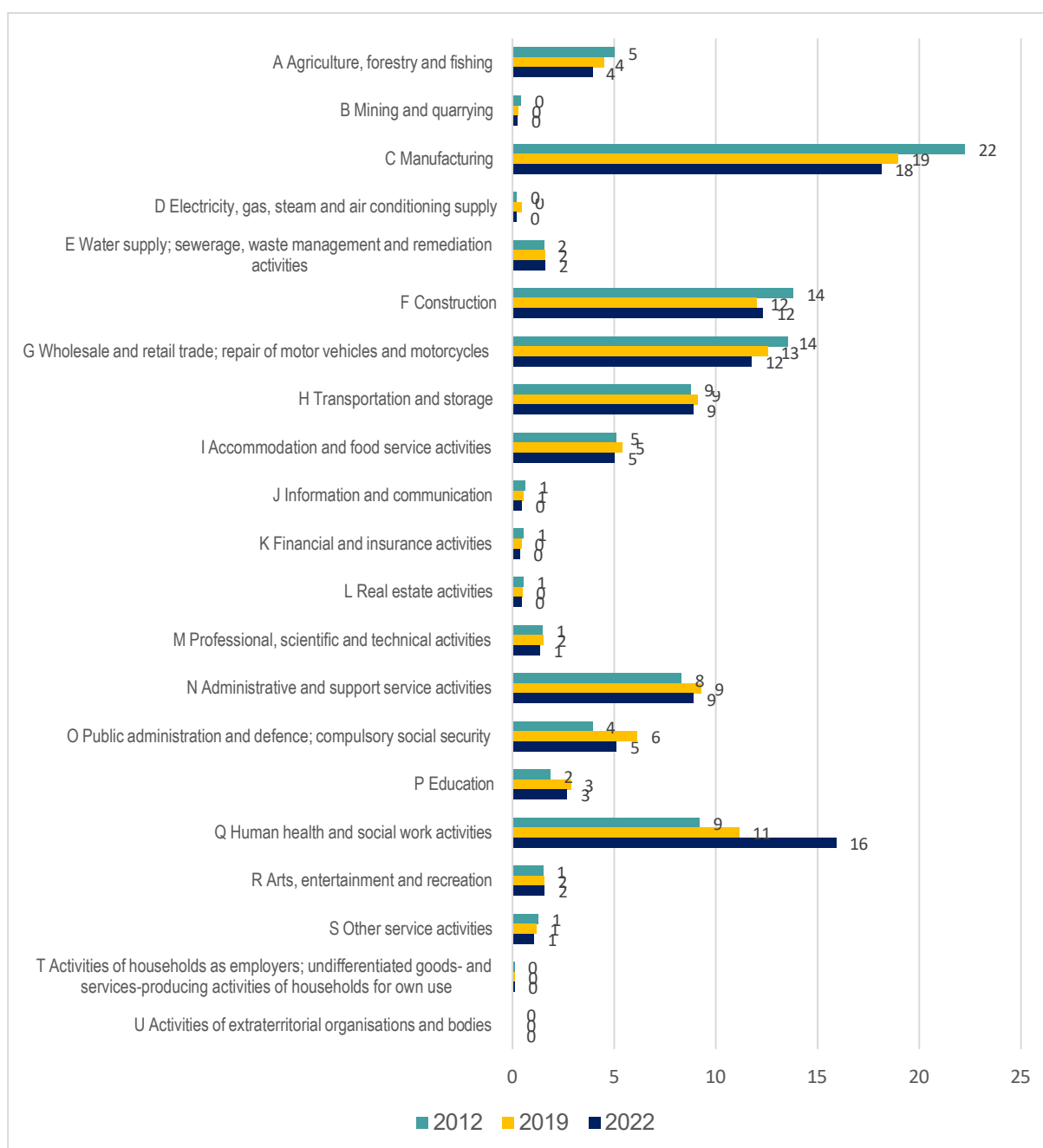
Data on non-fatal accidents at work are presented on:

- all NACE activities and HeSCare sector and subsectors:
 - in total, over the last 10 years;
- HeSCare subsectors by gender, over the last 10 years (incidence rates);
- size class, over the last 10 years (number of accidents);
- causes and circumstances of accidents at work in 2022 (% of non-fatal accidents); and
- effects and health outcomes.

Figure 4 shows the distribution of **non-fatal accidents** at work in the EU-27 across all sectors, and how this distribution has changed between 2012 and 2022. Throughout this period, manufacturing has been the sector with the highest share of non-fatal accidents, although its share is decreasing steadily over time. Two other sectors with consistently high shares of non-fatal accidents are construction and trade (wholesale and retail trade; repair of motor vehicles and motorcycles). Together, these three sectors accounted for 50% of all non-fatal accidents at work in the EU-27 in 2012, 43% in 2019 and 45% in 2022.

The HeSCare sector, in contrast, shows a marked increase over time. Whereas in 2012 the HeSCare sector accounted for 9% of all non-fatal accidents in the EU-27 (ranking fourth), this almost doubled to 16% in 2022 (partially due to the COVID-19 pandemic), effectively becoming the sector with the second-highest share (after manufacturing). This increase is mainly due to an increase in the number of non-fatal accidents in the HeSCare sector, and only to a small extent because of a decrease in the number of non-fatal accidents across all other sectors (as can be seen from Table 8 in section 2.3.1 on the number of non-fatal accidents across different sectors). Furthermore, the increase in the number of non-fatal accidents in the HeSCare sector is mainly due to an increase in the incidence rate and only for a small part due to an increase in the number of people working in the HeSCare sector. As can be seen in Figure 5 in section 2.3.1, there was an increase in the incidence rate of non-fatal accidents in the HeSCare sector in 2014, in 2020 (the year in which the first cases of COVID-19 were reported in the EU-27) and again in 2022. These figures therefore support the idea that the HeSCare sector continues to be a high-risk sector in terms of non-fatal accidents.

Figure 4: Non-fatal accidents at work by NACE section, EU-27, 2012, 2019 and 2022 (% of non-fatal accidents)



Source: Panteia based on ESAW, version 27/01/2025

Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work.

2.3.1 Non-fatal accidents: number and incidence rates

In 2022, the total number of non-fatal accidents among workers in the total economy in the EU-27 was 2,973,646. In the HeSCare sector, 469,685 non-fatal accidents took place, of which 234,202 took place in healthcare, 125,834 in residential care and 109,648 in social work (Table 8).

Table 8: Non-fatal accidents at work in all NACE activities and HeSCare sector and subsectors, EU-27, 2012, 2019 and 2022 (number of accidents)

Sector	2012	2019	2022
Total - all NACE activities	2,937,737	3,140,952	2,973,646
All NACE activities excluding HeSCare sector	2,674,015	2,796,333	2,503,961
Q HeSCare sector	263,722	344,619	469,685
Q86 Healthcare	108,491	140,243	234,202
Q87 Residential care	86,090	109,856	125,834
Q88 Social work	69,141	94,521	109,648

Source: Panteia based on ESAW, version 27/01/2025

Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work.

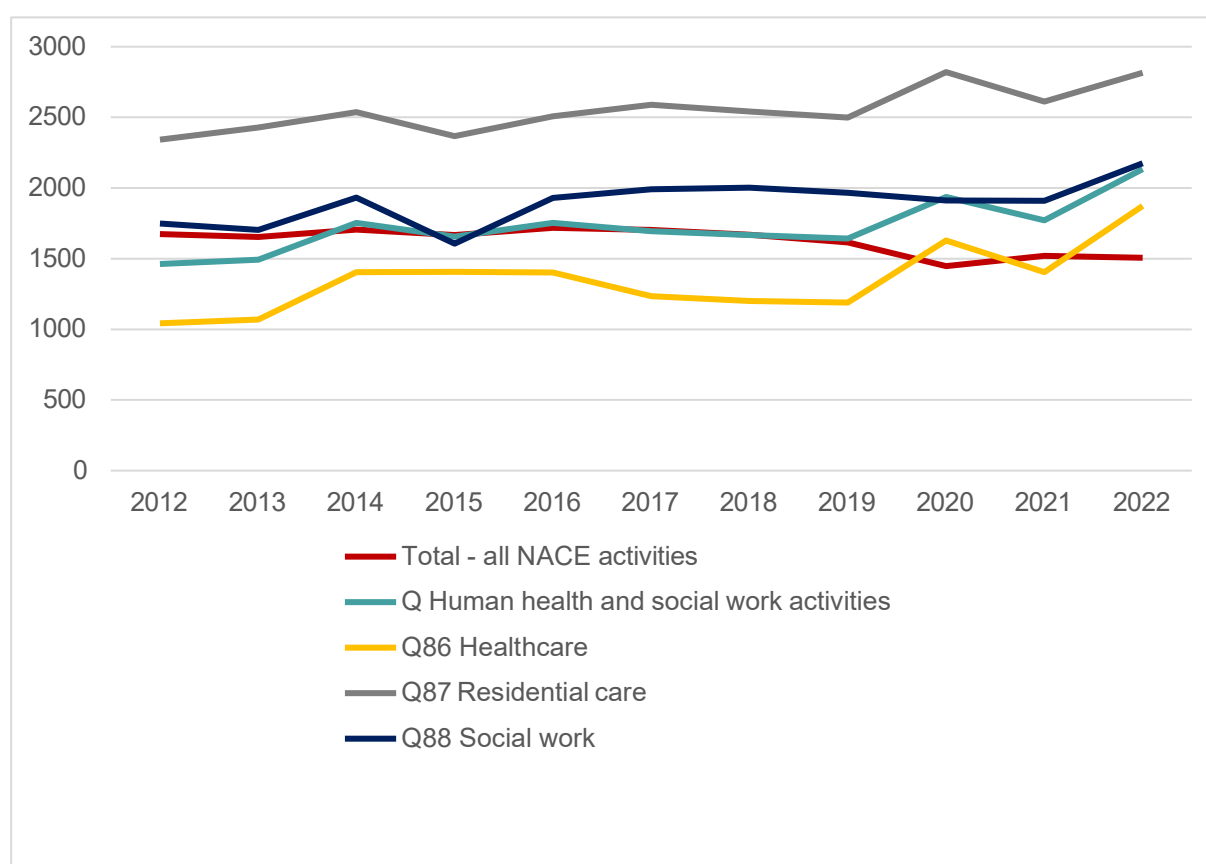
To compare results over time, incidence rates are used. On this basis, across all the sectors in the EU there was an average of 1,673 non-fatal accidents per 100,000 employed people in 2012 and an average of 1,507 non-fatal accidents per 100,000 employed people in 2022 (Figure 5). In particular, from 2020 onwards the incidence rates are consequently **lower** than before 2020. The COVID-19 pandemic offers a likely explanation for the decrease in average incidence rates, in particular for 2020 and 2021 during which many European countries introduced mandatory lockdowns in these years, resulting (among other things) in a reduction of hours worked (at the workplace and/or at home).

In the **HeSCare sector** however, **the incidence rate of non-fatal accidents has increased substantially from 2012 to 2022**. In 2012, there was an average of 1,462 non-fatal accidents per 100,000 employed people that increased to an average of 2,134 non-fatal accidents per 100,000 employed people in 2022. In particular, from 2020 onwards the incidence rates are consequently **higher** than before 2020. This increase may also be partially due to the COVID-19 pandemic. While the mandatory lockdowns may have covered part of the social work subsector (where the incidence rate decreased by 3% between 2019 and 2020), it did not cover the subsectors of residential care (where the incidence rate increased by 13% between 2019 and 2020) and healthcare (where the incidence rate increased by 37% between 2019 and 2020). Especially in these latter two subsectors, the risk of becoming infected with the COVID-19 virus may have been very high in these years.

Comparing the incidence rates in 2012 and 2022 in the three HeSCare subsectors, **the highest increase occurred in healthcare** (from 1,043 non-fatal accidents per 100,000 employed people in 2012 to 1,873 non-fatal accidents per 100,000 employed people in 2022; an increase of 80%). The increase for the other two subsectors was considerably lower (social work +24%, residential care +20%).

Looking at the level of the incidence rates in the three HeSCare subsectors for all years, the data show that for all years the incidence rate of non-fatal accidents per 100,000 employed people was highest in residential care (2,551 non-fatal accidents per 100,000 employed people on average) and lowest in healthcare (1,351 non-fatal accidents per 100,000 employed people on average).

Figure 5: Non-fatal accidents at work in all NACE activities and HeSCare sector and subsectors, EU-27, 2012-2022 (incidence rates)



Source: Panteia based on ESAW, version 27/01/2025

Notes: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work. Incidence rate: number of accidents per 100,000 workers.

2.3.2 Non-fatal accidents: groups of workers

In this section, data on non-fatal accidents are presented by gender, age group and enterprise size class. A discussion on gender/age group differences between different causes and circumstances is included in section 2.3.3 on 'Non-fatal accidents: causes and circumstances'.

Regarding enterprise size class, only data on the number of non-fatal accidents by HeSCare subsectors are available (no incidence rates, no further specification by gender, age group, or cause and circumstance).

By gender

In 2022, the incidence rate of non-fatal accidents in the total economy for male workers was 1,875 per 100,000 employed males and 1,087 per 100,000 employed females. Overall, the chance that employed males suffer a non-fatal accident is higher. **In the HeSCare sector however, the chances that male and female workers have an accident at work is almost even.** This holds also for the healthcare subsector. In social work and residential care, men are less at risk of having a non-fatal accident at work when compared to women (Table 9).

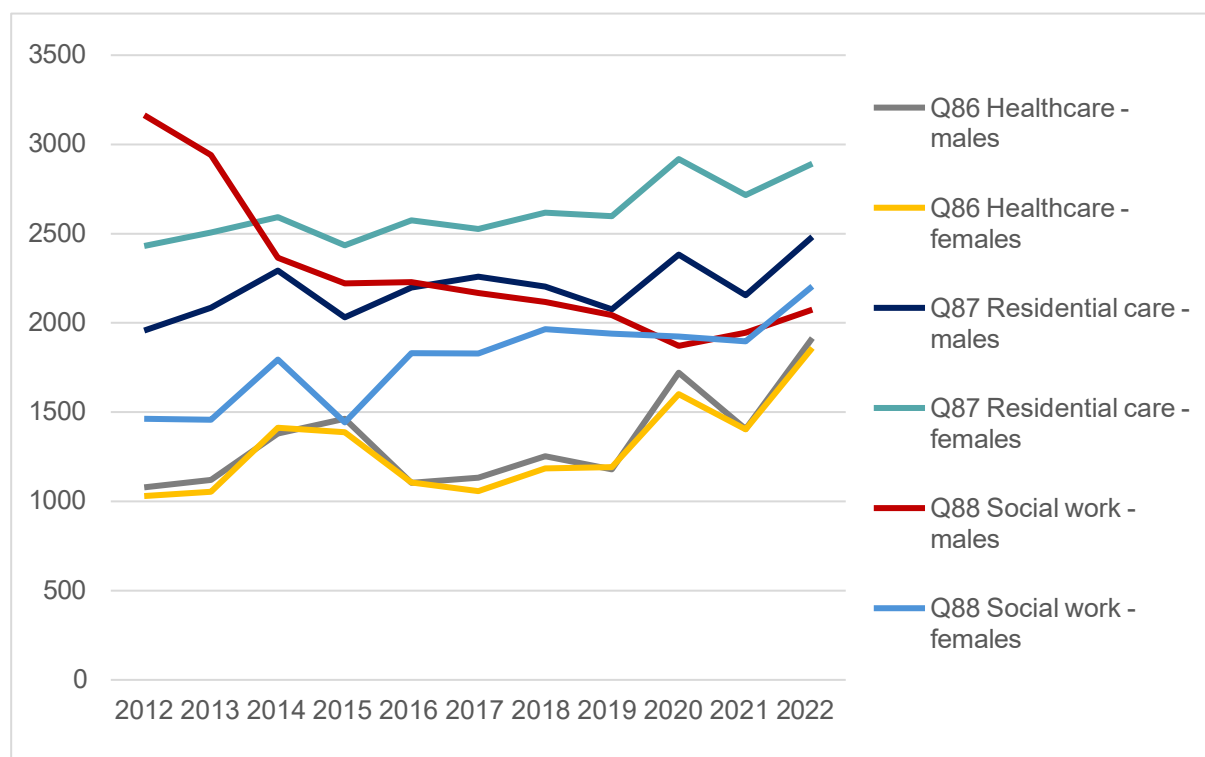
Table 9: Non-fatal accidents at work in all NACE activities and HeSCare sector and subsectors, EU-27, 2022 (incidence rates)

	Total	Males	Females
Total - all NACE activities	1,507	1,875	1,087
	Total	Males	Females
Q HeSCare sector	2,134	2,049	2,158
Q86 Healthcare	1,873	1,915	1,860
Q87 Residential care	2,816	2,482	2,892
Q88 Social work	2,175	2,075	2,205

Source: Panteia based on ESAW, version 27/01/2025

Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work.

In Figure 6, the evolution over time is presented. The figure does not provide clear trends that might be caused by the impact and registration of the COVID-19 pandemic. Data from 2012 to 2019 indicate that the chances that female workers in **social work** had a non-fatal accident at work increased and the chance that male workers had an accident at work decreased.

Figure 6: Non-fatal accidents at work in HeSCare sector and subsectors by gender, EU-27, 2012-2022 (incidence rates)

Source: Panteia based on ESAW, version 01/05/2025

Notes: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work. Incidence rate: number of accidents per 100,000 workers.

▪ By age group

Table 10 presents data on the incidence rates by age for 2022. Data for the total economy indicate that **workers between 18 and 24 years of age are most likely to be involved in a non-fatal accident (2,186 accidents per 100,000 workers), whereas this figure becomes lower and more stable over time in the older age groups.** Only for workers above 65 years of age is the incidence rate substantially lower, which is an interesting result considering that this group is expected to grow given the increase in retirement age.⁹

In the HeSCare sector, the difference between age groups is different. In the first three age categories, **the incidence rate is approximately the same, however this increases for the age groups 45-54 and 55-64. The various subsectors however show different patterns:** in healthcare the incidence rate increases with each of the first four age groups (after which it is more or less the same for the 45-54 age group and the 55-64 age group); in residential care the incidence rate varies across age groups and is relatively high for workers of more than 65 years of age; and in social work the incidence rate first decreases with age group (with the lowest incidence rate for the 35-44 age group) and then increases again.

Table 10: Non-fatal accidents at work in all NACE activities and HeSCare sector and subsectors by age, EU-27, 2022 (incidence rates)

	From 18 to 24 years	From 25 to 34 years	From 35 to 44 years	From 45 to 54 years	From 55 to 64 years	65 years or over
Total - all NACE activities	2,186	1,498	1,396	1,470	1,505	850
Q HeSCare sector	1,967	1,968	1,951	2,439	2,366	1,149
Q86 Healthcare	1,409	1,687	1,722	2,224	2,163	920
Q87 Residential care	2,771	2,809	2,636	3,037	2,876	2,134
Q88 Social work	2,511	2,049	1,939	2,414	2,341	1073

Source: Panteia based on ESAW, version 27/01/2025

Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work. Incidence rate: number of accidents per 100,000 workers.

▪ By enterprise size class

Across time, **enterprises with 500 employees or more in the HeSCare sector account for the highest number of non-fatal accidents at work as compared to all other size classes.** The share of this size class in the total number of non-fatal accidents in the HeSCare sector increased from 30% in 2012 and 2019 to 43% in 2022. Two possible causes for this increase are an increase in the employment share of these large enterprises and an increase in the incidence rate of non-fatal accidents in this size class (as compared to the other size classes). Unfortunately, the ESAW statistics offer no information about the relative importance of these two causes.¹⁰

⁹ Information on non-fatal accidents at work by NACE activity and age group is available for seven different age groups. All other ESAW tables that include age groups (e.g. on causes and circumstances) only include a differentiation between three different age groups (< 25 years; 25-54 years; 55 years or over).

¹⁰ For several topics, including fatal and non-fatal accidents by size class, type of injury and part of body injured, information on the incidence rate is not available.

Table 11: Non-fatal accidents at work in HeSCare sector by size class, EU-27, 2012, 2019 and 2022 (number of accidents)

Size class (Number of employees)	2012		2019		2022	
	Number	Pct	Number	Pct	Number	Pct
Total	263,722		344,617		469,685	
0	429	0.2%	400	0.1%	2,007	0.4%
1-9	14,859	5.6%	15,183	4.4%	16,981	3.6%
10-49	51,750	19.6%	71,273	20.7%	89,586	19.1%
50-249	75,392	28.6%	96,660	28.0%	112,363	23.9%
250-499	23,694	9.0%	32,175	9.3%	38,133	8.1%
500 and more	79,988	30.3%	104,786	30.4%	203,074	43.2%
Unknown	17,610	6.7%	24,141	7.0%	7,542	1.6%

Source: Panteia based on ESAW, version 27/01/2025

Pct: Number of accidents as percentage of total number of accidents in a year

Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work. Incidence rates not available.

2.3.3 Non-fatal accidents: causes and circumstances

Variables on the causes and circumstances of accidents at work supply additional information to identify where, and especially how, accidents occur, with the aim of establishing a suitable prevention policy. ESAW registers the following variables on causes and circumstances (European Commission/Eurostat, 2013):

1. Workstation
2. Specific physical activity
3. Deviation
4. Contact and mode of injury
5. Working environment
6. Working process
7. Material agent of specific physical activity
8. Material agent of deviation
9. Material agent of contact mode of injury

The first four causes and circumstances show to be the most relevant for this study, as also described in Annex 1, not all Member States provided data according to all the categories of the variables on causes and circumstances. This means that for a number of variables the share for which no information is available (not specified) is relatively high. This is especially true for the data on material agents and working process. Working environment is not selected because this variable does not provide new insights for the HeSCare sector (it mainly shows that the large majority of non-fatal accidents in the HeSCare sector take place in health establishments).

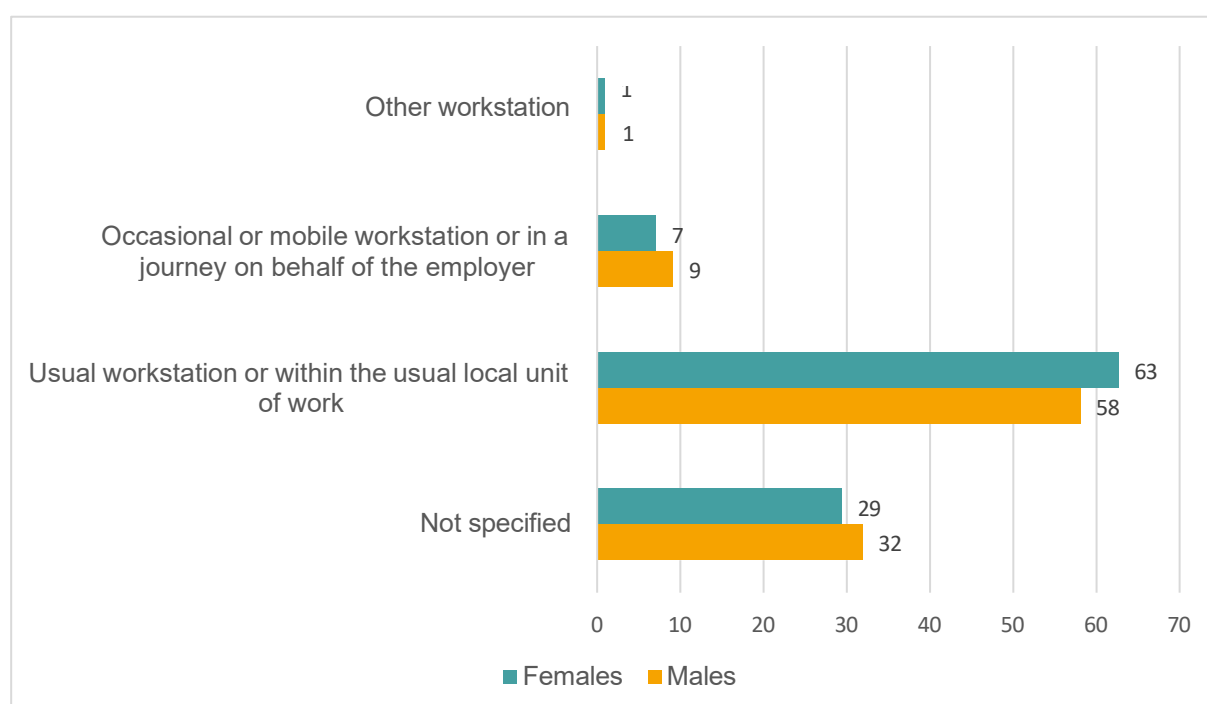
▪ Workstation

In 2022, the majority of non-fatal accidents (61.7%) in the HeSCare sector that took place at work in the EU occurred when a person was at their 'usual workstation' or within the usual local unit of work.

Additionally, 7.5% took place at an 'occasional workstation', jobs for which the workstation is mobile or occasional situations for people usually working at a fixed workstation like an occasional journey on behalf of the employer, and 0.9% took place at another workstation. For the remaining share of non-fatal accidents in the EU, the workstation has not been registered.

As Figure 7 shows, the share of female workers who had a non-fatal accident that took place at their usual workstation or within the usual local unit of work is higher than the share of male workers. The share of male workers who had an accident at an occasional or mobile workstation or during a journey made on behalf of an employer (these statistics exclude trips made to/from work) is slightly higher than the share of female workers.

Figure 7: Non-fatal accidents at work in HeSCare sector by workstation and gender, EU-27, 2022 (% of non-fatal accidents)



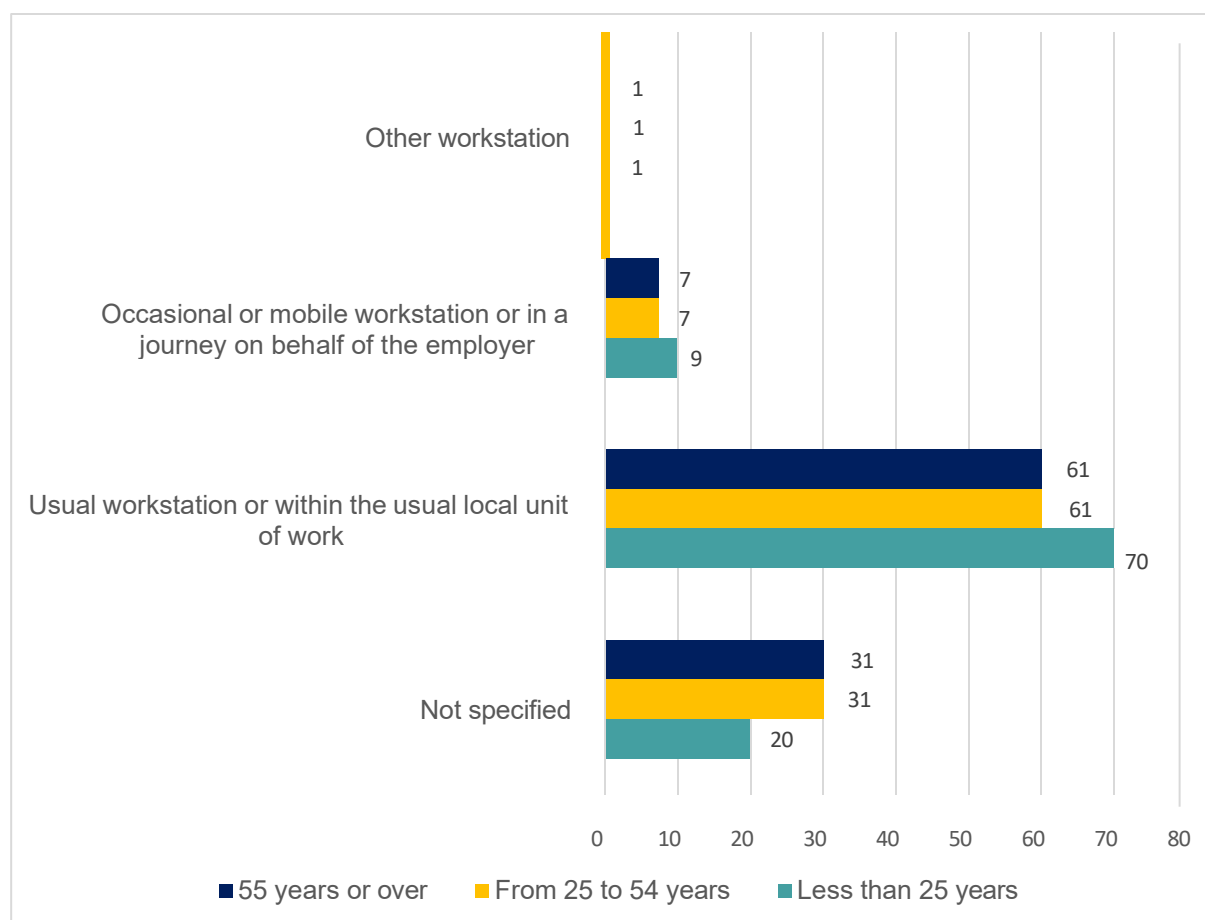
Source: Panteia based on ESAW, version 27/01/2025

Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work.

Figure 8 shows that the share of workers in **the age category 25 years and younger who had a non-fatal accident that took place at the workers' usual workstation or within the usual local unit of work is higher (70%)** than the shares of workers in the other two age categories (both 61%).

The share of workers in the **age category 25 years and younger who had an accident at an occasional or mobile workstation or during a journey made on behalf of an employer is slightly higher (9%)** than the shares of workers in the other two age categories (both 7%).

Figure 8: Non-fatal accidents at work in HeSCare sector by workstation and age group, EU-27, 2022 (% of non-fatal accidents)



Source: Panteia based on ESAW, version 27/01/2025

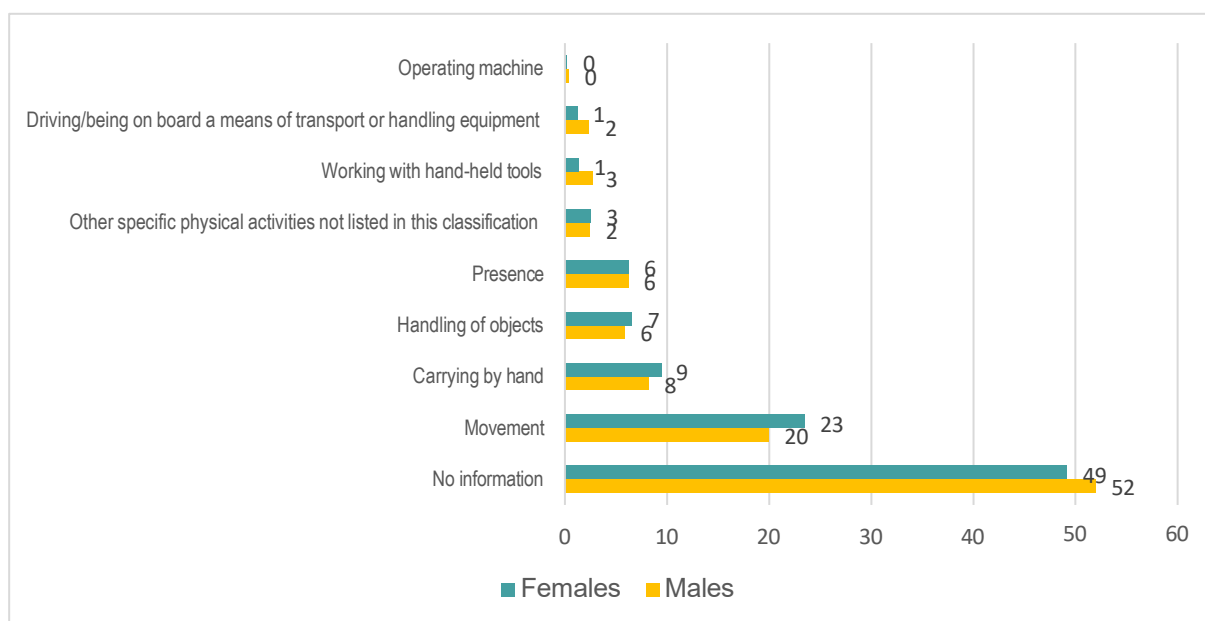
Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work.

▪ Specific physical activity that resulted in the accident

Data relating to accidents at work by specific physical activity concern what the worker was doing at the exact time of the non-fatal accident. **Almost a fifth (22.7%) of the non-fatal accidents at work that took place in the EU in 2022 in the HeSCare sector could be associated with the physical activity of movement** (movement by the victim: walking, getting into or out of a vehicle, moving (the legs or arms, etc.) on the spot, turning around, etc.) and around a tenth (9.2%) were linked to carrying something by hand. Other physical activities identified were handling of objects (6.4%), presence¹¹ (6.2%), working with handheld tools (1.6%), driving or being on board a means of transport or handling equipment (1.4%), or operating a machine (0.2%). As Figure 9 shows, the differences between male and female workers are very small.

¹¹ This code is used only when the injured person was physically doing nothing other than being present at the workstation: sitting at a desk, attending a meeting, discussing with a customer, eating at the table and so on.

Figure 9: Non-fatal accidents at work in HeSCare sector by specific physical activity that resulted in the accident and gender, EU-27, 2022 (% of non-fatal accidents)

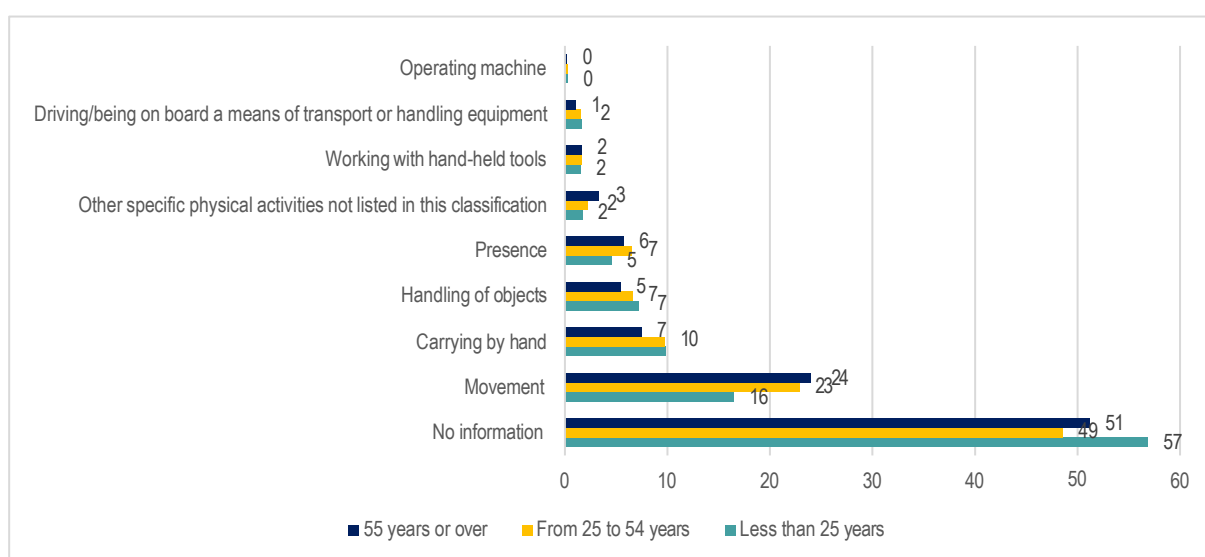


Source: Panteia based on ESAW, version 27/01/2025

Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work.

Figure 10 provides data related to the age of the workers and the specific physical activity that the worker was doing at the exact time of the non-fatal accident. The **non-fatal accidents at work that could be associated with the physical activity of movement is lower for workers of 25 years of age or younger**. The share of workers of 55 years of age or over who were carrying something by hand was slightly lower (7%) than the younger age categories (both 10%). The same holds for handling of objects (5% and 7%, respectively).

Figure 10: Non-fatal accidents at work in HeSCare sector by specific physical activity that resulted in the accident and age group, EU-27, 2022 (% of non-fatal accidents)



Source: Panteia based on ESAW, version 27/01/2025

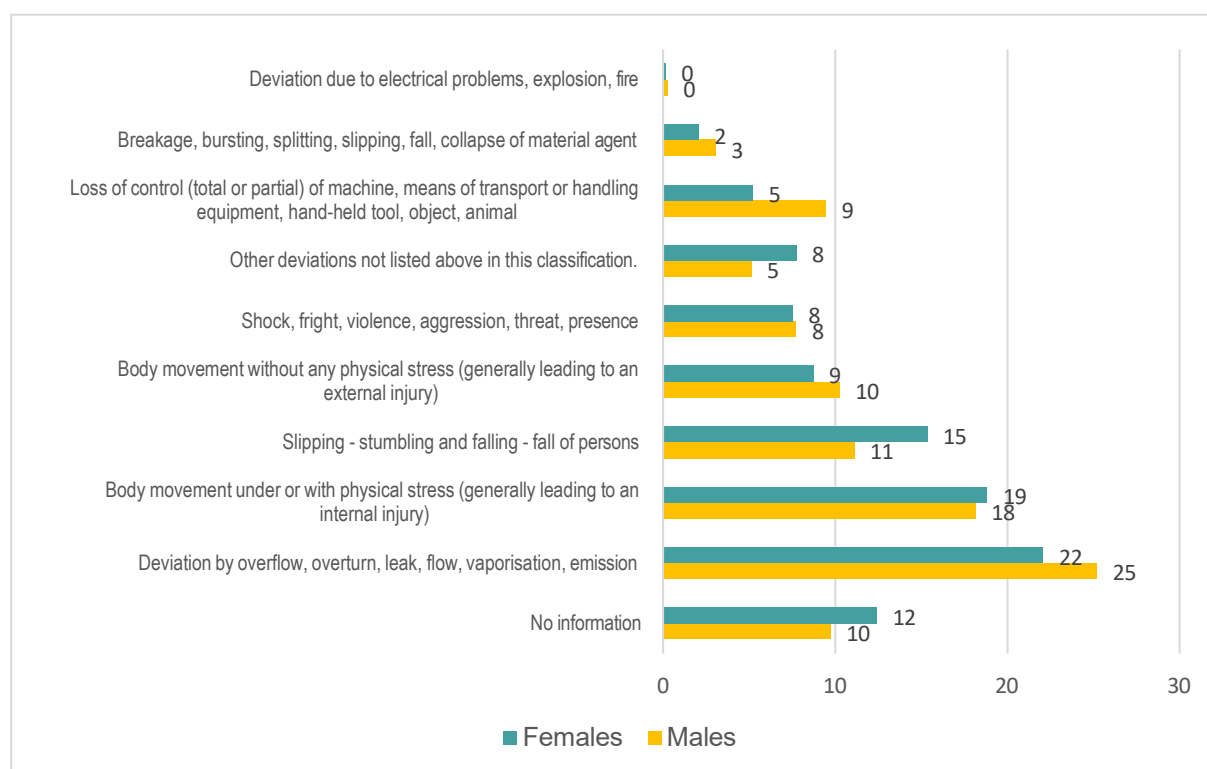
Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work.

■ Deviation

The deviation, also called the cause of an accident, is defined in terms of the last (abnormal) event differing from the norm that resulted in an accident. In 2022, **the most common causes that triggered non-fatal accidents at work in the EU in the HeSCare sector included overflow, overturn, leak, flow, vaporisation, emission (22.7%), body movement under or with physical stress (generally leading to an internal injury)¹² (18.7%), slipping, stumbling and falling, fall of persons (14.4%), body movement without any physical stress (generally leading to an external injury)¹³ (9.1%), shock, fright, violence, aggression, threat, presence (7.6%).** Less common causes were loss of control (total or partial) of machine, means of transport or handling equipment, handheld tool, object, animal (6.1%), breakage, bursting, splitting, slipping, fall, collapse of material agent (2.3%), electrical problems, explosion, fire (0.2%), and other deviations (not listed elsewhere) (7.2%). The share of non-fatal accidents at work in the EU in the HeSCare sector in 2022 for which no information on the cause is available was relatively small.

Figure 11 presents the data by gender. Among male workers, the accident is more often caused by **overflow, overturn, leak, flow, vaporisation, emission, and loss of control (total or partial) of machine, means of transport or handling equipment, handheld tool, object, animal.** Among **female workers**, the accident is more often than among male workers **caused by slipping, stumbling and falling, fall of persons.**

Figure 11: Non-fatal accidents at work in HeSCare sector by deviation and gender, EU-27, 2022 (% of non-fatal accidents)



Source: Panteia based on ESAW, version 27/01/2025

Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work.

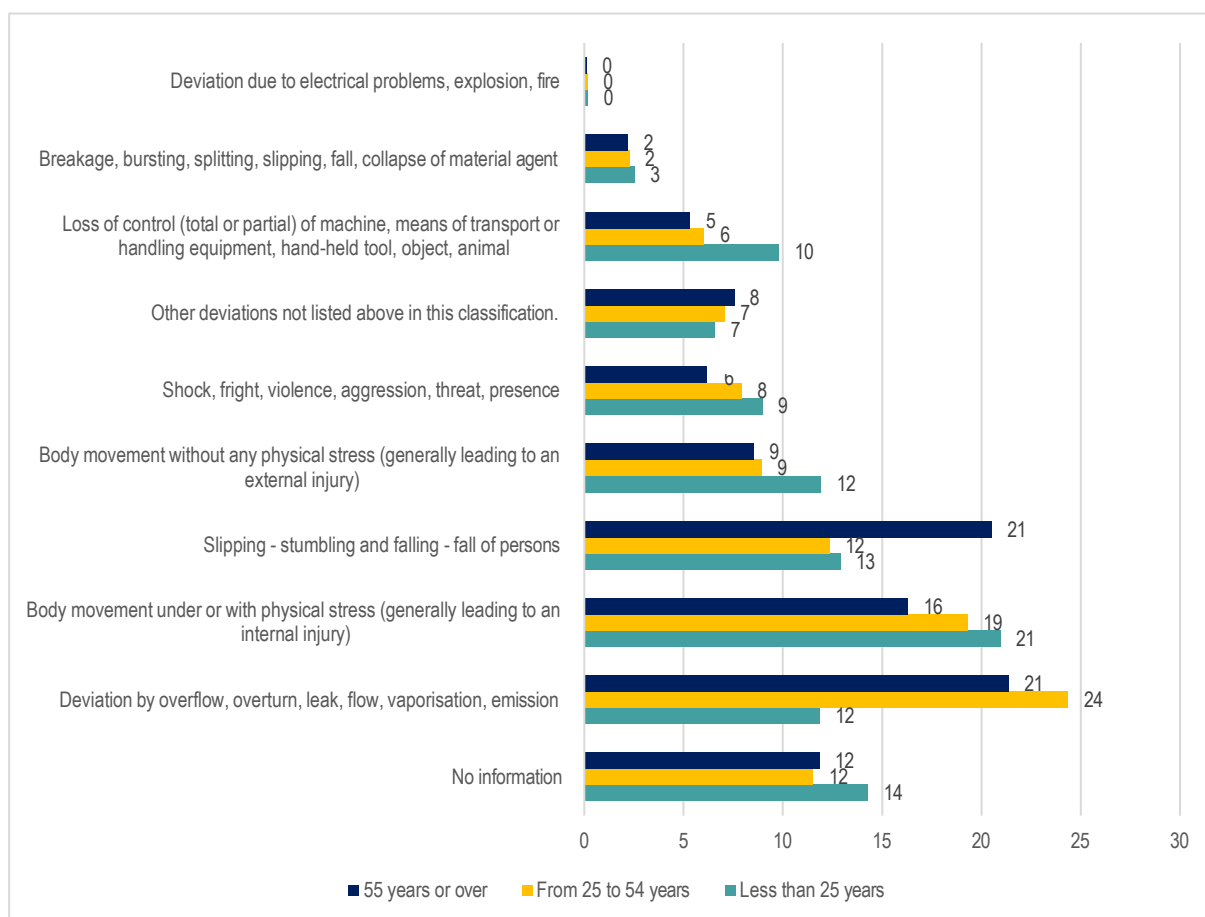
¹² There may be an external material agent that is a source of an additional physical effort at the origin of the physical stress.

Example: where a person suffers a musculoskeletal injury while handling a load or object, that is, lifting it, pushing or pulling it, putting it down, twisting or turning while handling it, or treading badly while carrying it, without falling.

¹³ This category refers to situations in which the injured person's own body movement, which did not involve a special physical effort, led to (in general) an external injury. The body movement may be voluntary or involuntary. An example is the victim injuring their knee on an open desk drawer while sitting down. This is an example of voluntary body movement without effort, leading to an external injury.

Figure 12 presents the data by age. **Among workers over 55 years of age** the accident is more often caused by slipping, stumbling and falling, fall of persons (21%), overflow, overturn, leak, flow, vaporisation, emission (21%), and body movement under or with physical stress (generally leading to an internal injury) (16%). The major **causes among young workers are:** body movement under or with physical stress (generally leading to an internal injury) (21%), and slipping, stumbling and falling, fall of persons (13%).

Figure 12: Non-fatal accidents at work in HeSCare sector by deviation and age group, EU-27, 2022 (% of non-fatal accidents)



Source: Panteia based on ESAW, version 27/01/2025

Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work.

▪ Contact and mode of injury

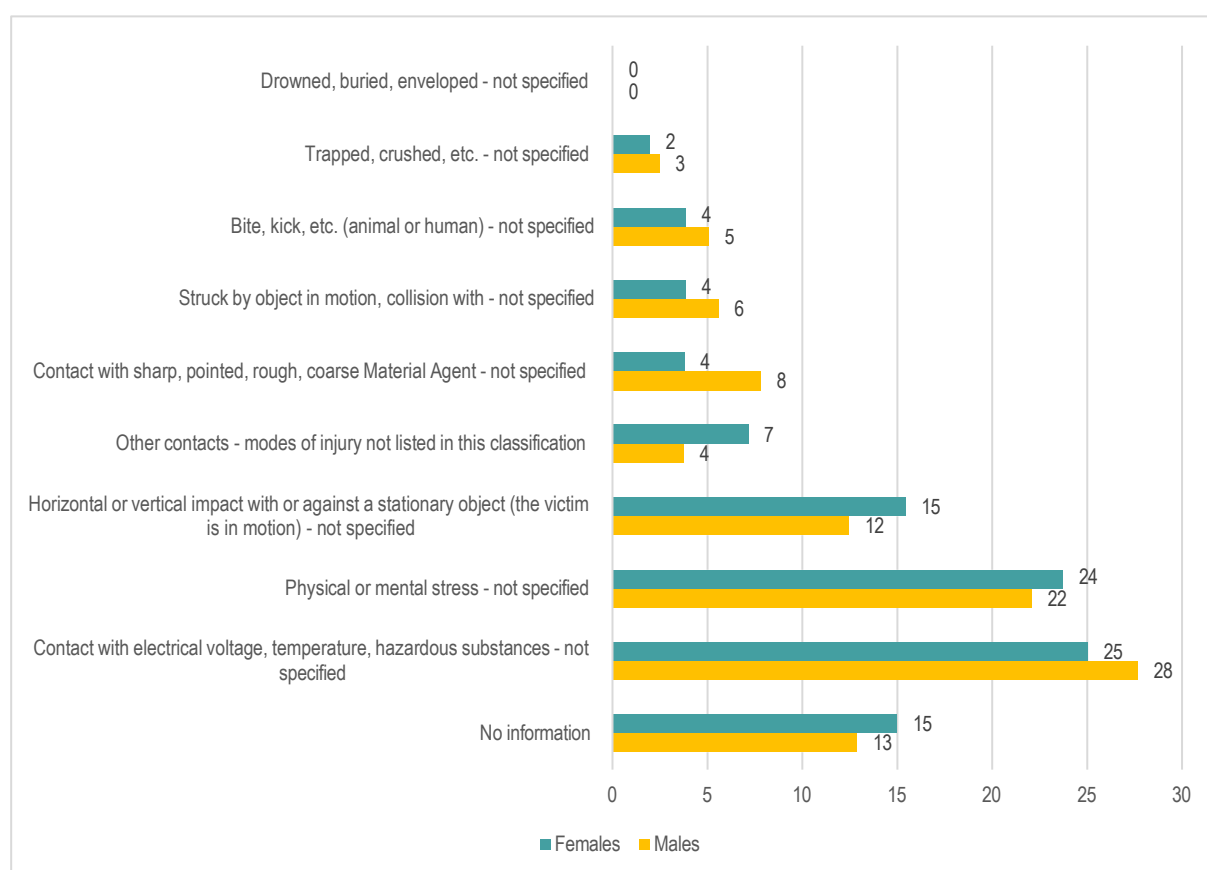
Data on accidents at work by contact mode of injury relate to how the victim of an accident was hurt (physical or mental trauma) by the material agent that caused their injury. If there are several 'contacts - modes of injury' identified, then the one causing the most serious injury is recorded. In 2022, the **three most common contact modes registered in the HeSCare sector were: contact with electrical voltage, temperature, hazardous substances (25.6%), physical or mental stress¹⁴ (23.4%), and horizontal or vertical impact with or against a stationary object (the victim is in motion) (14.8%).**

¹⁴ This covers cases of strain of whatever degree on muscles, joints, organs or tissues, due to excessive movement, physical agents (noise, radiation, friction, etc.), or trauma. Actions causing external injury are not covered under this category. Only events that occur suddenly and accidentally are covered; regular long-term exposure to physical stress, on the other hand, leads to occupational diseases. It also covers in particular psychological shocks resulting from an act of aggression or violence, or shock resulting from witnessing an event such as an accident to someone else.

The other contact modes of injury included other contacts (6.4%), contact with sharp, pointed, rough, material agent (4.7%), struck by object in motion, collision with (4.3%), bite, kick and so on (animal or human) (4.2%), and drowned, buried, enveloped (0%).

In Figure 13, the data are presented by gender and show that the shares among female workers and among male workers are similar. **Female workers are slightly more often hurt by physical or mental stress, or by horizontal or vertical impact with or against a stationary object (the victim is in motion), while male workers are slightly more often hurt due to contact with electrical voltage, temperature, hazardous substances.**

Figure 13: Non-fatal accidents at work in HeSCare sector by contact mode and gender, EU-27, 2022 (% of non-fatal accidents)

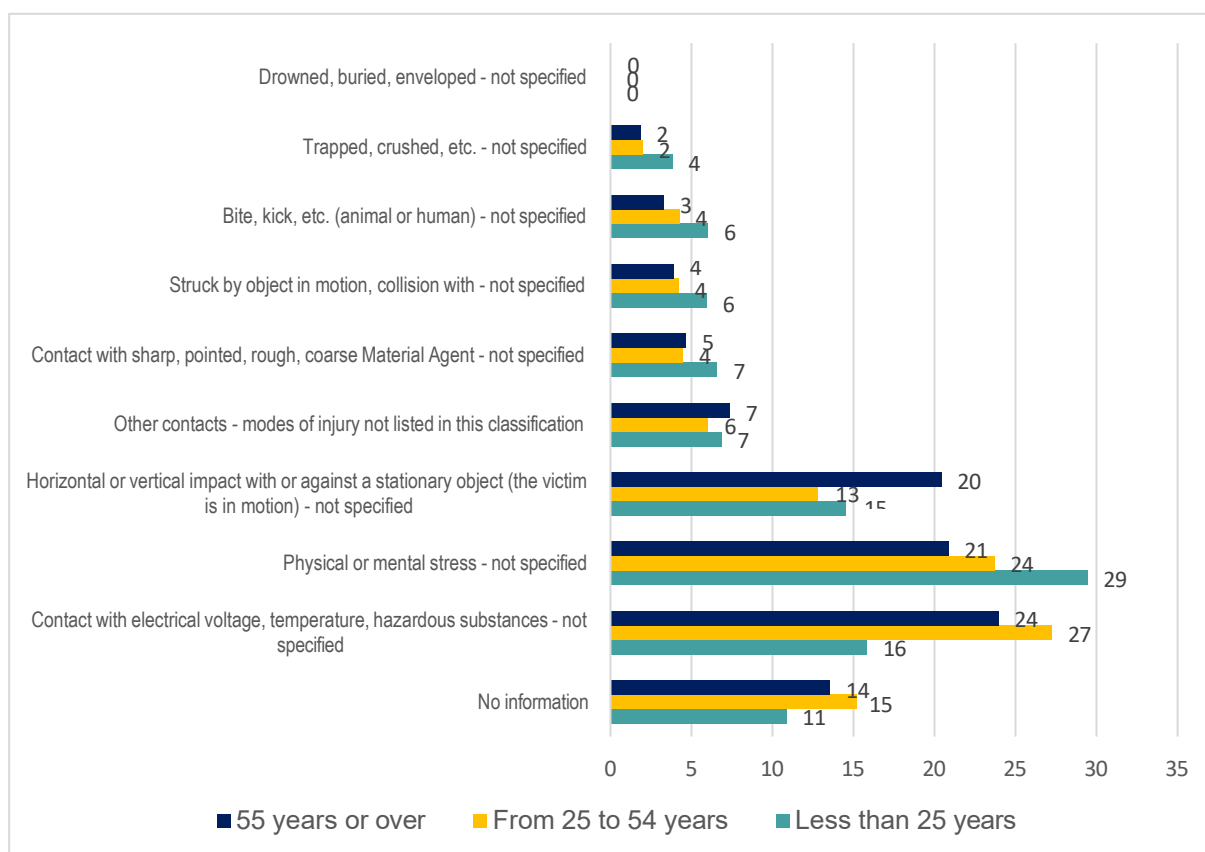


Source: Panteia based on ESAW, version 27/01/2025

Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work.

Figure 14 presents the data by age category. Among the **youngest category of workers (less than 25 years), the most common contact mode is physical or mental stress (29%)**, while among workers in the two other age categories the most common contact mode is hurt due to contact with electrical voltage, temperature, hazardous substances.

Figure 14: Non-fatal accidents at work in HeSCare sector by contact mode and age group, EU-27, 2022 (% of non-fatal accidents)



Source: Panteia based on ESAW, version 27/01/2025

Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work.

The data presented in this subsection show the distribution by gender and by age group of different types of workstation, physical activities, deviations and contact modes, based on data regarding 2022. This may raise the question whether the identified differences in the distribution between gender and age groups may have changed over time. To examine whether this has been the case, the distribution of these causes and consequences by gender and by age group has also been determined for the previous years. The main conclusion of this exercise is that there are no signs of relevant or noteworthy changes over time (regarding whether the identified differences in the distribution between genders and age groups may have changed over time). A summary of the main findings from this exercise is included in Annex 2 (Analysis of changes over time in the distribution of different causes and circumstances by gender and age group).

2.3.4 Non-fatal accidents: effects and health outcomes

Table 12 gives insight into the **type of injuries** that caused at least four calendar days of absence (non-fatal accident) in the HeSCare sector. In 2022, the most common types of injuries were dislocations, sprains and strains, poisonings and infections, concussions and internal injuries, wounds and superficial injuries, and shocks. The distribution of the most common types of injuries over the last 10 years has remained similar. Having said that, poisoning and infections has substantially increased over this period. This increase may also be partially due to COVID-19 pandemic.

Table 12: Non-fatal accidents at work in HeSCare sector by type of injury, EU-27, 2012, 2019 and 2022 (number of accidents)

Type of injury	2012	2019	2022
Total	263,722	344,617	469,685
Wounds and superficial injuries	46,814	58,092	57,161
Bone fractures	20,979	25,270	26,652
Dislocations, sprains and strains	82,115	109,110	109,391
Traumatic amputations (loss of body parts)	308	173	186
Concussions and internal injuries	54,414	81,987	78,538
Burns, scalds and frostbites	3,874	4,568	4,358
Poisonings and infections	1,064	1,086	126,095
Drownings and asphyxiations	199	288	176
Effects of sound, vibration and pressure	161	167	192
Effects of temperature extremes, light and radiation	99	1,113	480
Shocks	14,685	23,886	24,722
Multiple injuries	2,300	3,336	4,000
Other not elsewhere mentioned	8,643	9,959	21,404
Unspecified	28,066	25,583	16,330

Source: Panteia based on ESAW, version 27/01/2025

Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work.

In 2022, the **most common parts of body injured** resulting from non-fatal accidents in the HeSCare sector are: **upper extremities, lower extremities, and whole body and multiple sites**. Over the years, the ranking is more or less the same, although the number of non-fatal accidents at work related to whole body and multiple sites increased significantly over the years. The number of non-fatal accidents at work for which the part of body injured has not been registered has also increased significantly between 2019 and 2022 (Table 13).

Table 13: Non-fatal accidents at work in HeSCare sector by part of body injured, EU-27, 2012, 2019 and 2022 (number of accidents)

Part of body injured	2012	2019	2022
Total	263,722	344,617	469,685
Head	12,407	15,830	16,855
Neck, inclusive spine and vertebra in the neck	10,238	12,619	10,358
Back, including spine and vertebra in the back	44,764	63,000	58,494
Torso and organs	8,385	10,511	12,454
Upper extremities	84,216	110,411	102,627
Lower extremities	69,076	86,394	91,168
Whole body and multiple sites	8,745	17,406	82,441
Other parts of body injured, not mentioned above	1,627	4,535	8,242
Part of body injured not specified	24,265	23,911	87,046

Source: Panteia based on ESAW, version 27/01/2025

Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work.

ESAW also provides data on the **severity of accidents**. Severity is determined according to days lost. Days lost are defined as the number of full calendar days where the victim is unfit for work due to an accident at work. ESAW presents number of accidents by various categories of days lost: from four to six days, from seven to 13 days, from 14 to 20 days, from 21 days to one month, from one to three months, from three to six months, and permanent incapacity or an absence of 183 days or more.

The data for severity represents absolute numbers. Incidence rates are not available. As discussed earlier, with absolute numbers, changes over time in the number of days lost will be the result of two different causes: changes in the number of days lost per 100,000 employed people, and changes in the total number of employed people. Since the ESAW database does not distinguish between these two causes, trends in the evolution of the number of days lost over the years are indicative.

Table 14 presents data on the number of accidents by category of severeness for 2012, 2019 and 2022 for the total economy, the HeSCare sector and the three subsectors, for two categories of accidents: less severe ones with four to 13 days of absence, and the most severe accidents resulting in permanent incapacity.

In 2022, 46% of non-fatal accidents in the total economy resulted in an absence of four to 13 days. With 58%, the share in the HeSCare sector is higher. This holds also for all three subsectors. The share is highest in healthcare (61%), followed by social work (57%) and residential care (52%).

Over the last 10 years, the share of non-fatal accidents in the total economy that resulted in an absence of four to 13 days increased substantially for all sectors, but even more substantially for the HeSCare sector (from 29% in 2012, to 44% in 2019 and 58% in 2022). This trend holds for all subsectors.

In 2022, 4% of accidents resulted in permanent incapacity or an absence of 183 days or more. This holds for the total economy as for the HeSCare sector. With 3%, this share is slightly lower in healthcare. These shares have hardly changed overtime, but they were slightly lower in 2022 than in 2019, which can be explained by the change of registration in 2020.

Table 14: Non-fatal accidents at work in all NACE activities and HeSCare sector and subsectors, by number of days lost, EU-27, 2012, 2019 and 2022 (number of accidents)

	2012		2019		2022	
	From 4 to 13 days	Permanent incapacity or 183 absence days or more	From 4 to 13 days	Permanent incapacity or 183 absence days or more	From 4 to 13 days	Permanent incapacity or 183 absence days or more
Total - all NACE activities	816,232	108,126	1,385,794	139,482	1,373,068	133,090
	28%	4%	44%	4%	46%	4%
Q HeSCare	77,237	9,616	151,725	16,180	271,029	17,127
	29%	4%	44%	5%	58%	4%
Q86 Healthcare	29,190	3,509	61,532	6,791	143,061	7,715
	27%	3%	44%	5%	61%	3%
Q87 Residential care	25,974	3,167	47,367	4,770	65,771	4,934
	30%	4%	43%	4%	52%	4%
Q88 Social work	22,074	2,939	42,825	4,619	62,197	4,478
	32%	4%	45%	5%	57%	4%

Source: Panteia based on ESAW, version 27/01/2025

Note: Non-fatal accidents are defined as accidents involving at least four full calendar days of absence from work.

3. Accidents at work in the HeSCare sector – risk factors and prevention measures

3.1 Introduction

This chapter gives insight into some of the most prevalent and/or most common work-related accidents in the HeSCare sector and the way in which these accidents can be prevented. The most common and relevant accidents for which further information is provided in this study are:

- slips, trips and falls (STFs),
- sharp and needlestick injuries (SNIs),

- accidents due to workplace violence,
- accidents due to physical overload,
- accidents when operating machinery,
- accidents resulting in exposure to hazardous substances and biological agents, and
- accidents with vehicles in the course of work.

The selection of these accidents considered as most common in the sector is based on a triangulation of evidence, including: (i) analysis of ESAW statistical data (see Chapter 2); (ii) findings from large-scale surveys such as ESENER 2019 and the EWCTS 2021; (iii) international frameworks such as those by the World Health Organisation (WHO); (iv) a literature review of sector-specific OSH risks; and (v) stakeholder input collected during consultations.

The selection is supported by the following sources:

- **ESAW data** (see Chapter 2) show a high incidence of accidents in the HeSCare sector related to STFs, physical overload, and contact with harmful substances or equipment.
- **ESENER 2019** identifies several high-prevalence OSH risk factors in HeSCare settings, including PSRs (notably violence and stress linked to patient interactions), lifting and moving people or heavy loads, repetitive movements, and exposure to chemical or biological substances (EU-OSHA, 2022a, 2022b, 2024a).
- The **EWCTS 2021** confirms that HeSCare workers are more frequently exposed to chemical products and infectious materials, and that physical strain and PSRs are widespread (EU-OSHA, 2024a).
- **WHO guidance** also highlights hazards in the healthcare sector, including occupational infections, unsafe patient handling, exposure to hazardous chemicals and radiation, PSRs and mental health issues, violence and harassment, and injuries related to the working environment (WHO, n.d.).

For each type of accident, a description is presented, followed by: the causes and related risk factors; the groups of workers most affected; the impact of accidents on the workers (health outcomes); and practice and guidance on how accidents can be prevented, including examples of good practices (presented in boxes).

3.2 Slips, trips and falls (STFs)

3.2.1 Description of the STFs

Accidents known as **STFs** constitute **three types of occurrences** that can lead to injury. A ‘slip’ constitutes the ‘slipping of one or both feet when the grip between the shoe and the floor is too low’ while a ‘trip’ is defined as ‘a sudden stop of the movement of the foot by an obstacle, with the continued forward movement of the body’ (EU-OSHA, 2014). ‘Falls’ can occur due to slips and trips (for example, when someone slips and falls to the floor), but they can **also occur without such occurrences** (for example, when someone falls from a ladder without tripping or slipping). Accordingly, there are **two basic types of falls: same-level falls, and falls from heights/falls with a level change**. A slip leading to a fall on the walkway of a hospital floor without a level change constitutes a same-level fall, while a fall from a ladder or a staircase has a level change and as such can constitute a fall from a height (EU-OSHA, 2014).

ESAW refers to ‘**Slipping – stumbling and falling – fall of persons**’ as a form of deviation that includes the fall of a person to a lower level, the slip, stumble or fall of a person on the same level as well as other such types of occurrences that are not explicitly listed in the aforementioned. This description aligns with the definition of STFs provided above. According to ESAW, **14.4% of the non-fatal accidents** (resulting in at least four full calendar days of absence of work) in 2022 were caused by Slipping – stumbling and falling – fall of persons (see ‘Deviation’ in section 2.3.3).

In 2023, the National Institute for Safety and Health at Work (INSST) of **Spain** recorded that **STFs leading to sick leave during working hours made up 18% of the total types of accidents** occurring in the HeSCare sector (MITES, 2023). In **Italy**, this figure stood at **17.3% (INAIL, 2025)**. In Ireland, **same-level falls accounted for 443 non-fatal incidents in the HeSCare sector in 2023**, which made it **the highest-reported accident trigger** in the sector (HSA, n.d.b). An analysis conducted in the **United Kingdom (UK)** on STFs found that of the total STF incidents reported by the National Health Service in

the period 2018-2019, **43% were slips** (Liddle et al., 2024). In 2011, **France recorded the occurrence of 6,202 STFs** that led to the **loss of 351,026 working days and 337 permanent incapacities among the personnel** (ANACT, 2012). **Figures and percentages on the frequency of STFs as well as the terminology used to refer to STFs vary from country to country and from study to study.** This can be attributed to several different elements such as the **lack of reporting on these types of accidents**, the **variety in reporting mechanisms** for STFs as well as the **registration of STFs as other types of accidents** (Liddle et al., 2024). Still, these studies and findings provide an indication that STFs are taking place in today's HeSCare sector and can affect HeSCare workers.

In 2024, the **risk of STFs** was identified as being **one of the main physical risks experienced by staff in HeSCare** (EU-OSHA, 2024a). Accordingly, **ESENER 2019 data indicate that the average percentage of establishments in the EU-27 reporting the presence of OSH risks related to STFs increased from 26% in 2014 to 30% in 2019.** In both years, this risk ranked as the fifth most reported workplace hazard, and it was determined that the exposure to this risk increases with the size of the establishment (EU-OSHA, 2022b). Further analysis of **ESENER 2019 reveals that while the risks for STFs are present in HeSCare establishments, they are ever so slightly lower in prevalence than in the establishments in the EU-27 average across all other sectors (30% and 34%, respectively)** (EU-OSHA, 2024a).

3.2.2 Causes and related risk factors

▪ Causes and related risk factors linked to the work environment

In terms of the work environment, the Irish Health and Safety Authority (HSA) has identified that **poor floor conditions, obstacles on the floor, and other aspects such as insufficient lighting and/or level changes on the floor** can lead to STFs (HSA, n.d.b). Similarly, a Spanish study conducted in 2021 states that falls from the same level can occur due to the **deterioration of the floor** (which includes broken, loose or raised tiles), **uneven floors or slippery floors**. Furthermore, a **lack of cleanliness and order in walkways** can create obstacles for personnel, possibly leading to falls. This Spanish study also identifies that falls from a different level can occur in situations when personnel **make use of means to access elevated areas** (e.g. stairs, lifts, stools, etc.), or they can occur **on fixed stairs that are damaged, slippery, have uneven steps and/or the railings are in poor condition** (Pérez et al., 2021).

A study from 2010 on STFs and healthcare workers identified specific hazards that can increase the chances of STFs, such as the **presence of slippery walkways** in both indoor and outdoor contexts. This study also highlights the **role of inadequate lighting** in STFs. Poor visibility can make it difficult for workers to detect unsafe conditions in different work environments of healthcare facilities, such as storage rooms, hallways, stairwells, and both indoor and outdoor walkways (CDC/NIOSH, 2010).

For personnel working in homecare, the work environment can be very different from one patient's home to another's. In this context, **poor floor conditions, obstacles in walkways and other elements of the physical environment** the personnel has to work in can put them at a risk of experiencing STFs (Merryweather et al., 2018). Unlike in hospitals or other specialised healthcare facilities, patients' homes are uncontrolled environments that can have particular hazards that may lead to STFs, such as **tight spaces, clutter, excessive furniture and unorganised cables** as well as **outdoor walkways** that are **affected by bad weather** conditions (Darragh et al., 2016).

▪ Causes and related risk factors linked to organisational and psychosocial factors

A 2018 study specifically focusing on STFs among home healthcare workers highlights the fact that personnel are becoming responsible for an **increasing number of patients, which can add to their stress but also make them feel rushed when they do their work** (Merryweather et al., 2018). This naturally ties in with the **ongoing labour shortages** that are being experienced by the HeSCare sector as well as the **increase in the number of patients** that is being witnessed throughout the EU. With fewer workers caring for more patients, an **increased level of stress and pressure** to do the **work quickly** arises, which may lead to **personnel rushing** through walkways or in and out of patients' homes, increasing the risk of slipping, tripping and/or falling.

In Portugal, a study conducted in 2023 on the working conditions of nurses highlights that the **increased workload employees** have been experiencing over the past years not only leads to an increase in workplace accidents, such as STFs, but it also increases the chances of **mistakes or carelessness** and **negatively affects employees' physical and mental health**. With poor physical and mental health comes the risk of more accidents, which can lead to a vicious cycle taking shape (Rolo et al., 2023).

These psychosocial factors indicate just how important it is that the work of HeSCare personnel is **well organised and that their workload is balanced so as to mitigate negative experiences** as much as possible. For example, ensuring that sufficient staff are working during busy shifts and that timetables provide adequate time for staff to do their work properly could help address the stress and time pressures that workers feel.

Other organisational factors that can increase the chances of STF's include the **set-up of cleaning procedures** and the **specific products used**. If inappropriate cleaning procedures are used for spillages on walkways or products are not used according to manufacturing instructions, then floor surfaces may remain slippery, possibly leading to STF's (EU-OSHA, 2022c).

▪ Causes and related risk factors linked to personnel and patient behaviour

The Irish HSA has determined that the **behaviour and physical attributes of personnel** can influence their exposure to accidents such as STF's. More specifically, workers' perspective of health and safety at work can influence their exposure to risks. For example, if workers are given slip-resistant footwear to use while they work and they **choose not to use this equipment**, then they have a higher chance of experiencing an STF (Cockayne et al., 2020).

Furthermore, **workers' physical condition** can be a contributing factor to STF's. For example, employees with **impaired vision or limited mobility** can be at a higher risk of STF's as they may not see when unexpected obstacles are in the way or may not move away in time to prevent an STF (HSA, n.d.b).

Lastly, personnel may experience an STF when **handling and/or moving patients**. In these instances, staff may be in the process of helping a patient move or providing support and they may slip or fall because the **floor is slippery**, they are helping **patients who are being uncooperative** or they are **helping patients who need more physical support than the staff member can provide** (INRS, 2020).

3.2.3 Groups of workers most affected

A study conducted in 2022 identified that **healthcare personnel aged 60 years or more 'had double the workplace slip rate compared with those aged' 30 years or less**. While this was the result of the study, the authors still communicated **that research on the matter is inconclusive as in some studies it was identified that the younger the worker, the higher the chances of experiencing an STF**, while in other studies **no correlational relationship between age and STF's were determined** (Frost et al., 2022). However, it must be noted that when older workers do fall, they often sustain more serious injuries than their younger counterparts (Cockayne et al., 2020).

For the types of workers who are most affected by STF's according to their role in the HeSCare sector, **nurses are often listed as the most affected** (Rolo et al., 2023). For example, in 2010 EU-OSHA reported that each year, up to 2,000 injuries among healthcare workers were attributed to STF's, whereby nurses experienced the highest number of such accidents and doctors the fewest (EU-OSHA, 2014). In 2019, the average percentage of establishments in the EU-27 facing an **increased risk of STF's** was highest in residential care (38%), followed by social care (37%) and healthcare (22%) (EU-OSHA, 2024a).

In the ESAW database, 'Slipping – stumbling and falling – fall of persons' is included as a form of deviation (cause) in terms of the last (abnormal) event differing from the norm that results in an accident. **Among female workers (15%), the non-fatal accident is more often** caused by slipping, stumbling and falling than among male workers (11%) (see Figure 11). **Among workers of 55 years and older, the share (21%) is higher** than among workers from 25 to 54 years of age (12%) and among workers younger than 25 years of age (13%) (see Figure 12).

3.2.4 Health outcomes

STF's can lead to **various injuries, ranging from minor bruises and cuts to severe fractures and back injuries as well as musculoskeletal (MSK) injuries**. Such injuries occur mainly due to the **impact of the body with the ground**, but they can also **occur due to workers slipping, tripping and falling while holding equipment** (such as scalpels or needlesticks) or due to them **falling onto the equipment**. With STF's there is a **particular risk of head traumas**, which can vary in severity, from minor head injuries to severe and potentially life-threatening brain damage.

3.2.5 Practice and guidance identified on how STFS can be prevented

According to **Council Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work (the Framework Directive)**, employers are required to **conduct risk assessments of their workplaces and then take measures to address any identified risks** (Council of the European Union Directive 89/391/EEC, 1989a). Furthermore, based on **Directive 89/654 concerning the minimum safety and health requirements for the workplace (the Workplace Directive)**, employers have to ensure that the **floors of their workplaces ‘have no dangerous bumps, holes or slopes and must be fixed, stable and not slippery’**. For **outdoor workstations**, employers are also expected to ensure, to the extent possible, that **workers cannot slip or fall** (Council of the European Union Directive 89/654/EEC, 1989b). These are **requirements that employers in the HeSCare sector have to abide by** so that accidents such as STFs can be prevented as much as possible. In France, the **National Agency for the Improvement of Working Conditions (ANACT)** has developed an information sheet to help in evaluating specific risks in HeSCare workplaces. For STFs, ANACT highlights the importance of **taking the physical environment of the workplace (e.g. the state of the floors) into account as well as the movement of the personnel and the conditions of the walkways** in terms of obstacles and cleaning products used (ANACT, 2012).

Once the risk factors have been determined, it is **necessary to evaluate the extent to which workers are exposed to such risks** as this will **delineate whether further preventive actions are necessary**. For example, if a workplace already has a good standard in terms of employees using slip-resistant footwear, then preventive measures might need to be more focused on addressing obstacles in walkways.

The ways in which STFs can be prevented can be broken down into **three categories: organisational prevention measures** (relating more generally to how work is organised and what employers can do); **human behaviour prevention measures** (relating to personnel and how they can behave to prevent accidents); and **technical prevention measures** (relating to the physical environment and equipment as well as upkeep and necessary measures to ensure a safe working environment). The three categories are in line with the SCM framework presented in Chapter 1, hence indicating how gaps in interventions can be addressed to better meet prevention needs.

For each of these categories, preventive options are listed below on the basis of the ANACT information sheets (ANACT, 2012), and the Irish HSA recommendations (HSA, n.d.b) as well as more general findings from the research included so far. The extent to which these measures will be relevant to a workplace will depend on the outcomes of the risk assessment.

Technical prevention measures:

- Ensure that **floor surfaces are suitable for the work activity and in good condition**.
- Install **adequate lighting in walkways and in areas with level changes**.
- **Clearly mark level changes or obstructions** in walkways including pipes or drains. Ensure that handrails are present in staircases and/or where necessary.
- Use the **appropriate cleaning products as instructed by manufacturers**.

Organisational prevention measures:

- Ensure that **facilities are sufficiently staffed during busy periods** to diminish stress and the need to be rushed while working.
- **Organise schedules keeping in mind the duration of tasks and adjust schedules** as frequently as necessary.
- Establish a **structured system for managing health and safety related to STFs**.
- **Engage and consult with staff on safety measures**.
- **Review cleaning procedures** to prevent STFs.
- Provide **slip-resistant footwear** when other controls are insufficient.

- Promote a **safe culture by highlighting safe behaviours**. These can include:
 - **not using a phone or reading while going up and down stairs or while walking around the facilities**;
 - **using the ‘see it, sort it’ approach**, meaning that when obstacles or spillages are identified staff know to clean it up or call for clean-up;
 - **placing signs in case of slippery floor surfaces**; and
 - **reporting instances of STFs and/or near misses** even if they do not lead to medical leave.
- Provide **trainings and raise awareness on STFs**.
- Ensure **cooperation among employers to implement safety, health and occupational provisions as required by EU law**.

Human behaviour prevention measures:

- **Raise awareness** on the issue of STFs and inform/train staff on the risks of STFs.
- **Promote the use of slip-resistant footwear**.

3.2.6 Examples of good practices

Below are a few examples of good practices to prevent STFs.

Box 2: Design and renovation of accommodation facility for dependent elderly people (Ehpad)

There are numerous risks for workers in the residential care sector, such as slips, trips and falls, physical overload and infections. These risks must be taken into consideration in the earliest stages of designing or renovating residential care facilities for the elderly, in order to prevent workplace accidents. The guide ‘Design and renovation of accommodation facility for dependent elderly people (Ehpad)’ (originally published in 2012 and updated in June 2024) has been designed on the basis of ‘good prevention practices’ observed and validated by prevention specialists from the Regional Health Insurance Funds (CARSAT) and the INRS. It is intended to help the various players incorporate the prevention of accidents at work and occupational diseases right from the planning stage of a renovation or construction project of Ehpad, such as: contracting authorities and directors of Ehpad; workers in these establishments and their representatives; main contractors on the construction project, architects and engineering offices; and occupational risk prevention experts and ergonomists. As the guide is based on real-life examples, it explores all aspects of risk prevention in this type of establishment and offers very detailed recommendations, sometimes supported by drawings and pictures. The guide is divided into three chapters, each focusing on a specific issue:

- Integration of Risk Prevention from the Design Phase
- General Design Principles for Safety, Accessibility, and Comfort
- Specific Recommendations by Functional Area

Source: Conception et rénovation des EHPAD - Bonnes pratiques de prévention
<https://www.inrs.fr/media.html?refINRS=ED%206099>

Box 3: Film to raise awareness on accidents (including slips) among healthcare personnel (FR)

This film aims to raise awareness among healthcare sector personnel of a **multi-causal representation of work accidents involving the notions of work organisation, co-activity, training, qualification, experience, method, equipment, atmospheres and workspaces**. This film focuses specifically on the **risk of slipping due to wet floors after cleaning in combination with limited time, not available/broken lifting machines/equipment, and colleagues to help patient lifting from bed and chair**.

Source: <https://www.inrs.fr/media.html?refINRS=Anim-112>

Box 4: Simple methods: prevent falls in care centres (DK)

The **Danish Association for the Working Environment for Welfare and Public Administration** gives some **guidance and methods to help in preventing falls of carers in nursing homes** that includes 'how to systematically work with prevention'. Guidance and methods are provided in a (Danish) **catalogue of ideas on how to prevent slips, trips and falls**. These materials are available in both digital and print-friendly formats. Catalogue ideas include **building a good safety culture, using railings when using stairs, and avoiding the use of phones and tablets while using stairs**.

Source: <https://www.godtarbejdsmliljo.dk/arbejdsmliljoearbejdet/arbejdsulykker/faldulykker/enkle-metoder-forebyg-fald-paa-plejecentre>

Box 5: Information leaflet on falls at the same level: preventive measures in the healthcare sector (ES)

This **Spanish leaflet** includes some **recommendations for the prevention of occupational hazards in the healthcare sector due to falls at the same level**. Recommendations include:

- **maintaining an organised and clean space** in work areas and hallways,
- **cleaning up immediately after a product spill,**
- **paying careful attention and avoiding distractions** when working,
- **checking if floor is being cleaned with agents that make it slippery and notifying the relevant staff members if that is the case,**
- **using warning signs** when the floor is wet,
- **protecting and securing electrical cables,**
- **securing ladder with wheels before use, and**
- **always ensuring the stability of ladders before use.**

Source: <https://umivaleactiva.es/dam/umivale-activa/prevencion-y-salud/tareas-de-especial-riesgo/Medidas-preventivas-en-el-sector-sanitario.pdf>

Box 6: Preventing STFs in healthcare (IE)

In Ireland, the HSA is promoting a **comprehensive strategy to reduce STFs** in the HeSCare sector. Key aspects of this practice are the quality of the **risk assessments including management systems**. Employers are called on to **establish health and safety management systems, conduct thorough risk assessments to identify high-risk areas and actively involve staff in developing safety protocols**.

To further prevent STFs, the HSA has been **promoting safer methods**. One case study shows how **replacing traditional floor mopping with a flat mop system** significantly reduced slip hazards, as this method uses less water and dries faster. Similarly, footwear policies recommend that employers provide **slip-resistant footwear** when other controls are insufficient and **conduct workplace trials to ensure effectiveness**. The **training and awareness component of this strategy is also essential**, as it ensures that managers understand their responsibilities in maintaining staff and patient safety.

These measures led to **significant reductions in STF incidents within healthcare facilities**. For example, one Irish healthcare facility reported a decline in STF cases over four years, with 29 incidents in 2009, increasing to 58 in 2010, but decreasing to 22 in 2011 and only six cases in the first half of 2012.

Source: https://www.hsa.ie/eng/your_industry/health_and_social_care_sector/slips_trips_and_falls_in_healthcare/ and https://www.hsa.ie/eng/your_industry/health_and_social_care_sector/Healthcare_Case_Studies/slips-trips-falls-case-study.pdf

3.3 Sharp and needlestick injuries (SNIs)**3.3.1 Description of the accident**

SNIs are injuries that occur due to accidents with sharp equipment or needlesticks. More specifically, based on the definition provided in the **Directive 2010/32/EU implementing the Framework Agreement on prevention from sharp injuries in the hospital and healthcare sector**

(Sharp Injuries Directive) (Council of the European Union Directive 2010/32/EU, 2010), sharp constitutes ‘**objects or instruments necessary for the exercise of specific healthcare activities, which are able to cut, prick, cause injury and/or infection**’. This definition encapsulates **several types of medical equipment such as scalpels and lancets as well as needlesticks and syringes**. While SNIs and sharp injuries are often discussed in the same context, it is important to note that **SNIs are a type of sharp injury but they specifically occur due to needlesticks**, while sharp injuries can occur due to needlesticks as well as other sharp equipment (making it an overarching term for these types of injuries) (Dulon et al., 2016). In this section, **when sharp injuries are discussed this also includes SNIs, and when SNIs are mentioned this is specifically referring to injuries caused just by needlesticks**.

In terms of ESAW data, the contact mode of injury known as ‘**contact with a sharp, pointed, hard or rough material agent**’ aligns with the definition of sharp injuries provided above. The types of accidents that are encapsulated by such a contact mode of injury include suffering a cut from something sharp and getting pricked by a pointed object such as a needle (European Commission/Eurostat, 2013). **According to ESAW data, in 4.7% of non-fatal accidents** (resulting in at least four full calendar days of absence of work), the registered contact mode of injury (how the victim was hurt) was ‘contact with a sharp, pointed, hard or rough material agent’ (see ‘Contact and mode of injury’ in section 2.3.3).

In a study conducted in 2023, the **prevalence of SNIs among nurses was determined through a comprehensive systematic review and meta-analysis**. Through this study, it was identified that **worldwide, SNI prevalence amounted to 40.97%** with higher levels being reported in developing countries than in developed countries (46.6% and 30.5%, respectively) (Mohammed et al., 2023).

In the Netherlands, it was estimated in 2023 that 13,000 to 15,000 SNIs are reported on a yearly basis in all sectors, with 95% coming from the healthcare sector (RIVM, 2010 (modified 2023)). **In Italy in 2023, sharp injuries represented 41% of injuries faced by staff in healthcare** (making it the most common type of occupational injury among workers in the sector) (Metzmann, 2023). **In Spain, based on the data available regarding injuries caused by contact with sharp, pointed and/or hard material agents in 2023, 1,259 accidents occurred in the HeSCare sector** (important to note is that this figure represents instances that have led to three days or more of absence from work). Of these 1,259 accidents with sharp, pointed and/or hard material agents, the majority occurred in healthcare activities and the least amount occurred in social work activities (MITES, 2023). A study conducted in Ireland by the National Treasury Management Agency in 2020 indicates how the prevalence of SNIs varies from that of sharp injuries not caused by needlesticks. More specifically, by analysing the claims for SNIs and sharp-related incidents from 2010 to 2019, the agency was able to determine that **91% of claims arise from SNIs and 9% come from other types of sharp injuries**. This information provides an indication that the **main issue when it comes to sharp injuries revolves around needlesticks rather than other sharp equipment** (National Treasury Management Agency, 2020).

3.3.2 Causes and related risk factors

Sharp injuries can occur through a variety of circumstances that trigger needlesticks accidentally penetrating the skin of a healthcare worker or glass ampoules containing medication breaking and causing a lesion on a caretaker’s skin.

- **Causes and related risk factors linked to the work environment**

Among the causes and related risk factors linked to the work environment, elements such as the **area where the work was performed, the lack of safety equipment and lack of appropriate disposal options** have been listed as contributors to sharp injuries (National Treasury Management Agency, 2020).

Furthermore, in instances where walkways and flooring have obstacles or are slippery, staff may experience an STF (see section 3.2 ‘Slips, trips and falls (STFs)’) while holding sharp or needlesticks, which can lead to a sharp injury.

- **Causes and related risk factors linked to organisational and psychosocial factors**

A comprehensive literature review conducted in Spain in 2021 showed that the main organisational and psychosocial factors associated with work accidents related to sharp injuries among nursing personnel **were the workload and the number of hours worked** (González-Beteta et al., 2021). In Italy, a study recorded these same organisational and psychosocial factors as increasing the chances of sharp

injuries. This study further adds that these factors can lead to **significant fatigue** among staff that can **influence how they work** and increase the risk of sharp injuries (De Carli et al., 2022).

In addition to this, employers' **inadequate provision of training, failure to implement proper sharp policies and failure to implement necessary reporting policies** are organisational factors that can influence the chances of sharp injuries occurring, while equipment and lack of appropriate disposal options have been listed as contributors to sharp injuries (National Treasury Management Agency, 2020).

▪ Causes and related risk factors linked to personnel and patient behaviour

In 2016, a study conducted in Germany looked into the causes of SNIs in different healthcare settings including hospitals, doctors' offices, and in- and outpatient care (inpatient care requires that the patient stays at the hospital while outpatient care does not) and it was identified that **SNIs occur while personnel are** (Dulon et al., 2016):

- conducting medical procedures,
- inappropriately disposing of needlesticks or waste,
- recapping needlesticks,
- clearing up other equipment with needlesticks having been left in inappropriate places, and
- using faulty or failing safety mechanisms implemented into needlesticks.

In the context of **conducting medical procedures**, the most often executed procedures that have been identified to have high injury risks are **intramuscular and subcutaneous injections, taking blood samples or during intravenous cannulation** (Goniewicz et al., 2012). Particularly interesting in the aforementioned list is the fact that **even safe needlesticks can be a cause for injury**. **Safety-engineered devices (SEDs) are equipment and needlesticks that have been developed so as to minimise the chances of accidental pricking or piercing of the skin** (Metzmann, 2023). Yet, in many instances these still lead to injuries due to the fact that staff are **not sufficiently trained** to work with such devices or the devices may fail to function properly (Metzmann, 2023; Ottino et al., 2019). In fact, **staff being inadequately trained in general** (and not only in terms of SEDs) is a cause/related risk factor that is often listed as a contributor to the occurrence of sharp accidents (National Treasury Management Agency, 2020).

Beyond the aforementioned causes, the **human behaviour of personnel** can also impact the chances of a sharp injury, as they may choose **not to wear protective equipment** while conducting procedures (e.g. gloves) or **not properly dispose** of this equipment after use (National Treasury Management Agency, 2020). **Personnel may also become less attuned to the risks of sharp injuries and SNIs because, over time, they become so familiar** with working with such equipment that they do not feel so many precautions are necessary. Such **familiarity can easily lead to carelessness and increase the chances of injury** (De Carli et al., 2022).

Another form of human behaviour that can influence the occurrence of sharp injuries is linked to patients. If personnel are trying to conduct a medical procedure with sharps and the **patient is being uncooperative**, then there is a higher chance of the employee pricking or injuring themselves with the equipment.

The causes and circumstances for sharp injuries therefore can be due to several different factors and elements. These can encapsulate: **the types of equipment used and the procedures conducted; the experience of the staff using sharps; the training and prevention measures in place for sharps; the lack of proper management of sharps; and high workload and fatigue**. Interestingly enough, **it has also been identified that staff familiarity with sharps can be a cause for accidents**. More concretely, because staff feel so comfortable using sharps, they may disregard the dangers that sharps can bring about and as such be less careful (De Carli et al., 2022).

3.3.3 Groups of workers most affected

In 2023, it was identified that **sharp injuries occur most often among nurses**. This is because **nurses usually conduct medical procedures such as drug administration or blood sampling** and they are often the **providers of direct patient care**, which more readily exposes them to the risk of sharp injuries (Metzmann, 2023). Furthermore, the **occurrence of sharp injuries are more common in hospital**

settings than in nursing homes or home care. In the latter settings, the sharp injuries that do occur tend to fall into a low-risk category, while in hospitals, sharp injuries tend to have higher health risks attached to them. The reason for this is not yet clear but it might be related to the fact that hospitals have a bigger patient flow with a variety of potential infections than nursing homes and home care facilities that tend to have one set of patients at a time or more regular patients that staff are accustomed to (RIVM, 2010 (modified 2023)).

According to a 2010 study conducted on data from France, Germany, Italy, Spain, the UK and the United States (US), **ancillary staff were recorded to be at a higher risk of being affected by sharp injuries** due to the fact that they **may come into contact with sharp or needles that have been inappropriately disposed of, or that are simply left lying about** (Garus-Pakowska et al., 2018; Saia et al., 2010).

A study conducted in **Portugal in 2012 identified that 65% of healthcare workers reported sharp injuries from 2007 until 2012.** Of these, **74.8% were found to be nurses.** This study further identified **that workers who had been in health services for 10 years or more as well as workers aged 39 or over were at a higher risk of experiencing sharp injuries** than other workers (Martins et al., 2012). This **might be attributable to the fact that such workers begin to be so familiar with the equipment that they fail to uphold the necessary procedures** when working with sharps and needlesticks.

In the ESAW database, the contact mode of injury (how the victim was hurt) known as ‘contact with a sharp, pointed, hard or rough material agent’ aligns with the definition of sharp injuries. **Among male workers, the share (8%) that is hurt due to ‘contact with a sharp, pointed, hard or rough material agent’ is higher** than among female workers (4%) (see Figure 13). **Among workers of 55 years and older, the share (5%) is slightly higher** than among workers from 25 to 54 years of age (4%) and lower than among workers younger than 25 years of age (7%) (see Figure 14).

3.3.4 Health outcomes

At the lowest level of consequence, **SNIs and sharp injuries caused by unused needles or clean sharps can lead to minor lesions and penetrations to the skin.** Such outcomes can be considered minor and often do not have a big impact on the health of caretakers nor do they need to take medical leave (Metzmann, 2023).

However, **SNIs and sharp injuries can also lead to significantly more serious consequences such as the transmission of life-threatening infections and the exposure to dangerous chemicals** that can have **very serious health effects** on HeSCare workers, as well as significant financial consequences (EU-OSHA, 2019a). **Hepatitis B, hepatitis C and the human immunodeficiency virus (HIV) are three of the main viruses transmitted through SNIs, but the transmission of other micro-organisms is also possible** (Cooke et al., 2017; RIVM, 2010 (modified 2023)). Furthermore, **drugs that are used in treatments like chemotherapy that require the use of needlesticks or the breakage of ampoules containing this medication can lead to the exposure of HeSCare workers and to serious mutagenic defects** (EU-OSHA, 2024a).

An Irish study based on collected claims from 2010 to 2019 indicates that needlestick and sharps-related incidents typically result in injuries involving: **anxiety, trauma and stress (as psychological health outcomes); punctures and bites; and/or cuts, lacerations, grazes, scratches and others.** This report acknowledges that **while there is a risk of contracting life-threatening infections due to sharp injuries, the risk is actually rather low**, especially in terms of HIV where that risk stands at 0.3%. On the other hand, this report highlights the **high prevalence of anxiety and trauma as health outcomes from sharp injuries** (National Treasury Management Agency, 2020). **A Spanish study from 2021 corroborates these findings by concluding that sharp injuries can lead to the development of health problems related to emotional exhaustion, insomnia, chronic fatigue and work-related stress** (González-Beteta et al., 2021).

3.3.5 Practice and guidance identified on how SNIs can be prevented

The **Sharp Injuries Directive** (Council of the European Union Directive 2010/32/EU, 2010) calls on employers to conduct the **necessary risk assessments in accordance with Directive 2000/54/EC on the protection of workers from risks related to exposure to biological agents at work and according to Council Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work (the Framework Directive).** Generally,

risk assessments determine the hazards in the workplace and establish what needs to be addressed and how. **For SNIs, risk assessments need to consider whether there is a chance that an injury can occur from the type of equipment used.** If the answer is yes, then the **risk needs to be further assessed to determine who is subject to this risk and how this risk can manifest itself.** In the HeSCare sector, sharp injuries can occur to the staff making use of this type of equipment, but it can also occur to staff who are conducting ancillary services such as cleaning. Once these elements have been determined, **risk prevention measures have to be developed and implemented.** These prevention measures can be **broken down into three separate categories: technical, organisational and human behaviour** in line with the SCM framework presented in Chapter 1, hence indicating how gaps in interventions can be addressed to better meet prevention needs.

In terms of OSH risk prevention, there is a **hierarchy of prevention that can be applied**, whereby **technical preventions are addressed first, then organisational and then through human behaviour** (TNO, n.d.). Even with such a hierarchy of prevention, it is **important to note that all the measures are important and that combining different measures may be key to achieve the necessary health and safety at the workplace for workers.** For example, the use of SEDs (technical) can be an appropriate prevention measure if staff are properly trained on how to use them (organisational) and they stick to the rules they learned during trainings (human behaviour). The type of prevention measures necessary therefore, depends on the specific contexts and risks of individual workplaces.

For each of the aforementioned categories, a series of prevention measures are listed below (HSA, n.d.a; INSST, n.d.a; National Treasury Management Agency, 2020; RIVM, 2010 (modified 2023)).

Technical prevention measures:

- Ensure that **safe containers for disposal** are available to workers.
- Implement the **use of SEDs** in the workplace.
- Ensure that **walkways and floors are in an adequate condition** to prevent STFs while holding sharp equipment or needlesticks.

Organisational prevention measures:

- Implement a **prevention policy** related to sharps and needlesticks in the workplace.
- Provide **safe procedures for using and disposing of sharps** (including contaminated sharps).
- Provide staff with the **necessary time and trainings for the safe use of sharps, needlesticks and SEDs.**
- **Raise awareness** on the risks linked to sharp injuries.
- **Eliminate unnecessary use of sharps.**
- **Ban recapping** of needlesticks.
- Implement **appropriate reporting mechanisms** for these types of injuries.
 - There is a general tendency to not report these injuries as at times they may be very minor or not lead to anything more serious. However, to be able to determine if the prevention mechanisms are working, it is important to ensure that all incidences leading to sharp injuries and SNIs get reported.
- Conduct **health surveillances of workers.**
- Implement **effective disposal procedures** that include 'clearly marked and safe containers'.
- Implement an **appropriate response and follow-up procedures** that include:
 - providing post-exposure treatment,
 - investigating the causes and circumstances of the accident leading to the injury, and
 - counselling.
- Provide employees at risk of sharp injuries with **free vaccinations** (HSA, 2014a).
- **Ensure cooperation among employers to implement safety, health and occupational provisions as required by EU law.**

Human behaviour prevention measures:

- **Use personal protective equipment (PPE).**
- **Continually rely on knowledge acquired through trainings and awareness-raising campaigns** on the use of sharps, needlesticks and SEDs.
- **Follow rules** related to recapping bans, disposal and reporting procedures.

In the next section, examples of good practices are presented to prevent sharp injuries and further operationalise the measures included in the Sharp Injuries Directive.

3.3.6 Examples of good practices

Below are a few examples of good practices to prevent SNIs. Important to note is that Box 7 and Box 8 provide a more general example on how reporting of accidents can be improved. This is relevant for SNIs as well as for accidents at work more broadly and can be applied in other contexts too.

Box 7: Prevention of accidents at work – interactive website for OSH in hospitals

The Unfallkasse Nordrhein-Westfalen, together with the BGW, has developed an interactive website for hospitals, titled ‘Sicheres Krankenhaus’ (Safe Hospital). The main goal of the website is to support member enterprises in the implementation of OSH regulations and thus improve the enforcement of these regulations. The target group of the website is quite broad: employers and OSH representatives as well as managers. The specific goal of the website is to make sure all relevant information regarding OSH (including regulations) is available in one place and easily accessible, to share practical and proven protective measures to achieve the protection goals, and to attract younger workers, by enabling a playful approach to occupational safety topics and thus create an incentive to engage with them. With regard to needlestick injuries, the following information can be found: general information about the relevance of the risk and the related legal obligations, a description of how to assess the risks of needlestick injuries, and the specific professionals for which needlestick injuries are a relevant risk, including the detailed health outcomes associated with the risk and prevention and protective measures.

Source: <https://www.sicheres-krankenhaus.de/>

Box 8: Dutch Labour Inspectorate new investigation methods

The **NLA** has been testing **alternative methods to improve workplace safety** after the occurrence of an accident. Accordingly, through one of the **new methods that was adopted in 2023**, **employers investigate the causes of accidents themselves and they are the ones to create improvement plans**. These plans have to address both direct and root causes of the accidents and they need to include corrective actions with a timeline. The NLA then has to review these reports and they may be involved in further enforcement if violations occur. Through this approach, **stakeholders of workplaces can better learn from the accidents, raise awareness and implement proactive safety measures**. With this approach, therefore, **both organisational and human behaviour prevention measures are being implemented that may also lead to technical changes in the workplace following the investigation**.

Source: <https://osha.europa.eu/en/publications/new-dutch-approach-investigating-and-learning-accidents>
<https://www.nlarbeidsinspectie.nl/publicaties/rapporten/2022/09/05/monitor-arbeidsongevallen-2021>

Box 9: Development of specific SEDs to prevent SNIs

Over the years different enterprises have produced several types of **SEDs that meet the standards established in the Sharp Injuries Directive**. Each of these SEDs has been developed for different purposes and for use in different contexts; however, they all share the same goal of preventing accidents with needlesticks. A common mechanism that they all have is that they go into ‘safety mode’ following injection, which means that the sharp part of the needlestick retracts into the rest of the mechanism.

Box 10: Analysis of data on SNI occurrences with and without SEDs (IT)

A comprehensive analysis was conducted in a hospital in Piedmont, Italy, to determine the impact of SEDs on the rate of SNIs. Through this analysis it was identified that the **introduction of SEDs reduced the number of SNIs among healthcare workers**. More concretely, it was determined that when **SEDs were used, the accident rate for every 100,000 needles used stood at 1.07, while when conventional needles were used, this figure stood at 1.32**. Furthermore, this analysis helped in identifying why SNIs might still occur with SEDs. The rationales presented are that SEDs with higher levels of safety and passive activation mechanisms need to be used more and that staff are insufficiently trained to use these SEDs.

Source: <https://pmc.ncbi.nlm.nih.gov/articles/PMC6887025/pdf/bmjopen-2019-030576.pdf>

Box 11: Raising awareness through real experiences (NL)

In the **Netherlands**, the ‘**arboportaal**’ published in 2012 an interview with Eva (pseudo name for privacy reasons) who is a nurse who experienced an SNI while pregnant, which could have led to her and her child being infected with HIV. In the interview, **Eva shared that her SNI occurred during an afternoon shift in the Emergency Department while 30 weeks pregnant**. This was a **very busy shift**, and a **new emergency patient** came in who had a fever and **needed to get blood samples** taken. Eva explains that in that moment **she did not wear gloves** as it was easier to feel the blood vessels without them. **Following the procedure to take the blood sample of the patient, Eva pricked herself and before anything else could be done, her patient tells her that they are HIV positive**. Following this accident, **Eva was put through a series of tests and check-ups, but her results were not known for a long time**. Three months later, Eva found out that both her son and she were not infected with HIV. After her experience that led to **significant financial and emotional stress**, Eva decided to **share her story with the hospital’s board of directors, which led to some changes in the management of needles and the presence of safe injections**. Eva’s experience also made her **colleagues and students become significantly more aware of SNIs**, and the hope is that sharing her experience at a broader scale can better raise awareness on SNIs.

Source: <https://www.arboportaal.nl/onderwerpen/prikaccidenten/documenten/brochure/2012/10/01/een-prikje-met-een-nasleep-van-jaren>

Box 12: Securing needle containers for public places (Sécurisation Conteneurs à Aiguilles pour Lieux Publics, SCALP) (LU)

At the **Luxembourg Hospital Centre (Centre Hospitalier de Luxembourg, CHL)**, a number of cleaning staff were experiencing accidents caused by insulin pen needles. These would occur as patients or the general public would use their insulin pens in the hospital bathrooms and these needles would then be thrown out into the general trash cans or just left on the floor. In short, the insulin pen needles were not being disposed of safely and cleaning staff would easily come into direct contact with them. To address this problem, **CHL sought to find a way to allow needle users to safely dispose of their needles**. In July 2017, CHL did this by ‘**installing transparent, robust, lockable and easily cleanable needle containers in all public toilets**’, known as **SCALP**. **Since the introduction of SCALP, CHL has had no reports of SNIs from their public bathrooms** and in 2018 they received a national occupational safety award.

Source: <https://visionzero.lu/fr/prix-sst-2026/laureats-2018/scalp-securisation-conteneurs-a-aiguilles-pour-lieux-publics/> and <https://www.chl.lu/fr/actualites/le-chl-laureat-du-prix-national-securite-sante-au-travail-2018>

3.4 Accidents due to workplace violence**3.4.1 Description of the accident**

Workplace violence, which includes **acts or threats of violence both in verbal/non-physical or physical form**, can lead to serious negative outcomes for personnel. Acts or threats of violence in a HeSCare workplace can include **patients hitting, kicking and/or biting staff** (these constitute violence

in the physical form) as well as **insulting** (such as by using racial slurs) or **shouting at staff** (these constitute violence in the verbal/non-physical form) (EU-OSHA, 2024a).

The notion of workplace violence can also be categorised as **psychological**. In this category, actions such as **mobbing** (persistently targeting someone, which some argue has the intention of getting the person to leave their job), **harassment** (targeting someone with unwanted behaviour on the basis of their age, sex, disability, gender reassignment, marital status, pregnancy and/or maternity, race, religion, beliefs and/or sexual orientation), and **bullying** (targeting someone with unwanted behaviour without it necessarily being linked to the elements listed for harassment) are encapsulated (European Parliament, 2001; United Kingdom Government, n.d.). Psychological workplace violence, however, can very easily overlap with verbal/non-physical workplace violence as they both encapsulate similar types of behaviours exhibited by a perpetrator to a victim (International Labour Organisation (ILO), 2005).

Intimidation, which can be exerted through **unwanted sexual attention** (targeting someone with unwanted sexual behaviour), in addition to **bullying and harassment**, is also considered to be a type of workplace violence that can take shape in both physical and verbal/non-physical forms (EU-OSHA, 2024a).

In this report, the term **workplace violence** is used to refer to the types of occurrences provided above, mainly: **violence, aggression, threats, intimidation, unwanted sexual attention, bullying and harassment**. When specific terms are used such as bullying or harassment then the data and/or information provided relate specifically to this type of workplace violence.

According to several studies, including the 'OSH in figures in the HeSCare sector' report published by EU-OSHA in 2024, there is a **high prevalence of the risk of workplace violence in the HeSCare sector**. In 2021, the EWCTS identified that the HeSCare sector had **the highest percentage of workers subject to bullying and harassment (at 11% versus 8% in the EU-27 average)** as well as **'the highest prevalence of any type of intimidation'** (EU-OSHA, 2024a). Furthermore, based on the **OSH Pulse survey of 2022, 32% of workers in the HeSCare sector were exposed to violence or verbal abuse from customers, patients, pupils and member of the public in the EU-27**. This is **double the percentage registered for the total EU-27 average in all sectors**. The OSH Pulse survey of 2022 also indicates that **workers in the HeSCare sector are the most exposed to harassment and bullying in comparison to the EU-27 average** of all other sectors, with the HeSCare sector being **at 10%** and the average of all other sectors at 7% (EU-OSHA, 2023). In Italy, for example, data collected from 2015 to 2019 demonstrate that accidents due to workplace violence made up one in 10 accidents over these five years — in other words, amounting to 9% of accidents for the total of the HeSCare sector (INAIL, 2020).

Even during the COVID-19 pandemic, the prevalence of accidents due to workplace violence in the HeSCare sector remained high. This is particularly interesting as during the pandemic many limitations (e.g. limitations on access to facilities for patients' family members and friends) were placed on HeSCare institutions, which would imply a lower risk for accidents due to workplace violence — and yet that was not the case. In Italy, for example, there was no discernible decrease in accidents due to workplace violence during the pandemic, hence indicating just how prevalent and serious this type of accident can be (INAIL, 2024).

In terms of ESAW terminology, accidents due to workplace violence can fall under the deviation category of **'shock, fright, violence, aggression, threat presence'**. In this category, instances such as violence, aggression and/or threat 'between company employees subjected to the employer's authority' as well as 'from people external to the company' towards victims performing their duties are registered. According to ESAW, 7.6% of the non-fatal accidents (resulting in at least four full calendar days of absence of work) are caused by shock, fright, violence, aggression, threat presence (see 'Deviation' in section 2.3.3).

3.4.2 Causes and related risk factors

The causes and related risk factors for accidents due to workplace violence can be linked to the work environment, and organisational and psychological-related factors as well as human behaviour and personnel factors.

■ Causes and related risk factors linked to the work environment

While accidents due to workplace violence are most often explained through organisational,

psychosocial and human behaviour causes and related factors, there are some work environment elements that can still contribute to the occurrence and severity of this type of accident.

In the context of homecare work, workers who have to travel from neighbourhood to neighbourhood may have to **travel through unsafe areas of towns, cities and/or villages** and as such they can be **exposed to street violence and assault**. The chances of such an occurrence can be particularly **aggravated if the workers are seen to (or assumed to) be carrying or handling valuables, money or medication** (HSA, 2014b).

Furthermore, the **lack of certain precautions** in HeSCare work environments may increase the chances and/or the severity of workplace violence. For example, if hospital personnel do **not have access to an emergency button** when patients start to exhibit violent behaviours then they may not get the help they need in time to prevent a severe accident. Similarly, **if a patient tries to grab a sharp piece of medical equipment to use against a caretaker** and this is easily accessible to them, then the caretaker may be subject to a more severe type of physical workplace violence (Carmona, 2024).

■ Causes and related risk factors linked to organisational and psychosocial factors

The 2024 edition of the French Barometer on aggressiveness and violence in the HeSCare sector highlights that **staff shortages** are a major concern for workplace **violence as 77% of respondents note that understaffing significantly impairs the ability of teams to manage crises effectively**. The **limited availability of medical and psychological care services** also means that individuals do not always receive the support they require, resulting in **situations that escalate unnecessarily**. These conditions are further intensified by **high staff turnover, widespread burnout, and a lack of training in conflict prevention and de-escalation techniques** (CPI & KPMG, 2024).

The Irish HSA provides causes and related risk factors linked to organisational and psychosocial-related factors that may increase the risk of accidents due to workplace violence, which include (HSA, 2014b):

- HeSCare personnel **working alone**,
- HeSCare personnel working outside normal working hours, and
- HeSCare personnel being new and/or not having received the necessary training to deal with workplace violence.

Within the workplace, HeSCare personnel are also exposed to **bullying from their co-workers and colleagues**. Bullying within a workplace is deemed to occur due to factors such as **high workloads, work pressure, high stress levels and understaffing** (EU-OSHA, 2023). Other organisational factors can also play a part here, such as the **presence of rigid hierarchies, informal workplace alliances and even the inclination to abuse organisational procedures** (Pagnucci et al., 2021).

■ Causes and related risk factors linked to personnel and patient behaviour

Personnel working in the HeSCare sector are particularly exposed to the risk of workplace violence due to having to **work closely with patients and their families and/or other third parties** (HSA, 2014b). For example, in Italy between 2015 and 2019, **nine out of 10 aggressions in the HeSCare sector were caused by patients and their family members** (INAIL, 2024). Similarly, a study conducted in Sweden in 2018 identified that **patients were present in 99.3% of reported threat and/or violence situations by HeSCare workers** (Wåhlin et al., 2019). Patients and their families/visitors/third parties are therefore particularly relevant for this type of accident.

Patients or service users can act in a physically or verbally aggressive manner due to several different elements, including their:

- medical condition,
- disability,
- medication,
- psychological condition, and/or
- pre-existing violent tendencies or behaviours.

Patients can also be the cause of workplace violence when they **do not cooperate during treatment** and, for example, push healthcare staff away or hit them (HSA, 2014b).

In terms of the **psychological state of patients**, the 2024 edition of the French Barometer on aggressiveness and violence in the HeSCare sector (CPI & KPMG, 2024) reports that **one of the most**

frequently cited causes of violence is the deterioration of mental health among the people being supported. A significant proportion of professionals — **76%** — **point to the growing prevalence of psychological conditions/disorders as a primary factor driving hostile or violent behaviour.**

What makes this issue even more difficult to deal with is the **increased social fragility of the stakeholders being helped by HeSCare facilities.** Many individuals are entering these institutions **with heightened levels of distress, stemming from poverty, homelessness or personal trauma,** which in turn **generates frustration and, at times, violent outbursts.** Moreover, the **inability of some individuals to understand or accept institutional rules and structures** further escalates tensions. Incidents frequently arise when **service users feel disempowered or misunderstood, leading to conflict with staff** (CPI & KPMG, 2024). A report from the Spanish Ministry of Health corroborates this by explaining how the human behaviour of patients as well third parties (i.e. friends, family and other visitors) can link to their level of stress and frustrations with institutions and/or HeSCare personnel (Ministerio de Sanidad, 2024).

At a broader level, it appears that there is **a general deterioration of social cohesion. Increased individualism, diminished respect for public institutions and a growing sense of incivility contribute to a work environment that feels increasingly unstable and unsafe.** The lingering effects of the COVID-19 crisis also continue to be felt, both in the psychological vulnerabilities of the people supported and in the organisational fragility of many institutions (CPI & KPMG, 2024). This could very well explain why workplace violence is a persistent issue that HeSCare workers have to deal with.

When considering factors related to personnel, a report published by OSHA in the US explains how **personnel working in the HeSCare sector may have different perceptions and priorities such as the need to hold up the ethical duty of not doing harm to patients and wanting to help their patients as much as they possibly can** (OSHA, 2015). With such a mindset, it can be that **HeSCare personnel will disregard their own health and safety to help a patient or they may not want to stigmatise their patients** who have a psychological condition or behavioural issues meaning that they may be willing to put themselves in harm's way to, for example, calm down a patient.

3.4.3 Groups of workers most affected

An analysis of data from **2011 to 2014 on risks and injuries of healthcare workers in Sweden** identified that **nurses and/or assistant nurses** reported workplace violence as one of the most frequent causes for injury (in second place, together with sharp injuries in first place, patient handling in third place and falls in fourth place) (Wåhlin et al., 2019). Similarly, a **'retrospective observational study' of 10,970 health workers employed at an Italian university hospital** identified that the majority of workers who were being assaulted **between 2015 and 2017 were female nurses**, with the characteristics of **being female, being less than 50 years of age and having worked for 6-15 years being indicators of a heightened risk** for aggression (Viottini et al., 2020).

In 2021, an analysis of 87 academic papers on violence or aggression against nurses in the workplace looked into what types of workers are most affected by bullying specifically, and it established that **being a female nursing student and/or between 20 and 29 years old and/or single and/or following the Muslim religion are strong predictors of whether a worker or student will be subject to bullying** by co-workers and colleagues (Pagnucci et al., 2021).

In terms of **unwanted sexual attention**, EWCTS data from 2021 indicate that in the EU **female HeSCare personnel are more likely to be the subject of such behaviour** than their male counterparts (EU-OSHA, 2024a).

Looking into the specific subsectors of the HeSCare sector, there appear to be only minor differences in terms of prevalence. Based on the data from the EWCTS in 2021 for the EU-27, **the percentages of HeSCare personnel subjected to workplace violence** were 11% for the healthcare subsector, 13% for the residential care subsector and 8% for the social work subsector.

In terms of **unwanted sexual attention**, there are a few differences in prevalence between the subsectors. **Both the healthcare and residential care subsectors were recorded to have 5% of their workers subjected to unwanted sexual attention** in the EWCTS for 2021, **while in the social work subsector this figure was 1%** (EU-OSHA, 2024a).

In Italy, data from an Italian Workers' Compensation Authority (INAIL) report that recorded accidents attributable to situations of **violence, threats and aggressions in the workplace between 2015 and**

2019 reveal that **41% of the cases involved the healthcare subsector** (in workplaces such as hospitals, doctors' offices, etc.). **Residential care** (including nursing homes, care facilities, etc.) **accounted for 31% of cases, while the remaining 28% occurred in social work** (social work activities without accommodation) (INAIL, 2020).

In terms of **ESAW terminology**, accidents due to workplace violence are registered under the deviation category of '**shock, fright, violence, aggression, threat presence**'. In this category, instances such as violence, aggression and/or threat between company employees subjected to the employer's authority as well as from people external to the company towards victims performing their duties are registered. The share of victims among **female workers is the same as among male victims** (both 8%) (see Figure 11). Among **workers aged 55 years and older, the share (6%) is lower** than among workers from 25 to 54 years of age (8%) and among workers younger than 25 years of age (9%) (see Figure 12).

3.4.4 Health outcomes

Workplace violence can have **two types of health outcomes** on affected workers: **physical health outcomes and psychosocial health outcomes**. In both instances, these can be felt **in the short, medium and long term**.

Regarding **physical health outcomes**, a study conducted in Germany identified the following outcomes as consequences of workplace violence (Schablon et al., 2018):

- scratches and/or abrasions
- bruises/contusions
- swelling
- fractures
- MSK injuries
- head injuries
- physical disability
- chronic disability
- asphyxia
- sensory deficits

For example, in Italy, the types of injuries reported by workers due to workplace violence from 2015 to 2019 were **contusions** (over 50%), followed by **dislocations/sprains** (25%), mainly localised to **the head, upper limbs, chest/internal organs, spine and lower limbs** (INAIL, 2020).

Unlike the physical health outcomes, **psychosocial health outcomes are not as visible, and if personnel choose not to communicate them, they can remain unnoticed for a long time**. Psychosocial or mental health outcomes resulting from workplace violence include **fear, anxiety, depression, increased feelings of insecurity** (HSA, 2014b), **loss of confidence in the ability to do the work and the development of post-traumatic stress disorder (PTSD)** (Schablon et al., 2018). Findings from Eurofound based on EWCTS 2021 data further emphasise these psychosocial health outcomes by indicating that **workers who experience workplace violence are two times more likely than their counterparts who have not experienced it to suffer from anxiety, emotional exhaustion and a lack of energy as well as being at a risk of depression** (Eurofound, 2022). A Spanish report from 2021 corroborates these findings by highlighting how **workplace violence causes negative feelings among professionals, including sadness, anger, helplessness, and feeling attacked, intimidated, distressed, humiliated, anxious and disrespected**. Furthermore, this report highlights that workplace violence can lead to **changes in work behaviour**, with professionals becoming **more cautious, demotivated and maintaining an unwanted distance from patients, potentially practising hypervigilance due to fear of future incidents**. Finally, **severe or repeated aggressions** can trigger more significant psychological problems, such as **PTSD**, potentially leading to **inability to work or to remain at the facility where the aggression occurred** (Rodríguez et al., 2021). In some instances, these outcomes can become so serious that affected employees can no longer perform their work like they used to or are incapable of returning to work (HSA, 2014b).

Psychosocial health outcomes can **also be experienced by workers who witness (rather than experience) workplace violence**. The aforementioned Spanish study provides that violent events can lead to the **demoralisation of the rest of the staff, causing a decrease in staff work performance**

and an increase in sick leave. Beyond this, personnel who witness workplace violence can also be faced with **feelings of anxiety and fear.**

Workplace violence, therefore, can both lead to physical injuries and affect the mental state of personnel, which in the long term can influence their overall health and safety in the workplace (EU-OSHA, 2024a).

3.4.5 Practice and guidance identified on how accidents due to workplace violence can be prevented

As with the prevention of most workplace accidents, the prevention of accidents due to workplace violence begins with a **risk assessment.** For workplace violence, the risk assessment must **consider several different factors, including:**

- work organisation and environment;
- tasks of personnel;
- types of interactions between personnel and patients and/or service users;
- the potential presence of aggressive behaviour from patients, families, visitors and third parties; and
- the **experience and training of individual employees** (especially with regard to how they manage unexpected aggression and violence).

In addition to these factors, it may at times be necessary to also **assess patients and/or service users to determine any potential risks for violence, aggressive reactions and/or behaviours.**

The prevention of accidents due to workplace violence can be divided into three different groupings: **technical measures, organisational measures, and human behaviour measures** (HSA, 2014b). In each of these categories, several approaches can be implemented. The list below provides a non-exhaustive set of examples.

Technical prevention measures:

- Increase visibility for personnel through **adequate lighting, surveillance cameras, and reinforced glass doors and mirrors.**
- **Reduce access of patients and/or service users to weapons,** not only in terms of sharp objects but also in terms of fixtures, fittings and furniture.
- Provide **easy access to alarms for personnel.**
- Ensure **spacious rooms and facilities.**

Organisational prevention measures:

- **Avoid having personnel working alone.**
 - In instances where working alone is an intrinsic part of the work it is recommended to ensure that **employees have means of communication** (e.g. phone) **with a work base** and that they are **well trained and aware of the risks** as well as the procedures that they need to follow.
- Ensure **enough personnel are present with the necessary skills.**
- Rely on therapeutic interventions:
 - **assess patients and/or service users** at risk of aggressive or violent behaviour,
 - keep **up-to-date information on these patients and/or service users,** and
 - develop **care interventions tailored to these patients and/or service users.**
- Promote health professionals to **unite for the common goal of reducing and preventing workplace violence** (de Raeve et al., 2023).
- Ensure cooperation among employers to implement safety, health and occupational provisions as required by EU law.

Human behaviour-related prevention measures:

- **Provide information to patients and/or service users** about procedures on arrival and facilities, as well as policies relating to violent and/or aggressive behaviours.
- **Address queuing organisation** for patients and/or service users and **prevent delays.**
- Provide employee training and ensure that employees rely on this training.

- Train employees to better **understand the risks associated with workplace violence**.
- Provide employees with the necessary information so that they are better able to:
 - **identify signs of potential workplace violence**,
 - **manage difficult situations** when they emerge,
 - **use de-escalation techniques**, and
 - **report** on incidents of workplace violence.

Even with all these approaches in place, workplaces still need to have **procedures to respond to accidents related to workplace violence**. These can include **medical treatments for injuries as well as counselling and therapy**. Furthermore, there should **always be a procedure in place to report on the occurrence of these accidents (as well as near misses) and a follow-up investigation** to determine what led to the accidents and how these could be prevented in the future (HSA, 2014b). **Reporting on accidents due to workplace violence is particularly important** as it can prevent this type of occurrence from going unnoticed and it can help relevant stakeholders better understand how the situation is developing and what further actions are necessary.

In addition to this, the **perception and attitudes of the wider public also need to be targeted** as a preventive measure. As provided in the section above on causes and related risk factors, there has been a general development in society that has resulted in the deterioration of social cohesion, with people leaning on individualism, having a diminished respect for public institutions and having a growing sense of incivility (CPI & KPMG, 2024). This also needs to be addressed, and **public awareness campaigns could help in shedding light on the situation as well as increasing society's respect for workers in the HeSCare sector**. In fact, several EU Member States have started to rely on public awareness campaigns that aim to:

- **inform the general public about the existence and extent of the phenomenon of violence against health personnel**, and **sensitise the population** to the physical, psychological and professional consequences of these acts of violence;
- **promote a positive sentiment towards healthcare workers**, highlight the work of health professionals and the importance of this work for the community;
- **increase societal awareness of the pressures healthcare professionals face**, often employing personal testimonials and real-life experiences to foster empathy;
- **promote behavioural change**, also **emphasising the legal and criminal repercussions of such acts**, reinforcing the message that aggression towards health personnel is unacceptable and punishable by law;
- **encourage health professionals to report incidents of violence**, ensuring that cases are not overlooked; and
- **contribute to a broader institutional and cultural shift**, reinforcing the need for policy reforms and structural interventions that create safer and more supportive working environments for health personnel (see Box 13).

3.4.6 Examples of good practices

Below are a few examples of good practices to prevent accidents due to workplace violence.

Box 13: Awareness initiatives addressing workplace violence towards healthcare professionals

Professional bodies and hospitals have also developed their own campaigns. In Germany, the Marburger Bund with the Federal Ministry of Health distribute materials outlining legal penalties for aggression. In Belgium, 26 hospitals jointly launched the **#SeeEachOther** campaign under the slogan **'Your smile does good'**, urging patients, visitors and staff alike to adopt a zero-tolerance stance towards aggression in hospitals through the promotion of civility and positive reinforcement. France's Bordeaux University Hospital ran an award-winning campaign, **'Bienvenue en zone zéro violence'**, using symbolic imagery and cross-organisational collaboration to promote a culture of respect. In Portugal, the Garcia de Orta Hospital promoted the message **'Respect Those Who Care for You'**.

To address workplace violence in the HeSCare sector various **awareness campaigns** have been launched across the EU at national and regional level. In 2023, the French Ministry of Health initiated a campaign featuring posters and social media messages aimed at the public and workers to highlight the issue, encourage incident reporting and promote legal action. The key message was: **'You must be sick to attack a healthcare professional'**. In 2023, a similar campaign was launched in Italy with the slogan **'Violence will not make you feel better'**, and in the Netherlands in 2025 a similar campaign was launched with the slogan **'Be yourself, count to 11'**. The campaigns use posters, leaflets and digital media to promote respect for healthcare workers.

Campaigns are also launched at regional level. In Spain, several regional governments (like those in Castile-La Mancha and Galicia) have launched campaigns stressing the **importance of valuing and respecting the work of healthcare professionals**. Other regional campaigns emphasise the legal and criminal consequences that follow from aggression against healthcare professionals, including those in the Balearic Islands, Castile and León, and Valencia. One striking example is the Ibiza and Formentera campaign titled **'It's a crime...'**, which reminded citizens that verbal and physical violence against health workers is punishable by law.

Source: <https://osha.europa.eu/en/publications/raising-awareness-prevent-workplace-violence-against-healthcare-professionals>

Box 14: Safety Health Programme project for the Prevention of Violence in the Health Sector (PT)

In 2022, the Portuguese Council of Ministers approved an **Action Plan for the Prevention of Violence in the Health Sector** that aimed at **'the creation of a health sector-oriented proximity policing programme'**. To do so, the programme was split into three phases focused on: the **training of police officers working at 'Hospital Police Stations'** in different regions; the **communication between the Portuguese National Health Service authorities and the Public Security Police (PSP)** regarding safety issues and recommendations to address these as well as the conclusion of risk assessments together; and, lastly, the **operationalisation of the programme through 'awareness-raising activities' by the PSP and reinforcing policing actions in hospitals**. In 2022, the programme involved **719 police officers and lead to 93 awareness campaigns with 1,355 health professionals**.

Source: <https://eucpn.org/sites/default/files/document/files/Portugal-Safety%20Health%20Program.pdf>

Box 15: Mitigating violence in healthcare: The Karolinska Institute model for simplified incident reporting (SE)

The **Karolinska Institute model for simplified incident reporting** involves **simplifying the reporting of violent incidents in health sector workplaces** by using a **dedicated tool designed to capture all forms of patient-initiated violence**. In this approach, the **Violent Incident Form (VIF)** was developed to **measure incidents broadly**, including **verbal abuse, threats and minor injuries**, and to **complement existing work injury report forms**. The instrument is structured as a **20-item checklist** in a **multiple-choice format** that **captures detailed information about each incident, such as the time, location, aggressor, circumstances, immediate response, and the victim's injuries or reactions**. This tool was integrated into the daily routines of health workplaces in a controlled

intervention, where its use was combined with systematic analysis and discussions of violent incidents. The process not only **improved staff awareness of the triggers and risks associated with aggressive behaviour but also enhanced their coping skills**. As a result, there was a significant **increase in the reporting of incidents**, indicating that a simple and streamlined record-keeping method can reduce under-reporting. Although it remains unclear whether this heightened awareness and improved management ultimately lead to a reduction in the number of violent incidents, the continued use of the VIF by several work sites demonstrates its practical value in managing workplace violence. Furthermore, the use of the **VIF demonstrates how reporting can be facilitated and encouraged, leading to better reporting practices** which is important to fully understand the situation 'on the ground'.

Source: <https://staff.ki.se/your-employment/work-environment-health/reporting-incidents> and <https://edz.bib.uni-mannheim.de/www-edz/pdf/ef/02/ef02109en.pdf>

Box 16: Governmental policy against violence at work (SE)

The Swedish government recognised that healthcare is one of the sectors where workers are more likely to experience harassment and violence in the workplace. As part of its **2021-2025 work environment strategy** it is aiming at **strengthening sanctions for violence at work under criminal law**, especially **improving protections for public sector workers**.

Source: <https://www.government.se/contentassets/7a8a3957c3364717971a18ac3ed1d94d/a-good-work-environment-for-the-future--the-governments-work-environment-strategy-20212025.pdf>

Box 17: Precautions against violence in home care and nursing homes in collective labour agreement (NL)

In the Netherlands, trade unions and employers organisations have agreed upon the **collective labour agreement for home care and nursing homes that runs from 1 January 2025 to 31 August 2026** that includes **measures to address employee safety from violence and harassment**. New measures that have been added to the collective labour agreement include **employees not having to state surnames on badges** as well as **employees not having to make home visits alone if they feel unsafe**.

Source: <https://nos.nl/artikel/2559189-nieuwe-cao-voor-thuiszorg-en-verpleeghuizen-met-aandacht-voor-veiligheid>

Box 18: Prototype safe consulting room at Vinohrady hospital (CZ)

Following an attack perpetrated by a patient with a machete on a psychiatric admissions doctor at the Vinohrady hospital in Prague, the hospital introduced a **prototype for a consulting room with high security measures**. The prototype included **furniture bolted to the ground, plastic chairs, an emergency exit and an alert button for staff**. Following this prototype (which was presented in 2004), three more such consulting rooms were opened for use by doctors working in the admissions departments.

Source: <https://english.radio.cz/initiative-aims-improve-security-medical-staff-after-violent-attacks-8083544>

Box 19: The University of Vienna's initiative for addressing sexual harassment and bullying (AT)

At the University of Vienna, the **Sexual Harassment and Mobbing Advice Centre** was established as a pioneering initiative to **support victims of workplace violence**. Developed in response to alarming studies on the high rates of sexual harassment and mobbing within academic institutions, the centre serves as a first refuge for both employees and students. It is operated by a team of qualified professionals, including a psychotherapist, social worker and lawyer, and offers its services free of charge, confidentially and anonymously. The **centre provides crisis intervention through immediate debriefing and psychosocial counselling, as well as guidance on legal options**, thereby helping victims navigate their next steps. **Information about the services and access details are made readily available on the Internet**, ensuring that the support system is easily accessible. A **dedicated hotline offers initial contact twice a week, and appointments for personal counselling are scheduled to maintain anonymity**.

Moreover the **centre's activities are continuously evaluated by social scientists using anonymised documentation and regular interviews** which has helped to refine the intervention process and improve overall workplace management of harassment incidents. The positive feedback from clients and university management underscores the value of integrating such a support mechanism into the broader framework for handling personnel conflicts.

Source: <https://edz.bib.uni-mannheim.de/www-edz/pdf/ef/02/ef02109en.pdf>

Box 20: New laws to decrease and stop the incidence of violence and aggression in the HeSCare sector (IT)

Two laws introduced in 2020 (*Legge 14 agosto 2020, n. 113. Disposizioni in materia di sicurezza per gli esercenti le professioni sanitarie e socio-sanitarie nell'esercizio delle loro funzioni*) and 2024 (*Legge 18 novembre 2024, n. 171. Conversione in legge, con modificazioni, del decreto-legge 1° ottobre 2024, n. 137, recante misure urgenti per contrastare i fenomeni di violenza nei confronti dei professionisti sanitari, socio-sanitari, ausiliari e di assistenza e cura nell'esercizio delle loro funzioni nonché di danneggiamento dei beni destinati all'assistenza sanitaria.*) **were important pieces of legislation that introduced many features with the aim to decrease and stop the incidence of violence and aggressions in the HeSCare sector**. The two laws are very important because they:

- **introduced more penalties for anyone who attacks health and socio-health workers and destroys or damages hospitals and other health facilities** (or socio-health structures);
- created a **National Observatory on the Safety of Health and Socio-health Professionals (ONSEPS) to monitor and ensure health and safety of these workers**;
- made clear that the **Health Ministry would engage in promotion activities and campaigns to raise awareness** on the issue and prevent it;
- **introduced a National Day on the Prevention of Violence against these workers**; and
- introduced an **obligation for health and socio-health facilities to cooperate with local police to establish operational protocols**, in order to allow the police to intervene as fast as possible when an attacks occurs against workers and facilities in the HeSCare sector.

Source: <https://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:legge:2020:113> and <https://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:legge:2024-11-18;171>

Box 21: Panic buttons in local hospitals (IT)

The city of Bologna is installing '**panic buttons**' in local hospitals. In case of an attack, the attacked health worker (or a colleague) can **push the button and the police will intervene right away**. This allows for a **centralised, coordinated and timely management of emergencies** related to workplace violence and also enables a **rapid, precise and immediate intervention** by Italian law enforcement.

Source: <https://www.aosp.bo.it/it/content/un-nuovo-sistema-antiaggressione-nei-pronto-soccorso-della-citt%C3%A0-integrato-con-la-centrale>

3.5 Accidents due to physical overload

3.5.1 Description of the accident

Physical overload in the HeSCare sector can arise from **heavy lifting (lifting patients, heavy equipment and other objects), wrong movements, including body movements under physical stress, and working in awkward positions** (EU-OSHA, 2024a). More specifically, accidents due to physical overload occur when the aforementioned activities create **an excessive strain on the body that results in injury**. An accident due to physical overload can include an employee twisting their wrist while they try to manually move a patient from a bed to a chair or an employee injuring their shoulder when taking a patient in a wheelchair out of a vehicle without the appropriate ramp (see section 3.8 on ‘Accidents with vehicles in the course of work’) (INSST, n.d.b).

In ESAW data, the deviation categories of **‘body movement under or with physical stress (generally leading to an internal injury)’** and **‘body movement without physical stress (generally leading to an external injury)’** best match the aforementioned definition of accidents due to physical overload. Accordingly, ESAW further defines these deviations as including: **lifting, carrying, standing up, pushing, pulling, putting down, bending down, twisting, turning, treading badly, twisting leg or ankle, slipping without falling and other such types of deviations** for the former and **walking on a sharp object, kneeling on, sitting on, leaning against, being caught or carried away by something or by momentum, uncoordinated movements, spurious or untimely actions, and other such types of deviations** for the latter (European Commission/Eurostat, 2013).

According to ESAW, **18.7% of non-fatal accidents** (resulting in at least four full calendar days of absence of work) in 2022 in the HeSCare sector were caused by body movement under or with physical stress (generally leading to an internal injury)¹⁵ and 9.1% by body movement without physical stress (generally leading to an external injury)¹⁶ (see ‘Deviation’ in section 2.3.3).

In Italy, occupational accident data from INAIL reveal that, over the five-year period 2019-2023 in the HeSCare sector, **‘body movement under physical stress (generally leading to an internal injury)’** ranked as **the most frequent cause of injury** (with more than 7,500-8,000 cases recognised by INAIL per year), while **‘body movement without physical stress (generally leading to an external injury)’** followed in third position (with an average around 3,800 cases per year), if COVID-19 infections are excluded (INAIL, n.d.). While data from other sources on the prevalence of accidents due to physical overload are limited, ESENER 2019 provides some data on relevant risk factors that can be seen as an indicator of the possibility of accidents occurring. According to ESENER 2019, **risk factors present in establishments relating to lifting and moving people and heavy loads increased from 54% in 2014 to 57% in 2019**. Data from the EWCTS in 2021 corroborate this by indicating that **51% of workers are sometimes/often/always exposed to the risk of lifting and moving people** (here heavy loads are not explicitly included) (EU-OSHA, 2024a). For comparison, the EU-27 average for this same risk stands at 12%, hence indicating the **high prevalence of this risk in the HeSCare sector (which could lead to accidents due to physical overload as well as musculoskeletal disorders (MSDs))** (EU-OSHA, 2025).

3.5.2 Causes and related risk factors

■ Causes and related risk factors linked to the work environment

Patient-handling tasks constitute a big proportion of activities that subject HeSCare workers to physical overload. **Lifting and moving patients (handling patients), for activities such as bathing and dressing, are the most frequent causes of back pain and other injuries among nursing staff**, regardless of whether they are engaged in homecare or work in hospitals. As such, **workplaces that are lacking in equipment that can assist personnel while they conduct their work**, such as adjustable beds, can seriously affect their chances of experiencing accidents due to physical overload. Furthermore, **working in small or crowded spaces** can contribute to back strain (EU-OSHA, 2025).

¹⁵ There may be an external material agent that is a source of an additional physical effort at the origin of the physical stress. Example: where a person suffers a musculoskeletal injury while handling a load or object, that is, lifting it, pushing or pulling it, putting it down, twisting or turning while handling it, or treading badly while carrying it, without falling.

¹⁶ This category refers to situations in which the injured person's own body movement, which did not involve a special physical effort, led to (in general) an external injury. The body movement may be voluntary or involuntary. An example is the victim injuring their knee on an open desk drawer while sitting down. This is an example of voluntary body movement without effort, leading to an external injury.

Other elements that are intrinsic to the work of HeSCare workers include **repetitive movements and prolonged sitting and/or standing** (EU-OSHA, 2024a). Through such activities, HeSCare personnel may put **more of a strain on their bodies, which can make them more vulnerable to injury or accidents in instances of physical overload** (NIOSH, 2010).

- **Causes and related risk factors linked to organisational and psychosocial factors**

In France, an epidemiological study carried out at the INRS reveals that **simultaneous exposure to psychosocial constraints (intensity of work, emotional burden, lack of autonomy, etc.) and physical constraints (carrying heavy loads, awkward postures, etc.) increases the risk of work-related accidents among care workers** (Colin et al., 2022).

In order to gain a better understanding of the consequences of co-exposure to psychosocial and physical risk factors, a study was carried out using data from the French Working Conditions Survey (2013 and 2016). The results highlight, particularly among care workers in the healthcare sector, that they are four times more likely to be exposed to the risk of an occupational accident in the event of **high exposure to physical risk factors combined with high exposure to PSR factors**. In addition, the study reveals that **restricted, irregular and unpredictable working hours, poor work-life balance and inadequate preventive measures (e.g. insufficient lifting aids, lack of training)** are the organisational factors associated with the highest rates of occupational accidents in this sector (Colin et al., 2022).

In addition to this, accidents linked to physical overload often occur due to **staff shortages**. This is due to the fact that **HeSCare workers who work alone are more likely to put more of a strain on their body** when having to handle patients alone (EU-OSHA, 2024a). Staff shortages in the sector have been especially predominant in recent years, which could explain why the incidence rates of accidents due to physical overload are not diminishing (EU-OSHA, 2025).

- **Causes and related risk factors linked to personnel and patient behaviour**

The **patient's** condition can have a big influence on the risk of accidents due to physical overload occurring. Accordingly, factors that can increase the risk of physical overload specifically in the handling of patients include:

- the mobility of the patient;
- the body characteristics of the patient (weight, height); and/or
- the **functional limitations of the patient**: physical, mental or both.

In recent years, weight problems and obesity rates have been increasing in EU Member States, meaning that patients are becoming heavier and, as such, HeSCare personnel may need to exhibit more physical exertion when handling patients. This could be one of the many reasons as to why accidents due to physical overload are still taking place in the HeSCare sector (EU-OSHA, 2025).

In addition to this, HeSCare personnel may experience accidents due to physical overload when **special lifting techniques designed to reduce strain on the back increase the load on other body parts**, such as the neck, shoulders and arms, or when they have to **handle patients who may be connected to a catheter or other equipment**, leading to **awkward postures** for workers assisting with the handling (NIOSH, 2010).

For factors linked to personnel, a Spanish study conducted among nursing staff showed that the main cause of MSK injuries as linked to physical overload is the **failure to apply the principles** of proper body mechanics (Chávez et al., 2023). For example, in their focus on patient care, workers **may neglect ergonomic practices**, which can result in physical strain and injury.

3.5.3 Groups of workers most affected

By gender, **women represent the group of workers most affected**. This is largely due to the **gender imbalance in the sector**. The HeSCare sector primarily consists of female workers, placing women at a greater exposure to physical overload. Additionally, there is **a lack of protective equipment and OSH tools specifically designed for women's bodies**, which can put them at a higher risk of feeling the negative impacts of physical overload (EU-OSHA, 2024a).

By age, **younger workers are reported to face greater risks** compared to older workers. This is caused by several factors. Younger workers are often **more exposed to physical hazards and subjected to higher work intensity**, increasing work-related stress on the body. Additionally, younger

workers often **lack training, experience and job maturity, leading to an overestimation of their physical abilities and limitations**. Due to lack of training, the physical risks associated with their tasks may not be apparent to younger workers. On the other hand, when **older workers do experience accidents due to physical overloads these may result in more serious injuries or more persistent issues** due to the fact that as people age, their health declines (EU-OSHA, 2024a).

Looking at subsector level, **residential care workers are the most affected, followed closely by healthcare workers**. Employees in these subsectors report **working in tiring or painful positions, lifting or transferring patients, carrying or moving heavy loads, and repetitive hand or arm movements**. This has been reported as the case **especially in long-term residential care workers** (EU-OSHA, 2024a).

According to ESAW, 18.7% of the non-fatal accidents (resulting in at least four full calendar days of absence of work) are caused by a body movement under or with physical stress (generally leading to an internal injury) and 9.1% by a body movement without physical stress (generally leading to an external injury) (see 'Deviation' in section 2.3.3). Among **female workers (19%), the non-fatal accident is slightly more often caused by a body movement under or with physical stress (generally leading to an internal injury)** than among male workers (18%) (see Figure 11). Compared to **workers 55 years and older (16%), the share is lower among workers from 25 to 54 years of age (19%) and among workers younger than 25 years of age (21%)** (see Figure 12).

Among **male workers (10%), the non-fatal accident is more often caused by body movement without physical stress** (generally leading to an external injury) than among female workers (9%) (see Figure 11). Compared to workers 55 years and older, the share (9%) is the same as among workers from 25 to 54 years of age (9%) and lower than among workers younger than 25 years of age (12%) (see Figure 12).

3.5.4 Health outcomes

Accidents due to physical overload can lead to direct **injuries of the individuals' MSK system as well as the development of MSDs**. While MSK injuries are caused by **acute traumatic events** (such as a fall or twisting a limb), **MSDs encapsulate specific conditions such as osteoarthritis or carpal tunnel syndrome** (EU-OSHA, 2024a). With both MSK injuries and MSDs, the **muscles, tendons, joints and nerves of individuals can be affected**. These MSK injuries can result in **chronic pain and lasting MSK issues** that may **persist well beyond the initial incident and become MSDs** (Strid et al., 2021). Workers in the HeSCare sector suffer from MSDs due to physical overload more frequently than workers from other sectors. The **frequency of MSDs remains high across the sector**, with no substantial difference among subsectors (EU-OSHA, 2024a).

Beyond this, accidents linked to physical overload can lead to **pain in specific parts of a person's body**. In 2020, **46% of HeSCare workers reported experiencing lower back pain, and 47% reported upper limb pain**. Compared to the average EU worker, **healthcare workers face higher rates of back pain and muscle pain in both their upper and lower limbs** (EU-OSHA, 2024a).

Furthermore, HeSCare workers may experience other types of accidents discussed in this report due to physical overload. For example, if an employee suddenly has to carry excessive weight then they may fall (see section 3.2 'Slips, trips and falls (STFs)'), which can lead not only to **bruising and sprains** but also to a **head injury**.

3.5.5 Practice and guidance identified on how accidents due to physical overload can be prevented

Council Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work (**the Framework Directive**) provides that **employers are required to conduct risk assessments of their workplaces and then take measures to address any identified risks** (Council of the European Union Directive 89/391/EEC, 1989a). In terms of physical overload, employers have to take into consideration the **types of activities HeSCare personnel are conducting and the extent to which these activities place an excessive physical strain on workers**. To minimise the chances of accidents occurring due to physical overload, preventive measures that address technical, organisational and human behaviour elements can be adopted. The three categories are in line with the SCM framework presented in Chapter 1, hence indicating how gaps in interventions can be addressed to better meet prevention needs.

Technical prevention measures (EU-OSHA, 2015; NIOSH, 2010):

- Ensure that **technical equipment is available to eliminate or diminish the manual handling** done by personnel.
 - This includes providing **mobile lifts, standing hoists, sliding sheets (sturdy & low-friction material that allows the raising, shifting and re-positioning of patients by sliding instead of lifting), sliding/transfer boards, wheelchair stair lifts and/or ramps, and slings.**
- **Avoid and/or minimise physical overload from patient handling by relying on and/or developing alternative handling methods.**
 - In France, the ‘**Accompagner La Mobilité**’ (ALM) approach demonstrates how alternative handling methods can be used by: **relying on equipment such as technical aids; using verbal cues and guidance to encourage patients to move on their own; and providing limited physical assistance when possible.** Particularly important to note is that introducing alternative handling methods does not necessarily mean having to rely on standardised handling methods but can be more focused on **allowing workers to adapt their work to their needs and the individual situations they are faced with** (EU-OSHA, 2025).
- Ensure **adequate space for patient handling.**
 - This includes making sure width of **routes are appropriate for patient transfer, and position of equipment does not interfere with patient handling and/or can be moved to better transfer patients.**
- Rely on **height-adjustable furniture.**
- Ensure **floor surfaces are not slippery** and have good grip.
- Provide **adequate lighting sources.**

Organisational prevention measures (HSE, n.d.):

- Introduce **manual handling policies and guidelines.**
- Promote **reporting when accidents and near-misses occur.**
- **Follow up** on accidents with **investigations into causes and/or follow-up risk assessments.**
- Provide **staff with planning and work schedules that are sustainable**, avoiding excessively long shifts and working alone.
- Ensure that **staff are alternating activities.**
- Ensure that **personnel work in teams** that can delegate tasks.
- Provide **post-injury and rehabilitation support.**
- Ensure **cooperation among employers to implement safety, health and occupational provisions as required by EU law.**

Human behaviour prevention measures (HSE, n.d.):

- **Raise awareness** on the issue of accidents due to physical overload.
- Ensure **staff call for support when working alone.**
- Provide **staff training for manual handling and/or working in physically demanding situations** and ensure that **staff follow the training while working.**

3.5.6 Examples of good practices

Below are a few examples of good practices to prevent accidents due to physical overload.

Box 22: Back school initiative – physical overload

The School of the Back initiative has been implemented through a structured training programme delivered by in-house physiotherapists, combining theoretical and practical components across all company residential care centres to ensure consistency and effectiveness. This training programme is designed to instil not only knowledge but also behavioural change, encouraging workers to integrate these habits into their daily routines and shift towards a culture of prevention rather than treatment. The theoretical training focuses on educating employees about the risks associated with their daily routines and best practices for mitigating those risks, rather than just providing a set of exercises. This component includes instruction on spinal anatomy and function, the biomechanics of movement, the role of supporting muscles and the main causes of back pain. It also addresses common work-related back injuries in the sector, especially those resulting from repetitive movements and poor lifting techniques, and it explains how physical activity helps prevent pain and injuries. The practical part of the initiative features hands-on sessions aimed at developing safe working habits through physical routines. These include several main exercise categories, including: general stretching exercises to enhance flexibility, upper body warm-up exercises to prepare for lifting tasks, core and back strengthening routines for spinal support and stability, and lower body strengthening exercises to improve leg strength. Employees are encouraged to perform stretching and warm-up exercises before each shift and to practise strengthening routines at least twice per week. To support continued practice, visual aids such as posters and signs have been placed in changing rooms, illustrating correct lifting techniques and stretches.

Source: <https://www.gsr.coop/es/> : <https://osha.europa.eu/en/publications/back-school-spanish-initiative-protect-back-health-among-workers-residential-care>

Box 23: TutoPrév' – Home and Residential Care

The TutoPrév' approach is a set of educational tools originally created by CARSAT, sector-specific professional bodies and vocational education stakeholders to help teachers and trainers address occupational risks in various sectors. Developed further with the INRS, the National Health Insurance Fund – Occupational Risks Department CNAM and the Ministry of Education, TutoPrév' includes three main tools for the home and residential care sector, in response to the high incidence of work-related accidents and diseases in this sector.

- TutoPrév' Accueil helps supervisors, teachers and mentors integrate newcomers in the home and residential care sector — such as students, apprentices, new staff and trainees — by providing illustrated boards to identify risks, check understanding and address knowledge gaps about OSH.
- TutoPrév' Pédagogie is aimed at vocational teachers and trainers. It offers methodological guidance, risk factsheets and tools for assessing risky situations, supporting both risk-based and work situation-based learning.
- TutoPrév' Interactif is an online tool launched in 2023. It uses visual scenarios and requires teacher guidance to help learners identify risks and propose preventive measures. It can be used to assess and reinforce OSH knowledge, with links to the other TutoPrév' tools for further training if needed.

Overall, integrating these tools into education and training promotes a strong culture of prevention from an early stage, helping reduce workplace accidents and diseases and improving long-term employability and wellbeing in the sector.

Source: <https://osha.europa.eu/en/publications/home-and-residential-care-france-how-tutoprev-approach-prepares-new-hires-and-supports-teachers>

Box 24: Workplace interventions to prevent accidents due to physical overload (DK)

Denmark has implemented a **multidimensional workplace intervention** to reduce physical overload injuries among nursing assistants, kitchen staff, cleaning staff and caretakers working in nursing homes and home care settings. This intervention focused on **participatory ergonomics, physical training, and cognitive behavioural therapy (CBT)** to prevent MSDs and improve workplace wellbeing. The programme was tested over three months with 594 participants divided into four groups across 21 clusters. The **study assessed different types of physical exercises, including body awareness training, posture correction, strength and coordination exercises, and general physical activity**. Moreover, **CBT workshops were provided** to help workers modify maladaptive pain behaviours and improve cognitive processing related to physical discomfort.

The results showed a significant reduction in the number of days with low back pain, pain intensity and discomfort among workers who participated in the intervention compared to the control group. This demonstrated that **combining physical exercise with cognitive training is an effective approach to reducing MSK pain and improving resilience in physically demanding jobs** within the elderly care sector.

Source: <https://www.scielo.br/rbso/a/Tft3ntyVF9cnqsDS7mrGFFP/?format=pdf&lang=en> and https://journals.lww.com/pain/fulltext/2015/09000/a_multifaceted_workplace_intervention_for_low_back.24.aspx

Box 25: Participatory ergonomics to prevent physical overload in the Netherlands (NL)

The **Stay@Work programme in the Netherlands** focuses on **participatory ergonomics to prevent low back pain and neck pain among workers**, particularly in healthcare. The **programme actively involves employees in identifying and addressing ergonomic risks related to manual handling, lifting and repetitive tasks**, which are common causes of physical overload. The intervention follows a **structured process, starting with the formation of a working group comprising employees, management and occupational health professionals**. This group **conducts risk assessments, identifies ergonomic hazards, and proposes practical solutions such as workstation adjustments and assistive lifting devices**. To support implementation, **trained ‘ergocoaches’** ensure that best practices are followed and maintained over time. The programme has shown **positive results**; it has reduced low back pain and neck pain cases while improving workplace safety and productivity.

Source: <https://bmcmusculoskeletdisord.biomedcentral.com/articles/10.1186/1471-2474-9-145>

Box 26: Educational and physical intervention for preventing low back pain recurrence (FR)

France implemented a **long-term educational and physical intervention to prevent low back pain recurrence** among healthcare workers in hospitals. This intervention aimed to reduce work-related MSDs and consisted of **combining exercise therapy with education on pain management and safe movement techniques**. The programme was conducted in 10 hospitals and involved 353 healthcare workers with a history of low back pain. The intervention consisted of three key components: **a two-hour education session on low back pain management and prevention, five weekly 90-minute workplace-based exercise training sessions, and a home-based self-managed exercise programme**. The exercises focused on lumbar spine mobility, stretching and postural awareness, the purpose of this being to **improve muscle endurance and reduce strain-related injuries**.

At the two-year follow-up, 24% of workers in the intervention group and 21% in the control group experienced at least one recurrence of low back pain requiring sick leave. While the **intervention did not significantly reduce low back pain recurrence rates, it proved effective in reducing fear-avoidance behaviours and improving muscle endurance**. Moreover, workers in the intervention group had lower healthcare utilisation, with reduced reliance on painkillers, medical visits, imaging and outpatient physiotherapy.

Source: <https://pubmed.ncbi.nlm.nih.gov/27779639/>

Box 27: Method for analysing physical workload – HeSCare sector (FR)

In France, the INRS published a report on a method to analyse the physical workload of personnel in the HeSCare sector. This method for **analysing the physical workload in the HeSCare sector** has been designed for use in specialised establishments (hospitals, clinics, accommodation for the elderly, disabled people, children) and support and care services. It makes it possible to **identify and analyse risk factors for the MSK system while taking into account all components of the activity**. It proposes a **preventive action plan** that makes it possible to **establish priorities, directed towards relevant prevention avenues, and evaluates their effectiveness**. It is applicable in organisations of all sizes.

Source: <https://www.inrs.fr/media.html?refINRS=ED%206291>

3.6 Accidents when operating machinery

3.6.1 Description of the accident

According to the International Organisation for Standardisation (ISO) 12100, a **machine constitutes an 'assembly, fitted with or intended to be fitted with a drive system consisting of linked parts or components, at least one of which moves, and which are joined together for a specific application'** (ISO, n.d.). The **Directive 2006/42/EC on machinery (the Machinery Directive)** follows this same definition and **also refers to 'interchangeable equipment, safety components, lifting accessories ...'** (Council of the European Union and European Parliament Directive 2006/42/EC, 2006; EU-OSHA, 2024c). Based on these definitions, **equipment such as mechanical beds and stretchers, imaging devices and patient lifts** is considered to be machinery used in the HeSCare sector. These types of machinery are mainly **used to help care for patients**, but in the HeSCare sector, **machinery such as industrial washing machines, ventilation systems and industrial floor washers are also used by non-medical staff to assist in the operation of HeSCare sector facilities**. In the HeSCare sector, a number of accidents occur when workers operate with such machinery. These **accidents can include workers getting stuck in the machinery, lesions from handling machines and electrical shocks** (Tremblay et al., 2018).

According to data from ESENER 2019, **30% of establishments in the HeSCare sector indicate that workers are exposed to the risk of accidents with machines, which is significantly lower than the 48% of risks present in the EU-27 average across all NACE sectors** (EU-OSHA, 2024a). This can be due to the fact that workers in the HeSCare sector are less likely to work with heavy machinery when compared to, for example, the agricultural or manufacturing sectors. Despite this, accidents while operating machinery are still taking place in the sector and need to be addressed/prevented (Tremblay et al., 2018).

When comparing the figures from ESENER 2014 to those of ESENER 2019, **a slight decrease can be identified as the percentage of establishments reporting risks of accidents with machines or hand tools went from 33% to 30%, respectively** (EU-OSHA, 2024a).

In ESAW, data on accidents when operating machinery can be found in the specific physical activity **'Operating machine – not specified'** that includes activities such as: starting and stopping a machine; feeding and unloading a machine; and monitoring, operating or driving the machine. In addition to this, material agents include 'machines and equipment – portable or mobile – not specified and machines and equipment – fixed – not specified'. According to **ESAW, 0.2% of non-fatal accidents** (resulting in at least four full calendar days of absence of work) occurred when operating a machine – not specified (see Figure 9).

3.6.2 Causes and related risk factors

▪ Causes and related risk factors linked to the work environment

The **state of the machines** that are being used by HeSCare personnel is a source of risk for accidents while operating machinery. More specifically, operating machines can become a cause or risk factor leading to accidents when these machines (EU-OSHA, 2024a; HSA, n.d.c; Tremblay, 2018):

- **Fail to function** as they are supposed to.
 - Here staff may be inclined to intervene and try to fix machinery, which may lead to injury.
- **Lack protective parts.**
 - For example, missing protection panels on industrial washing machines or kitchen machinery or lacking teletherapy units (interlock devices, door and emergency switches) (Rioja Salud, n.d.).
- Have **exposed or damaged cables.**
- Have **manufacturing defects**, have **deteriorated** or are simply in **poor condition** (Rioja Salud, n.d.).

Another element of the work environment that may lead to accidents when operating machinery is if and/or when the **environment around the machinery is wet. Contact of electrical machinery with wet equipment or with wet hands or body parts can result in electrical shocks**, hence leading to accidents (Rioja Salud, n.d.).

■ **Causes and related risk factors linked to organisational and psychosocial factors**

Organisational factors that may increase the chances of accidents while operating machinery include: **not conducting sufficient machinery maintenance and/or machinery checks; not providing staff using the machinery with sufficient information regarding risks or necessary precautions; not having well-established working procedures** to diminish risk factors when operating machinery; and **allowing unaccredited or unauthorised personnel to instal, maintain and repair** the machinery (EU-OSHA, 2024a; HSA, n.d.c; Rioja Salud, n.d.; Tremblay, 2018).

■ **Causes and related risk factors linked to personnel and patient behaviour**

Personnel can be the cause of accidents while operating machinery as they may make **use errors while working** with such equipment. This can arise due to **lack of understanding from personnel** on how to use machinery as well as due to **personnel being tired, stressed or overworked**. Furthermore, **failure to observe the working procedures established by the manufacturer** for handling machinery and work equipment can contribute to the risk of accidents while operating machinery.

Lastly, personnel who **tamper with or modify the safety devices of equipment** (e.g. insulators, protective casings) **and/or make improper connections** (e.g. without a plug, overloaded multi-socket adapters or extension leads without an earth) have a higher chance of experiencing electrical accidents (EU-OSHA, 2024a; HSA, n.d.c; Rioja Salud, n.d.; Tremblay, 2018).

3.6.3 Groups of workers most affected

When looking at the **individual HeSCare subsectors**, the **risk of accidents with machinery is comparable at around 30%**. For the **healthcare subsector**, the **risk of accidents with machinery is slightly higher than for the other two subsectors**. This is attributable to the fact that in this subsector, **machines are very common both for medical** (e.g. mechanical beds and patient lifts) **and non medical purposes** (e.g. laundry machines). When looking specifically at non-medical machines, these are identified as being a key type of machines that lead to accidents (in all three subsectors), hence indicating that non-medical staff are at a particular risk of being exposed to accidents with machinery while working (EU-OSHA, 2024a).

Based on ESENER 2019 data, the risk of accidents with machines and hand tools **is highest in the healthcare subsector at 33%** of the establishments, second highest in the residential care subsector at 28% and lowest in the social work subsector at 27%. Important to note here is that ESENER data not only encapsulate accidents with machinery under these percentages, they also include accidents with hand tools. These include, for example, scissors and plaster saws, which may be used at a higher frequency than the machinery defined in the context of this study. The healthcare subsector is at a higher risk for accidents with machines due to the fact that this is where machines for special processes are used the most (EU-OSHA, 2024a). In addition to this, the healthcare sector has a lot of **non-medical staff working with machinery**, such as **staff dealing with 'mechanical maintenance, medical equipment maintenance, housekeeping, food service, building and grounds maintenance, laundry, and administrative staff'** (Tremblay, 2018, p. 210). Given their specific roles in supporting the operation of HeSCare facilities and how much they rely on machinery, such as washing machines, ventilation systems and industrial floor washers, these **non-medical HeSCare personnel are at a particular risk of being exposed to accidents while operating machinery**.

Unfortunately, detailed information on the categories of workers who are most affected by accidents while operating machinery according to gender, age and role is limited. In ESAW, data on accidents when operating machinery can be found in the category specific physical activity '**Operating machine – not specified**' that includes activities such as: starting and stopping a machine; feeding and unloading a machine; and monitoring, operating or driving the machine. In addition to this, material agents include 'machines and equipment – portable or mobile – not specified and machines and equipment – fixed – not specified'. According to ESAW, 0.2% of the non-fatal accidents (resulting in at least four full calendar days of absence of work) occurred when operating a machine (see 'Specific physical activity that resulted in the accident' in section 2.3.3). There are some differences between gender and age categories, whereby males (9% versus 5% for females) and younger workers are more affected (10% for 25 years and under versus 5% and 6% for 55 years and over and 25-54 years old, respectively (see 'Loss of control (total or partial) of machine, means of transport or handling equipment, hand-held tool, object, animal' in Figure 11 and Figure 12).

3.6.4 Health outcomes

Accidents that occur when operating machinery can have a variety of health outcomes. For example, staff using machinery in hospital kitchens may **seriously injure their hands** while using a machine to slice vegetables or workers can get caught up in machinery such as industrial laundry machines or mechanical beds that can **lead to them injuring, straining or spraining their limbs and/or falling** (Tremblay, 2018). Here, a link can be made to the accidents known as STFs as well as accidents due to physical overload.

When machinery fails to function, personnel may step in to compensate for the malfunction and therefore put a physical strain on their bodies or they may fall due to a sudden stop of a machine function. STFs can then lead to back injuries or even severe fractures (see section 3.2 on 'Slips, trips and falls (STFs)'), while accidents due to physical overload may also lead to back injuries as well as other types of MSK injuries (see section 3.5 on 'Accidents due to physical overload'). Furthermore, when machinery has exposed wiring or cables, workers may **suffer an electric shock or get burned**.

3.6.5 Practice and guidance identified on how accidents when operating machinery can be prevented

Conducting **risk assessments**, as required by all employers on the basis of Council Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work (the Framework Directive), is always the first step necessary to address prevention. In the case of machinery, **risk assessments need to consider the types of machinery present in the workplace, how they are intended to be used and what risks arise from them** (Council of the European Union Directive 89/391/EEC, 1989a). Based on this, corrective measures can then be implemented to avoid risks from materialising as much as possible.

Risks when operating with machinery can then be mitigated by focusing on technical, organisational and human behaviour prevention measures (Tremblay, 2018; WHO, n.d.). These three categories are in line with the SCM framework presented in Chapter 1, hence indicating how gaps in interventions can be addressed to better meet prevention needs.

Technical prevention measures:

- Ensure that machinery **meets EU standards** by having the CE marking (this marking indicates that machinery meets the standards set out in EU directives).
- Ensure machinery being used has **protective measures** in place.
 - For example, **protection panels and/or hand protectors** should be present.
- Ensure that **machinery and equipment that are used together are compatible**.
- **Limit exposure to radiation** from machinery by: only using this machinery when benefits outweigh the risks; implementing shielding, protective barriers, safety interlocks, warning signs and signals around machinery that emits radiation; and limiting access to areas near machinery that emits radiation to authorised personnel only.
- Ensure that **wiring and cables are not exposed or damaged**.
- Place **warning and safety signs** around machinery.

- Implement **mechanisms to shut down the machinery when malfunctioning or when proper functioning is impaired** (due to an accident or otherwise).

Organisational prevention measures:

- Ensure **machines receive regular maintenance and inspections**.
 - This can include the **development of a maintenance and inspection plan**.
- **Repair machinery as soon as impairments appear**, and if repair is not possible right away ensure that impairment is communicated.
- **Ensure cooperation among employers to implement safety, health and occupational provisions as required by EU law**.

Human behaviour prevention measures:

- Ensure that only authorised **personnel use machinery, as it is meant to be used**.
- **Provide personnel with the necessary instructions, manuals and training** to safely use machinery.
- **Provide employees with PPE** when machinery cannot be made safer or when health risks are an intrinsic part of the machinery (e.g. a machine that emits noise or radiation).
- **Train staff to identify when machinery is malfunctioning**, and ensure that they know the **visual cues that indicate a machine is broken**.

3.6.6 Examples of good practices

Below is an example of a good practice to prevent accidents when operating machinery.

Box 28: Guide to the application of the Machinery Directive 2006/42/EC (EU)

The European Commission published in 2024 an updated second edition of the ‘Guide to the application of the Machinery Directive 2006/42/EC’ that dives deep into all the articles of the Machinery Directive and provides an **explanation of what is expected in layperson’s terms**. This can provide **support to employers** who need to comply with obligations provided therein and **help in preventing accidents** for their personnel when operating machinery.

Source: <https://ec.europa.eu/docsroom/documents/60145>

3.7 Accidents resulting in exposure to hazardous substances and biological agents

3.7.1 Description of the accident

The HeSCare sector is dependent on a wide range of hazardous substances used for various purposes, including **patient treatment** (such as medications and anaesthetic agents), **laboratory procedures**, and the **cleaning, disinfection and sterilisation** of surfaces and equipment.

In 2023, the European Commission published a guide on the safe management of **hazardous medicinal products (HMPs)** at work (European Commission, 2023). Therein, HMPs are defined as ‘medicinal products that contain one or more substances that meet the criteria for classification as: **carcinogenic, mutagenic, or toxic for reproduction**’. In terms of **hazardous chemical substances**, Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work (the Chemical Agents Directive) defines these as chemical agents that are classified as a dangerous substance or as having dangerous preparations under EU law or, and most importantly for the context of this report, as substances that **may present a risk to the safety and health of workers** (Council of the European Union Directive 98/24/EC, 1989c). In both documents, as well as in Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work (the Carcinogens and Mutagens at Work Directive), it is acknowledged that **accidents may result in the exposure of workers to such hazardous substances** (Council of the European Union and European Parliament Directive 2004/37/EC, 2004; EU-OSHA, 2024b). For example, the accidental breakage of an ampoule containing HMPs may lead to **exposure through inhalation, direct skin contact, sharps injuries, contact with the eyes or accidental ingestion** (EU-OSHA, 2014; European

Commission, 2023). This exposure can then lead to serious injuries as well as negative health outcomes.

Directive 2000/54/EC on the protection of workers from risks related to exposure to biological agents at work (the Biological Agents Directive) defines **biological agents** as ‘**micro-organisms, including those which have been genetically modified, cell cultures and human endoparasites, which may be able to provoke any infection, allergy or toxicity**’. The Biological Agents Directive further provides that biological agents may be **classified into four categories that correspond to increasing levels of risk of infection and seriousness/severity**. For group 2, biological agents are classified as those that can cause human disease and **might be a hazard to workers**. This progresses to group 4 that constitutes biological agents that cause severe human disease, are **a serious hazard to workers** and may present a **high risk of spreading to the community without the availability of effective treatment** (Council of the European Union and European Parliament Directive 2000/54/EC, 2000). Given the nature of their work, HeSCare workers are continuously at risk of being exposed to biological agents that may lead to **bloodborne infections, such as hepatitis B and C and HIV, and airborne infections like tuberculosis and influenza** as well as **direct and indirect contact infections, including MRSA, Ebola and shigella** (EU-OSHA, 2014). The Biological Agents Directive acknowledges **that accidents in the workplace can lead to personnel being exposed to such biological agents** (Council of the European Union and European Parliament Directive 2000/54/EC, 2000). These accidents can include personnel accidentally pricking themselves with a used needle (see section 3.3 on ‘Sharp and needlestick injuries (SNIs)’), accidentally coming into contact with biological agents when handling waste or getting bitten by patients during instances of workplace violence (see section 3.4 on ‘Accidents due to workplace violence’) (EU-OSHA, 2014).

ESAW differentiates between **injuries categorised as poisonings and infections**, which includes ‘acute effects of the injection, ingestion, absorption or inhalation of toxic, corrosive or caustic substances; bites of venomous animals; asphyxiation by carbon monoxide or other toxic gases’ as well as ‘infection by virus, bacteria and other infectious agents’. In addition to this, ESAW includes the option to register information on the contact mode of injury involved in accidents. According to ESAW, 25.6% of the non-fatal accidents (resulting in at least four full calendar days of absence of work) are caused by contact with electrical voltage, temperature or hazardous substances (see ‘Contact and mode of injury’ in section 2.3.3). In addition to this, ESAW includes the option to register information on the **material agents** involved in accidents that includes data on ‘chemical, explosive, radioactive, biological substances’, ‘living organisms and human beings’, and ‘bulk waste’ (European Commission/ Eurostat, 2013). Important to note here is that in 2022 Eurostat created a new code to capture occupational COVID-19 cases.

HeSCare workers generally face **significantly higher exposure to infectious materials compared to the EU-27 average across all sectors**. According to EWCTS 2021 data, **59% of HeSCare workers handle or come into direct contact with potentially infectious materials**, which is **more than three times the EU-27 average of 18%** (EU-OSHA, 2024a). In turn, ESENER data indicate that **the percentage of establishments in the EU-27 reporting exposure to chemical and biological substances remained relatively stable between 2014 and 2019, at 49% and 47%, respectively**. In both years, this risk ranked among the top three OSH hazards in the sector (EU-OSHA, 2024a). While these data indicate the relatively high risk of exposure that HeSCare personnel have to deal with, it is important to keep in mind that these figures do not necessarily always relate to exposure due to an accident. Despite this, the data still highlight the fact that an increased risk of exposure to hazardous and biological substances is an inherent part of the HeSCare sector, and accidents are one of the many ways in which the negative health outcomes or injuries from such exposure may materialise for HeSCare personnel.

3.7.2 Causes and related risks factors

■ Causes and related risk factors linked to the work environment

Handling hazardous substances and biological agents is a major part of working in the HeSCare sector. These are, therefore, **an intrinsic part of the HeSCare work environment, and their presence in this environment already presents itself as a risk factor**. For example, **strict hygiene protocols in the HeSCare sector necessitate the frequent use of chemical disinfectants and cleaning agents for hospital surfaces, medical instruments, skin and rooms**, leading to an increase in the risk of experiencing an accident leading to the exposure of hazardous substances (EU-OSHA, 2014). Similarly, **HeSCare personnel may be dealing on a daily basis with patients who have contracted infectious**

diseases, meaning that they are at higher risk of being exposed to such biological agents when an accident occurs than workers working in other sectors.

Furthermore, **not having appropriate disposal facilities for staff to dispose of used needles or medication vials** can be a risk factor for accidents resulting in exposure to hazardous substances and biological agents. If used needles or medication vials are left around or disposed of in a regular trash bag, then there is **a higher chance that a worker**, either medical or non-medical, **may accidentally come into contact with these and be exposed to hazardous substances or biological agents** (National Treasury Management Agency, 2020). In fact, having to work with sharps or needlesticks is a key risk factor that can affect the chances of accidents resulting in exposure to biological agents. In 2024, the **most common injuries related to biological agents were caused by needlestick injury incidents**, which **can occur during procedures such as intramuscular or subcutaneous injections, taking blood samples and replacing the cap on a used needle**. A 2023 Polish study focusing on nurses working in intensive care units confirms this, by emphasising that the majority of exposures (80.6%) occurred through needlestick injuries (Tomaszewska et al., 2023).

▪ Causes and related risk factors linked to organisational and psychosocial factors

In terms of psychosocial-related factors, it has been identified that **demanding workloads and fast-paced environments** can lead to **lapses in worker protection**, increasing the risk of exposure to hazardous and/or biological substances if accidents occur (EU-OSHA, 2014).

Accidents resulting in exposure to hazardous substances and/or biological agents can also arise due to the organisational factors of **inadequate supervision, improper handling of hazardous substances and substances containing biological agents, and insufficient worker awareness**. Interesting to note is that during the COVID-19 pandemic many workers suffered from infections due to **PPE shortages and inadequate isolation protocols** (EU-OSHA, 2024a).

▪ Causes and related risk factors linked to personnel and patient behaviour

For causes and related risk factors linked to personnel and human behaviour, errors in **drug preparation and administration** can expose workers to toxic, carcinogenic or mutagenic substances (EU-OSHA, 2024a). Similarly, **carelessness when using sharps or needlesticks** can expose workers to biological agents (see section 3.3 on 'Sharp and needlestick injuries (SNIs)'). Other relevant causes in this category include:

- **accidental contact with contaminated bodily fluids, or direct exposure to infected blood, saliva or other fluids during medical procedures;**
- **improper handling of medical waste;**
- **not wearing PPE** (EU-OSHA, 2024a); and
- **not being familiar with workplace safety procedures** (EU-OSHA, 2014).

Furthermore, **patients exhibiting aggressive behaviours**, such as pushing staff while they are holding medications or conducting medical procedures or biting staff, can be a risk factor that leads to accidents resulting in exposure to hazardous substances and biological agents.

Important to note in this section is the fact that **the occurrence of the other accidents listed in this report can also result in exposure to hazardous substances and biological agents**. For example, if a HeSCare worker slips while holding blood samples (see section 3.2 on 'Slips, trips and falls (STFs)'), an ambulance has a traffic accident while a paramedic is conducting a medical procedure (see section 3.8 on 'Accidents with vehicles in the course of work'), or a worker has to deal with a violent patient who spits in their face (see section 3.4 on 'Accidents due to workplace violence'), then there is a chance that they will be exposed to hazardous substances and/or biological agents.

3.7.3 Groups of workers most affected

Certain groups of HeSCare workers are particularly at risk of accidents resulting in exposure to hazardous substances and biological agents due to the nature of their work. A 2024 EU-OSHA study shows that **workers in healthcare and residential care are among the most at risk of being exposed to hazardous substance and biological agents**. These workers regularly encounter hazardous substances in tasks such as patient treatment, laboratory work and cleaning (EU-OSHA, 2024a).

Healthcare establishments report nearly twice the level of risk of exposure to hazardous substances and biological agents compared to those in the social work subsector. Additionally, **HeSCare workers are more than three times more likely to handle or come into direct contact with infectious materials than workers in other sectors** (EU-OSHA, 2024a). Within the sector, healthcare and residential care workers experience the highest levels of biological risk, while workers in the social work subsector face comparatively lower exposure (EU-OSHA, 2024a).

Specific groups of workers most affected by biological risks include **medical trainees, newly employed healthcare workers, those treating immunocompromised patients, older workers, pregnant workers and cleaners**. A 2019 EU-OSHA study emphasises that **medical trainees working in resource-poor settings face a higher risk of contracting locally endemic diseases such as malaria, dengue fever and HIV**. Trainees and newly employed healthcare workers are also more affected, as their **lack of experience can increase their exposure** to infections like hepatitis B (EU-OSHA, 2019a).

Healthcare workers treating immunocompromised patients are at greater risk due to the patients' heightened susceptibility to infections. **Older workers and pregnant workers remain vulnerable** due to age-related health concerns and potential complications from infections. Furthermore, **cleaners handling contaminated materials or working for external cleaning services** face increased risks due to potential exposure to sharp instruments and unclear safety protocols (EU-OSHA, 2019a). Additionally, other groups significantly affected include workers in clinical settings such as hospitals, diagnostic laboratories, blood donation centres and dialysis stations due to frequent direct contact with blood, bodily fluids, contaminated objects or infected individuals (Świątkowska, 2010).

Workers in healthcare and residential care are the most at risk of being affected by hazardous substances as they regularly handle these, including chemotherapy drugs and cleaning agents. **Homecare workers** also face significant risks related to hazardous substances, particularly due to **the lack of direct supervision and limited knowledge of patients' medications**, which can increase the chances of accidental exposure.

Nurses and other medical professionals administering HMPs are at risk of accidental toxic exposure (EU-OSHA, 2024a). Nurses, pharmacists and laboratory staff are particularly vulnerable to chemical hazards due to exposure to cytotoxic drugs, disinfecting agents and chemical reagents. The risk is heightened for these groups due to frequent contact with hazardous substances through inhalation, skin contact and inadequate protective measures (Świątkowska, 2010).

In 2019, the highest percentage of establishments reporting increased risks of contact with hazardous chemical or biological substances — such as liquids, fumes or dust — was found **in healthcare at 61%, followed by residential care at 42% and social work at 31%** (EU-OSHA, 2024a).

According to ESAW, 25.6% of the non-fatal accidents (resulting in at least four full calendar days of absence of work) are caused by contact with electrical voltage, temperature or hazardous substances. Among **female workers (25%), the non-fatal accident is less often caused** by contact with electrical voltage, temperature or hazardous substances than among male workers (28%) (see Figure 13). Among **workers aged 55 years and older, the share (24%) is lower** when compared to workers from 25 to 54 years of age (27%) and higher among workers younger than 25 years of age (16%) (see Figure 14).

3.7.4 Health outcomes

When a workplace accident occurs that results in exposure to hazardous substances and/or biological agents, HeSCare workers may experience the following health outcomes:

- **skin irritation**,
 - such as **itching, redness, burning and cracking** (Mohanty et al., 2019);
- **eye irritation**;
- **respiratory issues and irritation** leading to symptoms like **sore throat, cough and nasal irritation** (Mohanty et al., 2019) ;
- **allergic reactions**; and
- **contracting infections** of varying severity,
 - this includes **influenza, tuberculosis, legionellosis, hepatitis (A, B and C), and HIV**, which can result in **severe complications such as chronic liver disease, cirrhosis and even death** (ISSL, 2012).

In some instances, the **accidental exposure to hazardous substances can have serious carcinogenic and mutagenic effects, reproductive toxicity and serious mutagenic defects**. Additionally, healthcare workers may experience **organ impairment and chromosome abnormalities** as a result of handling HMPs (EU-OSHA, 2024a). Exposure to waste anaesthetic gases in hospitals can lead to **acute symptoms like dizziness and nausea as well as long-term risks such as organ damage, reproductive issues and cognitive impairment** (EU-OSHA, 2014). Additionally, exposure to allergens such as latex and fungal enzymes can lead to **occupational asthma or severe allergic reactions** (EU-OSHA, 2019a). Occupational exposure to these risks can contribute to **immune system compromise, prolonged illness and increased mortality**, especially in healthcare settings with inadequate infection control measures (EU-OSHA, 2014). Lastly, nurses and other medical professionals administering HMPs are at risk of **accidental toxic exposure, which can lead to organ damage, allergic reactions or chronic illnesses**.

3.7.5 Practice and guidance identified on how accidents resulting in exposure to hazardous substances and biological agents can be prevented

As with other accidents occurring in the HeSCare sector, the determination of preventive measures to address accidents resulting in the exposure to hazardous substances and/or biological agents requires that employers conduct **risk assessments**. For the prevention of this type of accident, risk assessments must **evaluate and consider all possible routes of exposure for HeSCare workers** to then manage and mitigate the risks. Prevention measures that can address accidents resulting in the exposure to hazardous substances and biological agents are provided in key EU directives. For hazardous substances, the **Carcinogens and Mutagens at Work Directive** requires employers to **identify and assess carcinogenic and mutagenic substances, implement exposure limits and substitute hazardous materials with safer alternatives where possible**. The directive, which was amended in 2020, reinforces **prevention through safer technological systems, mandatory protective measures and comprehensive worker training on handling hazardous substances** (Council of the European Union and European Parliament Directive 2004/37/EC, 2004; EU-OSHA, 2024b). In terms of biological agents, the **Biological Agents Directive** establishes **mandatory control measures, containment procedures and specific requirements for high-risk activities**. The directive sets **minimum safety standards while allowing EU Member States to introduce stricter national guidelines**, particularly in healthcare and laboratory settings (Council of the European Union and European Parliament Directive 2000/54/EC, 2000). These measures can then be broken down into the three categories of technical, organisational and human behaviour preventive measures, following the SCM presented in Chapter 1 of this report.

Technical prevention measures:

- **Clearly label all work areas, containers and equipment containing hazardous substances and/or biological agents with visible (bio)hazard warnings/signs.**
- Implement **engineering controls, such as closed systems and proper ventilation**, to limit exposure.
- Ensure **access to proper washing and decontamination facilities**.

Organisational prevention measures:

- Establish **strict procedures for the safe handling, storage and disposal** of hazardous and biological substances.
- **Replace hazardous substances and biological agents with safer alternatives whenever possible.**
- **Prohibit high-risk practices**, such as unnecessary handling of hazardous substances and/or biological agents.
- Implement **proper disposal procedures** using sealed, clearly marked and designated containers.
- Develop and enforce a **comprehensive workplace prevention policy, including emergency response protocols for incidents and abnormal exposures**.
- Conduct **mandatory health surveillance for exposed workers**, including biological monitoring where required.
- Provide **appropriate PPE**, such as protective clothing, gloves, masks and respiratory equipment,

ensuring proper maintenance, storage and replacement.

- Implement **appropriate response and follow-up procedures**, which include:
 - **providing post-exposure medical treatment** and health monitoring for affected workers,
 - **investigating the causes and circumstances** of exposure incidents to prevent recurrence; and
 - **offering counselling and support** where necessary for affected workers.
- Minimise worker exposure by **limiting the number of employees exposed and designing work processes to prevent or reduce the release of biological agents**.
- **Maintain detailed records of worker exposure, incidents and medical surveillance** to track long-term health risks and provide necessary follow-ups.
- **Ensure cooperation among employers to implement safety, health and occupational provisions as required by EU law.**

Human behaviour prevention measures:

- Provide **mandatory and ongoing training to workers** on the risks of exposure, safe handling procedures, emergency response actions and protective measures.

3.7.6 Examples of good practices

Below are a few examples of good practices to prevent chemical and biological risks. Important to note is that while Boxes 30 and 31 are not specific to the HeSCare sector, they are still considered relevant and transferable to the context of the HeSCare sector.

Box 29: The Jaén Hospital increases staff protection by implementing a biosafety system (ES)

The University Hospital of Jaén has implemented a **biosafety system** that makes it possible to **avoid the risks produced by hazardous waste, cancelling permanent toxic emissions in those places where this waste is located**. This covers **biological waste**, such as viruses, fungi and bacteria, **as well as chemical ones**, such as cytostatic, formaldehyde, xylene and others. The **system prevents the release of toxic emissions from these waste points and incorporates a purification process using photocatalysis**. This continuous sanitising process helps **maintain hygienic environments, reducing the presence of harmful microorganisms and airborne chemicals**. Additionally, in areas such as the Pathology Laboratory, where organic compounds are unavoidable, the hospital also utilises purification units to significantly lower volatile organic compounds by 70-80%. This system **improves staff safety by reinforcing existing protective measures**. After thorough testing, the **system has proven effective in decreasing toxic emissions and minimising the use of harmful materials**.

Source: <https://prevencionar.com/2022/07/17/el-hospital-de-jaen-aumenta-la-proteccion-del-personal-implantando-un-sistema-de-bioseguridad/>

Box 30: Hazardous Workplace Situations database (ES)

The 'Hazardous Workplace Situations' database ('Situaciones de Trabajo Peligrosas' (STP) in Spanish), developed by the INSST is a comprehensive resource that provides information on hazardous workplace situations for preventive purposes. Described case studies have been selected and deemed valuable for dissemination by a group of experts in occupational risk prevention. The information included per case study provides information on the real workplace scenario where harm to workers' health has occurred or could potentially occur (work-related accidents), identifying key elements for prevention and recommending appropriate preventive measures. The STP database includes three specific databases, namely: i) BINVAC database (Workplace Accidents Investigated), ii) BASEQUIM database (Situations Involving Exposure to Chemical Agents); and iii) BASEMAQ database (Hazardous Situations Caused by Machines).

Source: <https://www.insst.es/stp>

Box 31: Acting on the prevention of biological hazards at work (FR)

According to the INRS, biological risk prevention is a comprehensive, multi-level strategy aimed at breaking the chain of transmission by acting on the reservoir, modifying exposure processes and protecting the individual. The approach begins with controlling the source by preventing the build-up of hazardous agents through measures such as cleaning workstations, vaccinating animals, screening and treating diseases, and ensuring proper ventilation to reduce humidity and mould growth. It also involves eliminating reservoirs by decontaminating surfaces, maintaining cooling systems and managing pest intrusions. Exposure is minimised by substituting high-risk processes with safer alternatives, confining potentially dangerous operations to controlled environments, and implementing engineering controls in settings such as hospitals, where isolating contagious patients, improving general ventilation, segregating contaminated zones from clean areas and ensuring access to adequate hygiene facilities are critical.

On an individual level, workers must be provided with the appropriate PPE and rigorously trained in proper hygiene practices, including regular hand washing, safe handling and cleaning of workwear, and immediate care for injuries. Vaccination serves as a supplementary measure, with certain immunisations being mandatory for high-risk professionals and others recommended based on occupational health assessments, although it cannot replace other preventive measures. These practices are supported by comprehensive information and training programmes, and they rely on collaboration with occupational health services and relevant experts to ensure that preventive measures are effectively tailored to the specific risks present in the workplace.

Source: <https://www.inrs.fr/risques/biologiques/prevention.html>

Box 32: 'Practical Procedures for General Medical Assistance' in relation to biological risks (RO)

This document contains workplace accident prevention guidelines focusing on the proper use of protective equipment, sanitation protocols and risk assessment based on potential exposure to biological fluids. Additionally, it emphasises universal precautions for infection control, including measures for handling contaminated materials and maintaining hygiene standards.

Source: https://www.oamr.ro/wp-content/uploads/2013/11/Proceduri-de-practica-pentru-Asistentii-Medicali-Generalisti_788_1560.pdf

Box 33: Guide for the design of biological analysis laboratories (FR)

This guide aims to help people responsible for the design or renovation of a biological analysis laboratory to carry out their project while respecting risk prevention measures, linked in particular to biological risks. Different types of biological analysis laboratories are discussed for industrial analyses. This document depicts laboratory activities and describes the specific functionalities, layouts and design requirements of each room.

Source: <https://www.inrs.fr/media.html?refINRS=ED%20999>

Box 34: SCALP project – preventing biological and chemical hazards from needle injuries in public spaces (LU)

The SCALP project (Sécurisation Conteneurs à Aiguilles pour Lieux Publics), developed by CHL, is a best practice initiative designed to prevent both biological and chemical hazards associated with needle injuries in public spaces. The project focuses on enhancing the safety of needle containers in public areas to reduce the risk of exposure to infectious biological agents and harmful chemicals that may be present in sharps waste. By improving the design and security of these containers, SCALP minimises the potential for injuries to the public and healthcare workers. Awarded the 'Prix national sécurité au travail 2018' in the health and wellbeing category for businesses with over 50 employees, this initiative exemplifies a proactive approach to preventing both biological and chemical risks in workplace environments.

Source: <https://www.chl.lu/fr/actualites/le-chl-laureat-du-prix-national-securite-sante-au-travail-2018>

3.8 Accidents with vehicles in the course of work

3.8.1 Description of the accident

Accidents with vehicles in the course of work refers to **accidents that workers experience while making use of vehicles, but it excludes their travel between home and work**, and vice versa. In the HeSCare sector, these vehicles can be **vehicles used by homecare workers** who need to get from one patient's home to another's or **vehicles used by paramedics**, such as ambulances (Garus-Pakowska et al., 2017). Among the types of accidents with vehicles in the course of work are **road traffic accidents**, which were identified in 2014 to be **one of the main types of occupational accidents experienced by homecare workers and one of the main causes for fatal accidents in HeSCare sector** (EU-OSHA, 2014). In the context of this report, **accidents that occur *inside* ambulances are also considered accidents with vehicles in the course of work**. These constitute, for example, accidents due to the limited space in the vehicle or due to violence from patients in the vehicle (Gałązkowski et al., 2015).

ESENER 2019 demonstrates that in the HeSCare sector, **39% of enterprises in the EU indicate that workers in their enterprise are exposed to the risk of getting into an accident with vehicles in the course of work**, while for the total economy this is 44%. While the risk of accidents with vehicles in the course of work is **lower in the HeSCare sector than in the EU-27 average across all sectors, it is still present and is a cause for concern — this risk has remained persistent, it is not decreasing and, as discussed above, it remains one of the common risks for fatal accidents in HeSCare**. In **ESENER 2014**, the risk of accidents with vehicles in the course of work in the HeSCare sector was 38%, indicating that the share is similar in 2019 compared to 2014 (EU-OSHA, 2024a).

3.8.2 Causes and related risk factors

There are many causes for accidents with vehicles in the course of work. These can be broken down into three categories, mainly as linked to: the work environment, organisational and psychosocial-related factors, and personnel and human behaviour.

▪ Causes and related risk factors linked to the work environment

Road and driving conditions are a key factor to take into consideration when looking at causes and related risk factors linked to the work environment. Both a study from Norway (Grasmo et al., 2021) and data from Italy indicate that **challenging driving conditions, such as driving in hazardous or adverse weather conditions and/or on poor road conditions as well as driving at night (this last element is rather common in the HeSCare sector)**, are risk factors causing road traffic accidents for HeSCare personnel (Co.E.S Lazio Emergenza Sanitaria, 2023a).

Another risk factor related to the work environment is the **condition of the vehicles** being used by HeSCare personnel. Vehicles that are **lacking in maintenance or that have**, for example, **excessive tyre wear and tear**, have a higher chance of posing a risk to the health and safety of personnel (Grasmo et al., 2021). For **accidents occurring inside ambulances while providing patient care**, causes that are linked to the set-up and work environment of the emergency vehicles can include (Rodríguez et al., 2018; Slattery et al., 2009):

- **lack of access to essential medical equipment;**
- **limited space for conducting the work;**
- **having to conduct work while standing or moving around** in the ambulance while it is in motion;
- **having to provide patient care** (which at times can be critical patient care) **in the back of a moving vehicle;** and
- **lack of additional safety measures in ambulances.**

Accidents with vehicles in the course of work can also occur when the vehicles are stationary. For example, accidents may occur when a worker tries to **take a patient out of the ambulance or another type of vehicle**. In those instances, **equipment may fail or be inappropriate**, for example, when ramp measurements are thinner than a wheelchair, leading to both patients and healthcare workers potentially being injured (INSST, n.d.b).

▪ Causes and related risk factors linked to organisational and psychosocial factors

In terms of organisational and psychosocial-related factors, a Spanish study from 2018 highlights that **long and demanding shifts can result in fatigue that can then increase the likelihood of driving errors** by HeSCare personnel (Rodríguez et al., 2018). Similarly, a safety and health survey conducted by the American Nurses Association in 2011 identified that **10% of respondents experienced a vehicle crash that they believed was linked to shift work and fatigue** (EU-OSHA, 2014).

Beyond this, **workers not being adequately trained to work with and/or in the vehicles** is a risk factor that can influence workers' chances of an accident with a vehicle in the course of work. In some instances, **staff may not be sufficiently trained to use emergency driving techniques or on what safety procedures to use on the road** (Rodríguez et al., 2018). Here the organisational failure to provide workers with adequate training is the main issue. However, it may also be that personnel have been provided the necessary training but fail to rely on it (which would make this cause and related risk factor link more to the personnel and human behaviour category).

▪ Causes and related risk factors linked to personnel and patient behaviour

This third category of causes and related risk factors encapsulates the behaviour of personnel, other road users and patients.

For personnel, the causes and related risk factors include:

- **Improper reactions/human errors** due to unexpected events.
 - When driving on suddenly slippery roads or through busy intersections (Garus-Pakowska et al., 2017).
- Getting **distracted** while driving.
 - Distractions can include using electronics as well as receiving calls/messages from patients (EU-OSHA, 2014).
- **Using excessive or inadequate speed.**
- **Not using a seatbelt.**
- **Being stressed** while driving due to traffic conditions, delays or calls from patients/emergency calls.

In Italy, data collected on road traffic accidents with ambulances and similar vehicles indicate that **in the period 2018-2019, approximately 10-15% of accidents were attributable to emergency-related causes**, such as **sudden turns and driving the wrong way** on the road during a rescue operation. Accidents involving HeSCare personnel can also be caused by **other road traffic users exhibiting dangerous or aggressive driving behaviours and using excessive or inadequate speed** (Grasmo et al., 2021). Lastly, **patients being aggressive or violent in the back of moving HeSCare vehicles** can be a cause of accidents with vehicles in the course of work. Such behaviours from patients can lead to HeSCare personnel getting hit and losing their balance, leading to potential injuries (Slattery et al., 2009).

3.8.3 Groups of workers most affected

Looking at the various subsectors in the HeSCare sector, the risk of accidents with vehicles in the course of work is **lowest in the healthcare subsector and highest in the social work subsector**. According to ESENER 2019, in **healthcare this risk amounts to 29%, in residential care it is 41% and in social work it is 53%** (EU-OSHA, 2024a).

Based on a study conducted in Norway in 2024, **accidents with vehicles in the course of work are more common in the social work subsector due to the fact that homecare workers rely extensively on vehicles** to be able to conduct their work and get to patients (Liaset et al., 2024; Meyer et al., 1999).

Data collected in France on the age and gender of drivers involved in road accidents by ambulances showed that **of 125 ambulance drivers involved in an accident that resulted in an injury, half were aged between 25 and 44 and two-thirds were men** (Co.E.S Lazio Emergenza Sanitaria, 2023b).

In ESAW, the **physical activity** category of '**driving/being on board a means of transport or handling equipment**' accounted for **1.4% of non-fatal accidents** (resulting in at least four full calendar days of absence of work), and as **7.5% the workstation category** of '**occasional or mobile workstation or in a journey on behalf of the employer**' was registered. Both match the notion of accidents with vehicles

in the course of work (see 'Specific physical activity that resulted in the accident' and 'Workstation' in section 2.3.3).

Among **female workers (1%)**, the **physical activity category** 'driving/being on board a means of transport or handling equipment' was less often registered than among male workers (2%) (see Figure 9).

Among workers 55 years and older, the share (1%) is lower than among workers from 25 to 54 years of age (2%) and among workers younger than 25 years of age (2%) (see Figure 10).

Among female workers (7%), non-fatal accidents took place less frequently at an **occasional or mobile workstation or in a journey on behalf of the employer** than among male workers (9%) (see Figure 7). Among workers 55 years and older, the share (7%) was the same as among workers from 25 to 54 years of age (7%) and slightly lower than among workers younger than 25 years of age (9%) (see Figure 8).

3.8.4 Health outcomes

There are several different health outcomes, injuries and consequences that can materialise from HeSCare vehicle road traffic accidents or just from providing patient care in a moving vehicle. In the case of road traffic accidents, as established by research conducted in the US in 2009, personnel working in the back of an ambulance can have **severe injuries due to the fact that they are unrestrained**. These can include **severe head and lower spine injuries, fractures and whiplash** (Slattery et al., 2009). Accidents in ambulances can also occur without the event of a road traffic accident. For example, a study in the US in 2017 identified that while providing patient care in the back of the vehicle, paramedics may **lose their balance or not be able to rely on their hands to stabilise themselves, leading to pricking by sharps or needlesticks** (see section 3.3 on 'Sharp and needlestick injuries (SNIs)') and **falls or head/body collisions on the fixtures in the ambulance**. In addition to the unstable nature of providing patient care in a moving vehicle, ambulances are also not very spacious, which can lead to injuries such as **sprains as well as the development of MSDs** due to working in uncomfortable positions (Reichard et al., 2017).

For homecare workers who drive from patient to patient, road traffic accidents can lead to **head and back injuries, whiplash and fractures**.

In any of the contexts of vehicle accidents, the personnel involved can develop **psychological trauma and can be subject to fatal injuries** (Handicap International, n.d.).

For **accidents that occur while vehicles are stationary**, such as when trying to move the patient from inside the vehicle to the hospital, injuries are usually **muscle strains and sprains** (INSST, n.d.b).

3.8.5 Practice and guidance identified on how accident with vehicles in the course of work can be prevented

Council Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work (**the Framework Directive**) provides that **employers are required to conduct risk assessments of their workplaces and then take measures to address any identified risks** (Council of the European Union Directive 89/391/EEC, 1989a). Given that HeSCare workers using vehicles are specifically at risk of accidents with vehicles in the course of work, **specific risk assessments should be conducted in the context of their work**. Once an assessment has identified potential risks that could lead to accidents, the following preventive measures could be adopted. These are divided into three categories, following the SCM presented in Chapter 1.

Technical prevention measures:

- Improve **ambulance safety design**.
 - This can include conducting dynamic crash testing for ambulances, innovating the way that space in the ambulances is being used and how equipment is stored.
- Increase the **use of hands-free technologies** such as mechanical chest compression devices.
 - This may help personnel at the back of ambulances to keep their balance or be able to work without standing or moving around too much while the vehicle is in motion.
- **Improve the position of patient care equipment** (Slattery et al., 2009).
- Regularly **attend to vehicle maintenance**.
- Regularly **check for tyres' wear and tear**.

Organisational prevention measures:

- **Organise shift work and schedules to prevent excessive fatigue** linked to work and to ensure that personnel are not driving while sleepy or drowsy (EU-OSHA, 2014) .
- Provide staff with necessary **training on driving in emergency situations and working in the back of ambulances**.
- **Prepare and adopt guidelines, regulations and/or protocols for emergency and ordinary patient transport.**
 - This can help HeSCare organisations ensure a higher degree of cohesion in interventions that require vehicles.
- Ensure cooperation among employers to implement safety, health and occupational provisions as required by EU legislation.

Human behaviour prevention measures:

- Drive **cautiously in dangerous situations**, including when driving in difficult weather, at night-time, in intersections or surrounded by aggressive drivers.
- **Not driving while sleepy or drowsy** (EU-OSHA, 2014).
- **Communicate with other personnel working in HeSCare vehicles to promote cooperation.**
 - This can include drivers warning staff in the back of an ambulance of upcoming sharp turns or personnel next to the driver keeping them alert of potential hazards (Nurse 24, 2019).

Additionally, it is recommended that **further studies be conducted on this type of accident in the EU**. ESENER data suggest that accidents with vehicles in the course of work are quite common in the EU, especially in the social work subsector and yet, **limited in-depth information is available**. Having a better understanding of the situation at an EU level could better help in understanding how to prevent these types of accidents for personnel in the HeSCare sector.

3.8.6 Examples of good practices

Below are a few examples of good practices to prevent accidents with vehicles in the course of work.

Box 35: Appropriately removing a wheelchair from a vehicle (ES)

In Spain, a HeSCare worker had to remove a patient in a wheelchair from the ambulance while using a ramp to drop the patient off at the hospital. Unfortunately, while taking the patient out, the **wheelchair got caught on the ramp leading to the worker trying to reposition the wheelchair on top of the ramp which led to the worker seriously injuring their arm**. Following this accident, causes were looked into, which led to the conclusion that **an incomplete risk assessment had been conducted and that the worker did not have sufficient training for the ‘mobilisation of patients with mechanical aids (wheelchair)’**. To address this, the worker was provided **with training for occupational risk prevention and further prevention recommendations were developed, including:**

- **ramps to and from the means of transport need to be suitable in width** for ‘any wheelchair to access’ and there should be an adequate margin space on each side of the ramp;
- **risk assessments should include the pulling/pushing work and the position of ambulance drivers;**
- **ergonomic principles need to be taken into account** for the design of workstations and the position of workers while working; and
- **adequate training needs to be provided** to workers.

Source: <https://www.insst.es/stp/binvac/087-lesion-muscular-de-un-trabajador-cuando-manipulaba-una-silla-de-ruedas>

Box 36: Recommendation no 11 – Death or serious injury in the context of patient transportation (in-hospital, out-of-hospital) (IT)

In Italy an **official document — Recommendation no 11 on death or serious injury in the context of patient transportation (in-hospital, out-of-hospital) —** was published in 2010 by the Ministry of Health. While the document was essentially elaborated with the aim of preserving the health and life of patients, the **recommendation includes preventive guidelines and advice aimed at reducing and eliminating the risk of transport accidents, which indirectly safeguard the health and safety of the workers involved.** For instance, it provides information on aspects such as:

- **preparing and adopting guidelines, regulations and protocols** for emergency and ordinary patient transport;
- **training requirements** for rescuers;
- importance of **maintaining rescue vehicles**; and
- **clear communication** between emergency services and workers involved in rescue operations.

Source: https://www.salute.gov.it/imgs/C_17_pubblicazioni_1162_allegato.pdf and <https://www.nurse24.it/specializzazioni/emergenza-urgenza/sicurezza-in-ambulanza.html>

Box 37: Brochure on prevention of risks on the road (FR)

In France, a **brochure by CARSAT deals with the road risks encountered during the course of professional travel for social interventions at home.** It is aimed at social services and personal care and assistance services. It initially **proposes a five-step methodology to prevent road risks.** Then, it **provides assistance with diagnosis of risks by indicating questions that need to be asked** about the organisation of work, the environment, vehicles and employees. Finally, this **document contains some examples of preventive measures to be implemented as part of an action plan.**

Source: https://www.carsat-normandie.fr/files/live/sites/carsat-normandie/files/pdf/pdf_entreprises/fiches_risque_routier.pdf

4. Impact or effects of accidents at work

4.1 Introduction

Chapter 1 presents the SCM, which categorises the effects and impacts of workplace accidents in the HeSCare sector into three main areas:

- workers,
- organisations (enterprises), and
- society.

For workers, workplace accidents can result in several different kinds of health outcomes and costs. Organisations, in turn, face challenges such as absenteeism, presenteeism and significant financial burdens due to work-related injuries. At a broader level, these accidents have far-reaching consequences for society, placing financial strain on public budgets, reducing the quality of care, and contributing to workforce shortages through incapacity to work and early retirements. Collectively, these impacts pose a serious threat to the sustainability of healthcare and long-term care (LTC) systems.

4.2 Impact on workers

The impact of workplace accidents on HeSCare workers encompasses physical and psychosocial health effects. ESAW data include information on the type of injuries due to non-fatal accidents (at least four days absence). As presented in Table 12, the five **most prevalent injuries** identified in the data from 2022 were: dislocations, sprains and strains; poisonings and infections; concussions and internal injuries; wounds and superficial injuries; and shocks. Over the past 10 years, the ranking is comparable but poisoning and infections have increased substantially. In 2022, the four **most injured body parts** registered related to non-fatal accidents in the HeSCare sector were: whole body and multiple sites; back (including spine and vertebra in the back); upper extremities; and head (see Table 13).

As provided in Chapter 3, different accidents can lead to different types of health outcomes such as: bruises, cuts, fractures, back injuries, MSK injuries, swelling, asphyxia, sensory deficits, scratches, injuries to limbs, irritations, burns, allergic reactions, and contracting HIV or hepatitis B or C. These health outcomes can then have **longer-term impacts** such as the development of **chronic pain and lasting MSK issues** that may persist well beyond the initial incident. In addition, such health outcomes may also result in the **loss of work ability, absenteeism and potential permanent disability** (EU-OSHA, 2024a).

Beyond this, workers who experience **negative physical health outcomes due to accidents may also experience psychological health outcomes**. For example, emotional strain arising from accidents, verbal violence and, in some cases, sexual harassment contributes to stress and exhaustion in HeSCare workers (Grasmo et al., 2021). Beyond this, workers often experience emotional distress and anxiety following incidents, with feelings of shame and self-regret arising from patient safety risks, sadness stemming from personal injuries, and anger or resignation when management fails to address these issues (Strid et al., 2021). Additionally, HeSCare professionals may suffer from PTSD symptoms due to direct or indirect exposure to trauma (EU-OSHA, 2023). This emotional burden, coupled with the challenges of providing patient care in high-stress conditions, significantly contributes to burnout, ultimately resulting in decreased job satisfaction and increased turnover among HeSCare staff (Strid et al., 2021).

Lastly, injuries resulting from accidents can also lead to the **risks of lost wages or, for example, medical expenses for workers** (EU-OSHA, 2024a). The economic burden of workplace accidents and occupational diseases places a significant financial strain on workers, employers and society. An EU-OSHA study from 2019 in various EU countries indicates that a substantial portion of the costs associated with work-related injuries falls on workers. The **economic burden includes direct costs, indirect costs and intangible costs**.¹⁷ Although these costs do not refer specifically to workers in the HeSCare sector, they give an indication of the relatively high economic burden for workers. In Poland, workers bear the highest burden, accounting for 79% of the total costs associated with work-related injuries. This is followed closely by workers in the Netherlands, who bear 73% of the costs. In Italy, the burden on workers is also substantial at 67%, while in Finland workers account for 63% and in Germany workers account for 61% of the total costs. These findings reflect a concerning trend in which workers are burdened with the repercussions of workplace accidents, including lost wages, diminished earning potential and personal medical expenses (EU-OSHA, 2019b).

4.3 Impact on organisations

Workplace accidents in the HeSCare sector impact organisations (enterprises), influencing their financial stability and operational efficiency. **These incidents lead to increased absenteeism and presenteeism, which not only disrupt workflow but also compromise the quality of patient care.** Consequently, organisations must absorb the costs of medical treatment, compensation claims and related return-to-work measures (European Commission, 2024). These measures include the implementation of accommodations to support the vocational rehabilitation of the workers who were victims of accidents and on sick leave, placing a substantial economic burden on institutions such as hospitals and LTC facilities.

4.3.1 Absenteeism

The impact of workplace accidents within the HeSCare sector on organisations is significant, particularly in relation to absenteeism. Absenteeism refers to the frequent or habitual absence of HeSCare staff from work. In the HeSCare sector, absenteeism can arise due to several reasons, including the poor working conditions of the sector, the substantial emotional strain associated with frequent exposure to

¹⁷ Direct costs include all healthcare-related products and services, whether paid for by the public sector, insurer, employer, worker or other stakeholder. These included: healthcare costs paid for by the public sector/insurer, public sector/insurer administration/overhead costs, informal caregiving time from family and community and worker out-of-pocket costs for healthcare products and services, including costs associated with seeking care. Indirect costs include market output losses due to absenteeism and reduced work ability associated with permanent impairment, payroll/fringe benefits associated with wages and salaries, employer adjustment costs, insurance, administration costs associated with disability insurance/workers' compensation, home production losses, and presenteeism associated with paid employment activity. Intangible costs refer to losses associated with health-related quality of life. Health-related quality of life is estimated in terms of quality-adjusted life years (QALYs) and then monetised.

illness and death, and, most importantly in the context of this report, workplace accidents (EU-OSHA, 2024a).

ESAW data show that in **2022, almost half (46%) of non-fatal accidents in the total economy resulted in an absence of four to 13 days**. At 58%, the share in the HeSCare sector is higher. This holds also for all three subsectors. The share is highest in healthcare (61%), followed by social work (57%) and residential care (52%). **Over the last 10 years, the share of non-fatal accidents in the total economy that resulted in an absence of four to 13 days increased substantially for all sectors, but even more substantially for the HeSCare sector (from 29% in 2012, to 44% in 2019 and 58% in 2022)**. This trend holds for all subsectors. **In 2022, 4% of accidents resulted in permanent incapacity or an absence of 183 days or more. This holds for the total economy as for the HeSCare sector. With 3%, this share is slightly lower in healthcare**. These shares have hardly changed overtime, but were slightly lower in 2022 than in 2019, which can be explained by the change of registration in 2020 (see Table 14).

Absenteeism in the HeSCare sector is notable across all EU Member States. A study that analysed data from a multi-specialist hospital in central Poland revealed that paramedics experienced an average sick leave of 48 days following work-related accidents, contributing to a notable level of absenteeism in this sector (Garus-Pakowska et al., 2017). Meanwhile in France, 68% of injured care workers required more than one day off work due to workplace injuries, reflecting a substantial absenteeism rate (Colin et al., 2022). Additionally, according to a study on a large university hospital in Belgium, ergonomic accidents are reported to lead to an average of 15-20 days off work for affected employees (Fraeymana et al., 2022).

The **impact of absenteeism among the workforce can be far-reaching**. For example, absenteeism can lead to **disorganisation of work**, as injured staff members' responsibilities must be reassigned to their colleagues, which often results in **operational inefficiencies** and hinders the quality of patient care. Furthermore, when one team member is unable to work due to an incident, the remaining staff may be required to take on additional tasks, stretching their capabilities and potentially compromising the effectiveness of care provided to patients (Strid et al., 2021). High rates of sick leave create **additional pressure on the remaining staff**, leading to a cycle of overwork, fatigue and further sick leave. This results in more tasks and responsibilities for those present, which amplifies the strain on the HeSCare organisations (Grasmo et al., 2021).

4.3.2 Presenteeism

Accidents at work within the HeSCare sector significantly impact organisations, not only through absenteeism but also through the phenomenon of **presenteeism**, where **employees work while being injured or still in recovery from an accident**. Presenteeism is, similar to absenteeism, leading to diminished productivity and compromised patient care. This issue is particularly concerning within healthcare settings, where the costs associated with presenteeism often exceed those linked to absenteeism, primarily due to the adverse effects on occupational safety and the overall quality of care provided (EU-OSHA, 2024a). Furthermore, presenteeism increases the likelihood of mistakes (Markova et al., 2022), which can lead to further health complications for workers employed in the HeSCare institutions.

Presently, data explicitly providing **insights into how accidents and presenteeism are linked are limited**. There are however some figures relating to the issue of presenteeism at a higher level (meaning considering presenteeism due to factors beyond workplace accidents) within the HeSCare sector. According to EWCTS 2021 data, the percentage of HeSCare workers in the EU reporting presenteeism over the previous year is notably high across all subsectors, with healthcare and residential care work at 37% and social care work at 27%. Moreover, the share of workers in the HeSCare sector who reported presenteeism is higher than the EU-27 average across all sectors (EU-OSHA, 2024a).

4.3.3 Economic burden of work-related injuries for organisations

Accidents and injuries among HeSCare workers **strain the financial resources of organisations** such as hospitals and care facilities. These institutions often bear the costs associated with medical treatment and potential compensation claims, along with expenses for implementing preventive measures and conducting additional staff training (Goniewicz et al., 2012). Furthermore, both absenteeism and presenteeism resulting from such injuries contribute to economic losses, impacting productivity and

adding further financial burdens on HeSCare organisations (EU-OSHA, 2024a). The costs related to vocational rehabilitation to facilitate return to work of workers who were victims of accidents need to be taken into account.

The EU-OSHA study on the economic burden of stakeholders does not refer to the employers in the HeSCare sector but gives an indication of the share of the **economic burden for employers**. The total economic burden includes direct costs, indirect costs and intangible costs.¹⁸ In Finland, 22% of the total economic burden is covered by employers. In both Germany and Italy, this share is 20%, in the Netherlands 15% and in Poland 11%. These costs reflect expenses that organisations must allocate to address workplace injuries, including compensation, lost productivity and any additional medical costs associated with employee care (EU-OSHA, 2019b).

To illustrate the financial burdens associated with healthcare worker injuries borne by organisations, a multi-specialist hospital in central Poland serves as a representative example. During the study period from 2005 to 2015, this institution covered individual compensation payments for injured employees, averaging €451 per case, with amounts ranging from €116 to €1,512 (Garus-Pakowska et al., 2017). These findings present the direct financial costs that employers must bear in response to work-related accidents.

4.4 Impact of accidents at work on society

Workplace accidents in the HeSCare sector pose considerable economic and social challenges, influencing not just individual employees and organisations but also **affecting national productivity and the functioning of healthcare and LTC systems**.

4.4.1 Economic burden on public budgets

Accidents at work within the HeSCare sector create significant economic and social challenges across the EU, impacting not only individual workers and organisations but also national productivity, healthcare systems and social welfare. The direct economic costs of these accidents, encompassing medical expenses, compensation and rehabilitation, place a burden on public budgets, stretch healthcare resources and hinder economic development (EU-OSHA, 2024a). The cost of accidents include not just direct healthcare expenses but also **lost productivity** and the **need for social welfare programmes** to support the retention of HeSCare workers at work through medical and vocational rehabilitation (after suffering an accident) and those unable to work (Markova et al., 2022).

The aforementioned EU-OSHA study on the economic burden of stakeholders does not refer to the HeSCare sector only but also gives an indication on the share of the burden for society. The total economic burden includes direct costs, indirect costs and intangible costs.¹⁹ In Finland, 15% of the total economic burden is at the expense of the public budget. In Germany, this share is 19%, in both Italy and the Netherlands it is 13%, and in Poland it is 10% (EU-OSHA, 2019b).

Data on economic burden of specific accidents in the HeSCare sector are hardly available. A 2010 study shows that SNIs impose a significant burden on society due to substantial economic costs and health risks. The financial impact spans treatment expenses, legal fees and lost productivity across countries. In Germany, SNIs cost between €12 million and €30 million annually, with €6.1 million spent on hepatitis B virus and hepatitis C virus treatment alone, and potential testing costs reaching €133 million if all affected healthcare workers underwent diagnostics. In France, each SNI costs approximately €300, amounting to €5.1 million per year. Italy faces direct costs nearing €7 million, excluding long-term treatment or legal expenses, while Spain's economic burden from SNIs ranges between €6 million and €7 million annually (Mario Saia et al., 2010). Therefore, the economic repercussions of accidents related to SNIs extend far beyond individual cases, impacting national healthcare systems and society at large.

¹⁸ Direct costs include all healthcare-related products and services, whether paid for by the public sector, insurer, employer, worker or other stakeholder. These included: healthcare costs paid for by the public sector/insurer, public sector/insurer administration/overhead costs, informal caregiving time from family and community and worker out-of-pocket costs for healthcare products and services, including costs associated with seeking care. Indirect costs include market output losses due to absenteeism and reduced work ability associated with permanent impairment, payroll/fringe benefits associated with wages and salaries, employer adjustment costs, insurance, administration costs associated with disability insurance/workers' compensation, home production losses, and presenteeism associated with paid employment activity. Intangible costs refer to losses associated with health-related quality of life. Health-related quality of life is estimated in terms of QALYs and then monetised.

¹⁹ Ibid

In the period 2010-2019, the Irish State Claims Agency ²⁰received 382 claims for needlestick and sharps-related incidents. Of these claims, 91% related to a needlestick injury and 9% related to a sharp instrument-related injury. The total estimated claims costs of active claims (€3.35 million) and the total paid on finalised claims (€4.13 million) amount to €7.48 million (National Treasury Management Agency, 2020).

The time lost due to sick leave, combined with compensation payments, indicates a reduction in overall productivity, which can affect service delivery and increase strain on the healthcare system. **For society, this could mean reduced quality of care and delays in services, especially in critical care, affecting community health outcomes.** Moreover, the injuries sustained by healthcare workers not only affect individual employees but can also have wider societal repercussions, such as **reduced healthcare availability** (Garus-Pakowska et al., 2017).

The increasing frequency of workplace accidents and injuries among healthcare workers has a direct **negative impact on patient care**. A 2021 study involving interviews with 34 healthcare workers across three regions in Sweden revealed that increased workplace accidents could compromise patient safety.

They indicated that their intense focus on patient care sometimes led to neglecting their own safety, heightening the risk of errors that might affect patients. Additionally, frequent incidents of violence and injury can **erode public trust in healthcare**, as concerns were expressed that their emotional distress could negatively impact patient interactions and care quality, ultimately affecting community confidence in local healthcare facilities (Strid et al., 2021).

The prevalence of accidents and occupational injuries significantly affects the HeSCare sector's **job sustainability, particularly in LTC**. According to the estimations by Eurofound, 37% of LTC workers report that their jobs adversely impact their health, and nearly 38% express doubt about their ability to work until age 60, compared to 26% in healthcare and 27% across all sectors (Eurofound, 2020). This situation contributes to early retirements, which can substantially reduce a country's productive potential, with OECD countries experiencing GDP losses of up to 6.3% (EU-OSHA, 2012). These findings confirm that the accidents and health and safety challenges faced by LTC workers have far-reaching economic implications for society at large.

5. Conclusions and policy pointers

5.1 Main conclusions from the research

5.1.1 Overall conclusions

To better understand the underlying causes of accidents at work in the HeSCare sector, **the SCM** has been applied. This cause–effect model shows that organisations have several layers of barriers to prevent accidents from occurring. In this study, the main barriers distinguished are: organisational (e.g. policies, OSH management tools), human behaviour (e.g. patients and relatives), and technical (e.g. equipment). Accidents ultimately occur when all three types of barriers have been bypassed. Therefore, the best approach for prevention is to either implement new types of barriers and/or to strengthen pre-existing barriers. Determining what new barriers can be implemented or how pre-existing barriers can be strengthened depends on the execution of risk assessments and accident analyses. When accidents occur, they have effects on the involved worker(s), the organisation and society at large. These effects of the accident are considered when developing policies and practices to prevent accidents

An exploratory literature review on the prevention of accidents in the HeSCare sector identified some issues with the results. Firstly, literature on the topic tends to be older, which makes it difficult to establish what are new and innovative solutions today. Furthermore, there is an unbalanced geographical representation of support practices to prevent accidents in the sector and/or its subsectors.

In terms of studies addressing the impact of accidents at work in the HeSCare sector, there is a significant amount that addresses the general consequences of workplace accidents, such as MSK

²⁰ The State Claims Agency is the name given to the National Treasury Management Agency when performing its claims management and related risk management functions and, also, its legal costs management functions. More information available at: <https://stateclaims.ie/about-us/governance>.

injuries, mental health issues and absenteeism. However, there is a lack of specific case studies or recent in-depth analysis of individual accidents or impacts within the sector. Despite the high prevalence of accidents, the research seems to be limited, highlighting a lack of research on why known prevention measures are not widely applied in practice.

5.1.2 State of play of non-fatal and fatal accidents based on ESAW data

ESAW provides data on fatal and non-fatal accidents in the EU and all Member States. ESAW statistics contain harmonised data on accidents at work in the EU collected by the Member States. An accident at work is defined as ‘a discrete occurrence in the course of work which leads to physical or mental harm’. ESAW distinguishes between fatal accidents (accidents leading to the death of a victim within one year of the accident) and non-fatal accidents involving at least four full calendar days of absence from work. This definition means that **accidents registered are accidents with relatively more severe consequences** and, as such, underestimate the total number of accidents that actually take place at the workplace.

Non-fatal accidents

Between 2012 and 2022, manufacturing, construction and trade (wholesale and retail trade; repair of motor vehicles and motorcycles) were the sectors with the highest share of **non-fatal accidents** (involving at least four full calendar days of absence from work) in the EU, with their shares decreasing steadily over time. ESAW data on the **HeSCare sector show an increase over time**. In 2012, the HeSCare sector accounted for 9% of all non-fatal accidents in the EU-27 (ranking fourth), which almost doubled to 16% in 2022, becoming the sector with the second-highest share.

The **incidence rate of non-fatal accidents** (accidents per 100,000 workers) in the total EU-27 economy reduced from 1,673 accidents in 2012 to 1,507 in 2022. In the HeSCare sector, however, the **incidence rates increased substantially** from 1,462 in 2012 to 2,134 in 2022, with a particular increase from 2020 onwards. This increase may be partially due to the COVID-19 pandemic: while the mandatory lockdowns may have covered part of the social work subsector (where the incidence rate decreased by 3% between 2019 and 2020), it did not cover residential care (where the incidence rate increased by 13% between 2019 and 2020) and healthcare (where the incidence rate increased by 37% between 2019 and 2020). Especially in these latter two subsectors, the risk of becoming infected with the COVID-19 virus may have been very high in these years.

Analysis of ESAW data shows that the increase in the number of non-fatal accidents in the HeSCare sector is mainly due to an increase in the incidence rate of non-fatal accidents in the sector, and are only in a small part due to an increase in the number of people working in the HeSCare sector. These ESAW figures therefore support the idea that the HeSCare sector continues **to be a high-risk sector** in terms of non-fatal accidents.

In 2022, the total number of **non-fatal accidents** among workers in the total EU-27 economy was 2,973,646, of which 469,685 occurred in the HeSCare sector. Of these accidents, 234,202 occurred in healthcare, 125,834 in residential care and 109,648 in social work.

Across the total EU-27 economy, male workers are more likely to suffer a non-fatal accident when compared to female workers. However, in the HeSCare sector, **the chances that male workers and female workers suffer a non-fatal accident are almost even**. This holds also at subsector level for healthcare and residential care. In social work, men are at more risk when compared to women workers.

In the total EU-27 economy, the risk of a non-fatal accident is highest among workers from 18 to 24 years and becomes more stable over age. The trend in the HeSCare sector is different. Accordingly, the incidence rates in the first three age categories (18-24, 25-34, 35-44) are approximately the same, however these rates increase from 45 years of age onwards (45-54 and 55-64). The healthcare and social care subsectors show similar results.

ESAW also provides data indicating the **causes and circumstances** of non-fatal accidents in the HeSCare sector in the EU-27 in 2022.

- Two-thirds of non-fatal accidents at work take place at the usual **workstation** or within the usual local unit of work.
- Data relating to accidents at work by specific physical activity concern what the worker was doing at the exact time of the non-fatal accident. **Almost a fifth (22.7%) of the non-fatal accidents at work**

could be associated with the physical activity of movement (movement by the victim: walking, getting into or out of a vehicle, moving (the legs or arms, etc.) on the spot, turning around, etc.) and around a tenth (9.2%) were linked to carrying something by hand. Other physical activities identified are handling of objects (6.4%), presence (6.2%), working with handheld tools (1.6%), driving or being on board a means of transport or handling equipment (1.4%), and operating machinery (0.2%). The differences between male and female workers are very small.

- The **deviation** (cause) describes the abnormal event at the time of the accident. The most common causes that triggered non-fatal accidents included overflow, overturn, leak, flow, vaporisation, emission (22.7%), body movement under or with physical stress (generally leading to an internal injury) (18.7%), slipping, stumbling and falling, fall of persons (14.4%), body movement without any physical stress (generally leading to an external injury) (9.1%), and shock, fright, violence, aggression, threat, presence (7.6%).
- The **contact mode** describes how the worker was hurt. The three most common contact modes registered were: contact with electrical voltage, temperature, hazardous substances (25.6%), physical or mental stress (23.4%), and horizontal or vertical impact with or against a stationary object (the victim is in motion) (14.8%). The other contact modes of injury included other contacts (6.4%), contact with sharp, pointed, rough, material agent (4.7%), struck by object in motion, collision with (4.3%), bite, kick and so on (animal or human) (4.2%), and drowned, buried, enveloped (0%).
- **The most common types of injuries** that caused non-fatal accidents in the HeSCare sector in 2022 are: dislocations, sprains and strains; poisonings and infections; concussions and internal injuries; wounds and superficial injuries; and shocks. The distribution of the most common types of injuries over the last 10 years has remained similar. Having said that, poisoning and infections has substantially increased over this period.
- **The most common parts of the body injured** resulting from non-fatal accidents in the HeSCare sector are in sequence of importance: upper extremities; lower extremities; and whole body and multiple sites. This distribution has remained more or less the same, although the number of non-fatal accidents at work from whole body and multiple sites has increased significantly over the years.

Fatal accidents

In 2022, the total number of **fatal accidents** among workers in the EU-27 was 3,286. Of these accidents, 79 fatal accidents among workers took place in the HeSCare sector of which 29 were in healthcare, 18 in residential care and 31 in social work.

While the **number of fatal accidents per 100,000 workers** (incidence rate fatal accidents) in the EU-27 decreased for all sectors over the period 2012-2022, the incident rates in the HeSCare sector remained stable (from 0.38 in 2012 to 0.36 in 2022), except for an increase in 2020 due to the COVID-19 pandemic. A similar development over time occurred in healthcare (0.28 in 2012 and 0.23 in 2022). In residential care, however, the incident rates have increased in the last decade (0.3 in 2012 and 0.42 in 2022), while in social work the incidence rate decreased (0.74 in 2012 and 0.61 in 2022).

In 2022, the main **types of injuries related to fatal accidents** were: concussions and internal injuries, followed by multiple injuries; poisoning and infections; wounds and superficial injuries; and effects of sound, vibration and pressure. During the last 10 years, the most common injuries have been: wounds and superficial injuries; bone fractures; and concussions and internal injuries. The effects of sound, vibration and pressure have become less prevalent, whereas poisoning and infections became more common.

5.1.3 Reasons for high prevalence of non-fatal accidents over the years

One of the specific objectives of this study was to assess the reasons for the high prevalence of non-fatal accidents over the years. Analysis of ESAW data alone — because of their limitations — does not allow us to provide an answer to this question. However, findings from EU-OSHA's 2024 study 'OSH in figures in the HeSCare sector' can help to address this question. Generally, in the HeSCare sector, all OSH risks are present, with MSK risks and PSRs having a particularly high prevalence. Moreover, these OSH risks interact with each other, which also contributes to making the HeSCare sector a high-risk

sector in terms of work-related accidents. There are also additional factors that could also contribute to explaining why the prevalence of accidents is high (such as digitalisation, the ageing population and the ageing workforce).

HeSCare workers in particular have a high level of exposure to PSRs, including long and irregular working hours, working with difficult customers, job insecurity, poor communication and cooperation, and working under time pressure. These risk factors can also lead to a higher level of work-related stress, anxiety and difficulties in maintaining a healthy work–life balance. Workers in the HeSCare sector tend to work in conditions that are **much more precarious when compared to other sectors**. This includes being faced with especially high emotional demands as well as high work intensity (meaning having to work at high speeds and with tight deadlines), as well as dealing with inadequate staffing levels, poor task distribution, lack of participatory management and unclear role boundaries. These distinct working conditions evident in the HeSCare sector could very well explain why accidents have remained prevalent while in other sectors they have been decreasing.

The **adoption of digital technologies**, especially in healthcare, such as telemedicine, artificial intelligence (AI) and electronic health records, has transformed work processes while also leading to increased workloads. The growing reliance on digital tools has accelerated the pace of work, with many employees reporting that their speed and intensity of tasks are now driven by these technologies.

Beyond this, the high prevalence of accidents in the HeSCare sector could also be attributable to **insufficient training**. In 2024, 53% of the workforce in the HeSCare sector did not receive any training paid for or provided by the employer. In this report, training has continuously been emphasised as one (of the many) prevention measures that could diminish the chances of accidents. The fact that more than half of the workforce is not provided access to training from their employer is very concerning and should be addressed. Additionally, even when workers are sufficiently trained, the working conditions in the sector often do not allow workers to work as they were trained to.

The **COVID-19 pandemic** also indirectly affected working conditions in the sector. A significant exodus of personnel led to a sharp decline in workforce numbers, intensifying the demand for labour and further increasing workloads.

The **ageing population** has had a big impact on the HeSCare sector. At the beginning of 2018, one-fifth (19.7%) of the total EU population was 65 years of age or over and the share is expected to grow to 28.5% by 2050. With an ageing population comes a higher demand for the services provided by the HeSCare sector. Data for the total economy indicate that workers between 18 and 24 years of age are most likely to be involved in a non-fatal accident whereas this figure becomes lower and more stable over age. Only for workers above 65 years of age is the incidence rate substantially lower. In the HeSCare sector, the difference between age groups is different. The incidence rates among workers in the younger age categories (18-24, 25-34 and 35-44) are approximately the same, however this rate increases from 45 years of age onwards. The underlying subsectors however show different patterns: in healthcare the incidence rate increases with each of the first four age groups (after which it is more or less the same for the 45-54 age group and the 55-64 age group); in residential care the incidence rate varies across age groups and is relatively high for workers of more than 65 years of age; and in social work the incidence rate first decreases with age group (with the lowest incidence rate for the 35-44 age group) and then increases again.

The ageing population also has an impact on the labour shortage in the HeSCare sector, meaning that HeSCare workers will be working in workplaces that have too many patients, high time pressure and increased stress levels, all of which can affect their health and safety at work.

5.1.4 Comprehensive overview of a selection of types of accidents in the sector

The different types of accidents described in this study are selected based on a triangulation of evidence, including: (i) analysis of ESAW statistical data (see Chapter 2); (ii) findings from large-scale surveys such as ESENER 2019 and EWCTS 2021; (iii) international frameworks such as those by the WHO; (iv) a literature review of sector-specific OSH risks; and (v) stakeholder input collected during consultations.

The following types of accidents can be distinguished:

- STFs,

- SNIs,
- accidents due to workplace violence,
- accidents due to physical overload,
- accidents when operating machinery,
- accidents resulting in exposure to hazardous substances and biological agents, and
- accidents with vehicles in the course of work.

STFs:

STFs include: 'slips' that occur when the foot loses grip on a surface; 'trips' that happen when an obstacle stops the foot's movement, causing the body to continue forward; and 'falls' that can result from either a slip or a trip, or happen independently, such as falling from a ladder. Accidents due to STFs are significant especially in residential and social care. These incidents are influenced by factors like floor conditions, inadequate lighting and physical workload pressures, and can lead to a range of health outcomes, from bruises to severe fractures, MSK injuries and head trauma.

SNIs:

SNIs occur when workers are injured by sharp objects, such as needles, scalpels and lancets. This equipment is regularly used in the HeSCare sector during procedures such as injections and blood draws. Workplace factors, such as inadequate safety equipment, poor disposal practices and a lack of training, contribute to the occurrence of these accidents. Sharp injuries can result in minor skin punctures or more severe health outcomes, including the transmission of life-threatening infections like hepatitis B, hepatitis C and HIV, or exposure to harmful chemicals. Psychological impacts such as anxiety, trauma and stress are also common health outcomes of SNIs.

Accidents due to workplace violence:

Workplace violence includes both physical and non-physical acts, such as patients hitting, kicking or biting staff (physical violence), and verbal aggression like insults or threats (non-physical violence). Bullying, harassment and intimidation, not only by patients but also by relatives and external parties, are also common types of workplace violence. Accidents due to workplace violence are also influenced by organisational factors such as understaffing, high workloads, high patient turnover, working alone and working outside regular hours. The health outcomes of workplace violence can be severe, with physical injuries like bruises, fractures and MSK damage, as well as psychosocial outcomes such as anxiety, depression and PTSD.

Accidents due to physical overload:

Accidents due to physical overload often arise from tasks such as lifting patients, handling heavy equipment or working in awkward positions, all of which can place excessive strain on the body. These accidents typically involve injuries such as sprains, strains or joint issues, particularly in the MSK system. These types of accidents are especially common in environments lacking proper lifting aids or when workers are tasked with handling patients or objects without adequate support. Other contributing factors include repetitive movements, awkward postures, staff shortages, and the increasing weight and mobility issues of patients. The consequences often lead to MSK injuries that can persist and evolve into chronic conditions, significantly affecting workers' health and their ability to perform their duties effectively.

Accidents when operating machinery:

Accidents when operating machinery can occur when workers interact with various types of equipment, such as mechanical beds, patient lifts and industrial machines like washing machines. The causes of such accidents include malfunctioning equipment, lack of proper maintenance, exposed wires, or the absence of safety features, such as protective covers. Organisational factors like inadequate training, lack of safety procedures and staffing issues can also increase the risk. Non-medical staff, such as those working in maintenance, housekeeping and food service, are particularly vulnerable to machinery-related accidents. The health outcomes of such accidents can include physical injuries, such as strains, sprains, fractures and electric shocks, as well as the potential for MSDs.

Accidents resulting in exposure to hazardous substances and biological agents:

Accidents resulting in exposure to hazardous substances and biological agents are a significant risk in the HeSCare sector. Workers are regularly exposed to hazardous substances, such as medications,

disinfectants and cleaning agents, as well as biological agents like viruses, bacteria and other pathogens. Exposure can occur through accidents like needlestick injuries, improper handling of contaminated materials and accidents involving broken vials of hazardous medicines. Organisational factors such as inadequate safety protocols, lack of proper training and insufficient protective equipment can exacerbate these accidents. Health outcomes range from skin and eye irritation to more serious conditions like respiratory problems, allergic reactions, and infections such as hepatitis or HIV. Long-term exposure may lead to more severe effects, including cancer, organ damage and reproductive toxicity.

Accidents with vehicles in the course of work:

Accidents with vehicles in the course of work include road traffic collisions with cars used by homecare staff or ambulances, injuries sustained while working inside moving ambulances, and accidents occurring during patient transfers in or out of vehicles. The causes of these accidents include adverse road conditions, vehicle maintenance issues, and human error, such as fatigue, distractions and improper driving, as well as aggressive patient behaviour. Health outcomes range from physical injuries like fractures, whiplash and sprains to psychological trauma, and in some cases, fatalities.

5.1.5 Impacts of workplace accidents on workers and organisations

The impact of workplace accidents on the HeSCare sector is significant. ESAW data indicate that for 2022, **more than half of the non-fatal accidents (58%) in the HeSCare sector resulted in an absence of four to 13 days**. For the total economy, this share was 46%. Over the last 10 years, the share has increased substantially for all sectors, but even more substantially for the HeSCare sector (from 29% in 2012, to 44% in 2019 and 58% in 2022).

The impact of workplace accidents on HeSCare **workers encompasses physical and psychosocial health effects**. Accidents can lead to different types of physical health outcomes such as: bruises, cuts, fractures, back injuries, MSK injuries, swelling, asphyxia, sensory deficits, scratches, injuries to limbs, irritations, burns, allergic reactions, and contracting HIV or hepatitis B or C. Alongside physical health outcomes, workers may also experience psychological health outcomes due to accidents, such as emotional distress and anxiety, feelings of shame and self-regret, sadness stemming from personal injuries, and anger or resignation. This emotional burden, coupled with the challenges of providing patient care in high-stress conditions, significantly contributes to burnout, ultimately resulting in decreased job satisfaction and increased turnover among HeSCare staff.

These health outcomes might persist well beyond the initial incident, **become chronic, and result in the loss of work ability, absenteeism and presenteeism, as well as potential permanent disability**. Injuries resulting from accidents can also have financial impacts, such as lower wages and extra medical expenses.

Workplace accidents influence the financial stability and operational efficiency of **organisations** (enterprises). Absenteeism and presenteeism disrupt the workflow and lead to disorganisation of work, which often results in operational inefficiencies, need for remaining staff to take on additional tasks and stretching their capabilities, potentially compromising the quality of patient care. In addition, organisations must absorb the costs of medical treatment, compensation claims, implementing preventive measures and conducting additional staff training, and related return-to-work measures. The latter include the implementation of accommodations to support the vocational rehabilitation of the workers.

5.2 Policy pointers

5.2.1 EU-level policy pointers

- **Enhance data collection and reporting for informed policy action:** The collection, quality and scope of data on workplace accidents in HeSCare to address current limitations that hinder effective policy could be improved at EU level. At present, ESAW only captures accidents that cause at least four days of absence, meaning many minor injuries and near-misses go unrecorded; as a result, official data likely underestimate the total number of accidents that actually take place at the workplace. To enable evidence-informed decisions, adapting ESAW reporting criteria or supporting complementary data systems could be considered so that all significant incidents — including those with shorter absences or no leave taken — are captured consistently across Member States.

Greater granularity in data (for example, distinguishing accidents by subsector and specific hazard type) would allow researchers and policymakers to identify where risks are highest and what types of accidents are driving the trends. With more robust data, the EU and national authorities may better target their interventions (such as focusing on the prevention of accidents due to workplace violence, or accidents resulting in exposure to hazardous substances and biological agents and monitor progress over time). This could include EU-level guidance or standards on accident reporting and analysis, and encouraging Member States to share best practices for data collection. Improving the empirical basis in this way would strengthen the overall prevention approach by ensuring that policies and resource allocation are responsive to real conditions in hospitals, residential care facilities and social work environments (Eurogip, 2024).

- **Adopt a multi-layered prevention strategy (SCM):** The SCM of accident causation (or similar models) could be promoted as a multi-layered prevention approach across the HeSCare sector to encourage the implementation of technical, organisational and human-factor safeguards in unison. This could translate into guidance that emphasises comprehensive risk management. For example, technical measures could be bolstered by supporting the enforcement of current EU directives on workplace safety features: ensuring adequate lighting, non-slip flooring, safe patient-handling equipment and needles with safety mechanisms (as already addressed in the EU directive on prevention of sharp injuries). Organisational measures could be stressed through EU campaigns or recommendations that highlight safe staffing policies, reasonable work hours and effective incident reporting systems as fundamental to safety. Meanwhile, human/behavioural measures would involve investing in workers' training, awareness and involvement in safety solutions. An EU-level, promotion of multi-layered prevention could also include funding for research and exchange of best practices on integrated safety management, enabling countries to learn from each other's systemic preventive measures in HeSCare settings.

- **Foster continuous training and skills development to build a safety culture:** Insufficient training has been identified as a major contributing factor to the persistently high accident rates in this sector. Training is a critical prevention mechanism: for example, workers who are properly trained in safe patient-handling techniques can avoid accidents due to overexertion or MSK strain, and those trained in the correct use and disposal of medical sharps can greatly reduce needlestick injuries and infections.
 At EU level, steps could be taken to promote a culture of learning and safety, such as developing EU-wide guidelines or tools for effective training programmes targeting known risks (e.g. manual handling, infection control, dealing with aggressive behaviour), or leveraging funding instruments to support training initiatives in Member States. The EU could also facilitate the sharing of standardised training curricula and certifications for HeSCare professionals, ensuring that safety competencies are recognised and transferable across countries. Emphasis might be placed on induction training for new recruits (see TutoPrév' case study in France²¹), regular refreshers, and specialised training for specific roles or hazards. By fostering continuous training, the EU would help instil a deeper safety culture in HeSCare: workers who feel competent and knowledgeable are more likely to follow safety protocols and less likely to have accidents. Over time, this could create a virtuous cycle where a well-trained workforce experiences fewer accidents, which in turn boosts morale and retention, further strengthening the culture of safety.

- **Better address psychosocial and organisational risk factors when preventing or analysing accidents at work in the sector:** The HeSCare sector is characterised by job demands that are not only physical but also psychological, and these factors play a significant role in accident causation. The findings show that HeSCare workers face exceptionally high emotional demands, intense work pressure (e.g. fast pace and tight deadlines), chronic understaffing, unclear role

²¹ More information is available at: <https://osha.europa.eu/en/publications/home-and-residential-care-france-how-tutoprev-approach-prepares-new-hires-and-supports-teachers>

boundaries and sometimes poor management practices. Such stressful working conditions can contribute to human errors or lapses in attention, and they may explain why accident rates have not fallen in HeSCare even as they improved in other sectors. Moreover, workplace violence, aggression and harassment are pervasive risks in this sector, more so than in most other industries, and accidents due to workplace violence are increasing.

Traditionally when analysing work-related accidents, the tendency is to focus on physical factors while the findings of this study show the high prevalence of psychosocial factors in the sector, as well as the interlinkage between these factors. This highlights the need to:

- consider PSR (and organisational risks) factors in addition to considering physical factors when analysing occurrence of accidents at the workplace;
 - focus future research — from a theoretical perspective — on identifying the most deleterious combinations of risks from multiple exposures to physical and PSR factors in the occurrence of occupational injuries;
 - take preventive actions to reduce both physical risk and PSR exposure;
 - promote zero-tolerance policies for violence and harassment in HeSCare settings;
 - support campaigns to raise awareness about PSRs (see case study ‘Awareness initiatives addressing workplace violence towards healthcare professionals’);²² and
 - link PSR management with quality-of-care considerations, reinforcing the message that caring for the carers is integral to patient safety.
- **Guide a safe and supportive digital transition in HeSCare:** The adoption of digital tools — from telemedicine platforms to electronic health records and even AI-assisted diagnostics — is transforming care delivery, but it has also been linked with increased work intensity and new forms of workload for staff. As digitalisation accelerates in the HeSCare sector, guidance and setting standards to ensure that the introduction of new technologies does not inadvertently increase OSH related risk for workers could be provided. To facilitate a safer digital transition in the sector, the development of the following types of initiatives could be supported or encouraged at EU level:
- the development of best practice frameworks to conduct impact assessments on staff workload and health before and after implementing major new IT systems;
 - the development and provision of support for training programmes that equip HeSCare professionals with the necessary digital skills to ensure that they feel confident and competent in using new technologies — thereby reducing frustration and errors; and
 - the involvement of HeSCare workers in the design or selection of healthcare tech solutions so that human-factor considerations (like user-friendliness and alignment with clinical workflows) are considered.
- **Exchange knowledge and experience among Member States:** The recent Senior Labour Inspectors’ Committee (SLIC) campaign²³ to improve the prevention of workplace accidents provides some non-specific high-level recommendations that can also be applicable to help raise awareness and prevent accidents in the HeSCare sector. These recommendations include sharing national approaches used to enforce OSH legislation. All EU Member States rely on the same basic requirements, meaning that even if national approaches vary, they will aim to achieve the same goals. This could help Member States find new ways to address particular OSH problems such as accidents in the HeSCare sector. The SLIC also recommends the creation of a European-level website/database with examples where ‘typical and atypical work accidents, their causes and circumstances, the rights and obligations related to this topic in each country and even the results of national labour inspection investigations if adequate’ could be provided. This would not only address the issue of under-reporting, it would also provide an up-to-date platform where stakeholders can gain a better understanding of what is going on in practice. Improvement of OSH

²² More information is available at: <https://osha.europa.eu/en/publications/raising-awareness-prevent-workplace-violence-against-healthcare-professionals>

²³ More information is available at: https://circabc.europa.eu/ui/group/fea534f4-2590-4490-bca6-504782b47c79/library/7a77fa85-63a7-4072-9651-8504e6c58b04?p=1&n=10&sort=modified_DESC

in HeSCare workplaces is a continuous process. This means that it requires constant collaboration, education and innovation. Taking an active role in OSH matters is crucial to ensuring the safety and health of HeSCare workers (SLIC, 2024b). In 2024, the SLIC launched the interactive leaflet **'Investigation of Accidents at Work'** that includes links to the relevant sides of the labour inspectorates in all the Member States, explains the six basic steps to be taken when an accident occurs and offers relevant guidance documents.

- **Protect workers' health to safeguard quality care and public health: Evidence shows** that the share of non-fatal workplace accidents in HeSCare nearly doubled between 2012 and 2022, making it the sector with the second-highest share of accidents. This trend indicates that HeSCare continues to be a high-risk sector in terms of non-fatal accidents. When HeSCare workers are injured or unwell, the continuity and quality of patient care are jeopardised, and organisations face workflow disruptions as remaining staff are stretched to cover for absences, potentially compromising the quality of care delivered to patients. EU-targeted initiatives (research, funding, campaigns) that underscore how safer working conditions for nurses, caregivers, social workers and other HeSCare professionals will ultimately safeguard the wellbeing of patients and the public could be encouraged. This broad commitment could set the tone for more specific actions and devote more attention and resources to accident prevention in hospitals, nursing homes and social services.

5.2.2 National- and sectoral-level policy pointers

- **Implement comprehensive risk assessment and accident analysis in HeSCare workplaces:** At the national and sectoral levels, authorities and employers could ensure that every healthcare, residential care and social work workplace carries out thorough risk assessments and learns systematically from accident analyses. This means identifying hazards proactively and investigating incidents after they occur to understand their root causes. National regulators (such as labour inspectorates and ministries of health) and social partners could provide sector-specific risk assessment frameworks that help hospitals, nursing homes and social service providers evaluate the full range of risks their workers face, from physical hazards (like slippery floors or dangerous substances) to ergonomic strains and psychosocial stressors. Critically, these assessments should not be one-off checklists but part of a continuous improvement cycle. In 2023, the NLA launched the **new Dutch approach**.²⁴ While NLA site visits still take place, under the new approach employers are allowed to investigate causes themselves and create improvement plans. These plans must address both direct and root causes and include corrective actions with a timeline. The NLA reviews the reports and only further enforces if violations are found during the follow-up. This approach aims to boost learning, risk awareness and proactive safety measures within organisations. To support the new Dutch approach, the NLA developed a set of multilingual documents (Dutch, English and German) and an online self-inspection tool. These resources help employers to investigate accidents independently. As part of the SLIC Campaign 2024 – Accidents at work, the SLIC has developed the tool: **'Stop Accidents Before They Stop You!'**
- **Accident reporting and analysis needs to be reinforced:** Employers could be encouraged (or required) to create an open reporting culture where staff can report accidents, near-misses and safety concerns without fear of blame. Learning from each accident or near-miss is vital. National healthcare authorities and sector organisations (like hospital associations) could develop databases or observatories for collecting accident data and disseminating lessons learned across facilities. By mandating and supporting such practices, countries ensure that individual workplaces do not operate in silos on safety matters. Instead, there would be a shared, evidence-based understanding of why accidents happen and how to prevent them. Over time, this systematic approach would close the feedback loop between accident data and prevention, making safety management more anticipatory.

²⁴ More information is available at: <https://osha.europa.eu/en/publications/new-dutch-approach-investigating-and-learning-accidents>

It would also help address under-reporting: when even minor accidents are analysed constructively, it sends the message that all safety matters are taken seriously, thereby encouraging more reporting and ultimately reducing the chance of serious accidents going unnoticed until they recur.

- **Invest in safer equipment, infrastructure and technologies:** Employers in the HeSCare sector, with support from national programmes or funding, could significantly reduce common accidents by investing in safer workplace infrastructure and tools. Many accidents in healthcare and caregiving environments are tied to the physical set-up and equipment available.
- **Ensure adequate training is provided for all HeSCare workers:** HeSCare providers could strengthen their workforce capacity by guaranteeing regular safety training for all workers and by improving staffing levels and work schedules to reduce excessive workloads. Training and staffing are interrelated aspects of accident prevention: even a well-trained worker may struggle to apply safety practices if they are hurried and understaffed, whereas even a fully staffed unit can be unsafe if workers lack the know-how to handle hazards. On the training front, every worker could be given appropriate instruction in OSH that is specific to their tasks and workplace. The finding that over half of HeSCare workers have received no employer-provided training points to a critical gap that national sector regulators and professional bodies could address by setting minimum training requirements.
- **Ensure adequate staffing and reasonable work schedules:** These two factors are fundamental to providing workers with the capacity to work safely. Many accidents in the sector are linked to rushing, fatigue or inattention, which in turn often stem from staff shortages and overlong shifts. National policy could encourage or require HeSCare institutions to adhere to evidence-based staffing ratios (for instance, a recommended number of patients per nurse or caregivers per resident), as well as to limit excessive overtime and consecutive working days. Managers of hospitals and care facilities might be urged to redesign rotas so that no worker is routinely put in situations of lone work in high-risk areas or double shift turns that could impair alertness. Ensuring sufficient relief staff or float pools could help cover absences without overburdening the present workers. Member States facing severe HeSCare workforce shortages (a systemic issue needing long-term solutions) could promote interim measures such as better workload distribution — prioritising tasks to make sure critical safety-related duties are always covered, and possibly deferring non-urgent activities when staffing is thin, so workers are not stretched beyond safe limits.
- **Integrate PSR and violence prevention into workplace safety programmes:** Employers and national bodies could expand their safety programmes to explicitly include PSR reduction and measures against workplace violence and harassment, acknowledging these as key components of accident prevention and worker wellbeing. In practical terms, this means treating issues like work-related stress, burnout, bullying and violence with the same seriousness as traditional safety hazards. Workplaces in the HeSCare sector could implement comprehensive PSR assessments — evaluating factors such as workload, time pressure, role clarity, supervisor support and team dynamics — and then act on the findings. The case study ‘Awareness initiatives addressing workplace violence towards healthcare professionals’²⁵ addresses various awareness campaigns that have been launched across the EU at national and regional levels. Key messages are: You must be sick to attack a healthcare professional; Violence will not make you feel better; Be yourself, count to 11; It's a crime...; SeeEachOther; Your smile does good; and Respect Those Who Care for You.

²⁵ More information is available at: <https://osha.europa.eu/en/publications/raising-awareness-prevent-workplace-violence-against-healthcare-professionals>

- **Tailor safety measures to the specific needs of healthcare, residential care and social work:** One-size-fits-all approaches may miss important differences in risk profiles, so national strategies and sectoral initiatives could customise prevention efforts to the distinct realities of each subsector within HeSCare.
- **Improve monitoring, supporting compliance and continuous improvement in safety management:** Finally, at national and sectoral levels it is crucial to establish strong monitoring and enforcement mechanisms, coupled with a commitment to continuous improvement, to ensure that these recommendations translate into real changes and that progress is maintained. Labour inspectorates and health authorities could intensify their focus on the HeSCare sector, conducting targeted inspections and audits to verify compliance with OSH standards — for example, checking that hospitals adhere to needlestick prevention practices or that care homes have adequate staffing and training records. Where they find gaps (such as an absence of risk assessment, or insufficient training uptake), regulators could issue guidance or sanctions as appropriate, but always with an eye towards improvement rather than punishment. National reporting systems can be refined to track sector-specific safety performance indicators (like accident frequency rates in hospitals versus care homes) so that policymakers can evaluate the impact of interventions. Continuous improvement also means involving workers themselves in feedback loops: encouraging HeSCare staff to voice safety concerns and suggestions, perhaps through safety committees or digital platforms, ensures that policies remain grounded in frontline reality. In summary, robust monitoring and a learning-oriented approach will help entrench the gains from the above recommendations, making safe and healthy working conditions an enduring feature of the HeSCare sector rather than a one-time initiative.

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Annex 1: Methodological annex: Using ESAW data to develop statistics on accidents at work related to the HeSCare sector

What are the main characteristics of the ESAW database?

For this study the Eurostat European Statistics on Accidents at Work (ESAW) data are exploited. The ESAW data are based on harmonised administrative data on accidents at work collected at national level by all EU-27 Member States.

The Framework Directive 89/391/EEC on measures to encourage improvements in the safety and health of workers at work introduced the obligation for employers to keep a list of occupational accidents resulting in a worker being unfit for work for more than three days, and, in accordance with national laws and/or practices, to draw up reports on occupational accidents suffered by their workers (Article 9(1), paragraphs c) and d) (Council of the European Union Directive 89/391/EEC, 1989a). The ESAW project was launched in 1990 with the aim of harmonising data on accidents at work for all accidents resulting in more than three days' absence from work. In 2001, 'European Statistics on Accidents at Work - Methodology' was published by Eurostat and DG Employment and Social Affairs, setting out work on methodology since 1990 (European Commission/Eurostat, 2013).

Regulation (EC) No 1338/2008 of the European Parliament and the Council of 16 December 2008 on Community statistics on public health and safety at work (hereafter referred to as Framework Regulation), sets out obligations to supply statistics on accidents at work to the Commission (Eurostat) in Article 2 and Annex IV. The harmonised and common micro-data set to be provided on accidents at work cover the following subjects: characteristics of the injured person, characteristics of the injury including severity (days lost), characteristics of the enterprise including economic activity characteristics of the workplace, characteristics of the accident, including the sequence of events characterising the causes and circumstances of the accident. Statistics are to be provided 'annually', and submitted 'not later than 18 months after the end of the reference year'.

The Implementing Commission Regulation (EU) No 349/2011 (4) (hereafter referred to as ESAW Regulation) adopted on 11 April 2011 implements the Framework Regulation as regards statistics on accidents at work, sets up the variables, definitions and classifications of the subjects listed above as well as the breakdown of characteristics. Article 4 of the ESAW Regulation also specifies that Member States have to send Eurostat an annual verification and update of the metadata together with the data. (European Commission/Eurostat, 2013).

On 19 November 2024, the first data for 2022 were published. The table below summarises the main characteristics of this database and the variables available in the context of the study.

Table 15 Main characteristics and variables in ESAW

Characteristic	Remark
Website	https://ec.europa.eu/eurostat/databrowser/explore/all/popul?lang=en&subtheme=hlth.hsw.hsw_acc_work&display=list&sort=category&extractionId=HSW_PB5
Period/years covered by the data source	Data are available from 1994 onward for all EU-15 Member States. From 2008 onward, data for all EU-27 Member States and EU aggregates are available. Croatian data are included since 2010. Data are updated annually. Currently, the most recent year on which ESAW statistics are available is 2022.

Characteristic	Remark
Data collection methodology	The national ESAW sources are the declarations of accidents at work, either to the accident insurance of the national social security system, a private insurance for accidents at work or to other relevant national authorities (labour inspection, etc.). As an exception, accident data for the Netherlands are based on survey data. The following measurement units are used in ESAW data: ○ Numbers of accidents ○ Percentages of accidents (in relation to different totals and breakdowns) ○ Incidence rates of accidents: number of accidents per 100,000 workers ○ Standardised incidence rates: number of accidents per 100,000 workers adjusted for the relative sizes of economic sectors at EU level
Definition of accident at work	An accident at work is defined as 'a discrete occurrence in the course of work which leads to physical or mental harm'. The data include only fatal accidents (accidents leading to the death of a victim within one year of the accident) and non-fatal accidents involving more than 3 calendar days of absence from work.
Type of injury	The following main types of injury are distinguished: ○ Wounds and superficial injuries ○ Bone fractures ○ Dislocations, sprains, and strains ○ Traumatic amputations (loss of body parts) ○ Concussion and internal injuries ○ Burns, scalds and frostbites ○ Poisonings and infections ○ Drowning and asphyxiation ○ Effects of sound, vibration, and pressure ○ Effects of temperature extremes, light and radiation ○ Shock ○ Multiple injuries ○ Other specified injuries not included under other headings
Part of body injured	The following classification of parts of body injured is available: ○ Head ○ Neck, including spine and vertebra in the neck ○ Back, including spine and vertebra in the back ○ Torso and organs ○ Upper extremities ○ Lower extremities ○ Whole body (systemic effects) and multiple sites ○ Other parts of body injured, not mentioned above
Economic activity of the employer	ESAW data are disseminated through 3 different sections. Each of these sections involves a different level of detail regarding the economic activity of the employer: ○ Main indicators (hsw_mi); this section does not differentiate by economic activity.

Characteristic	Remark
	- Causes and circumstances of accidents at work (hsw_ph3): this section includes statistics that differentiate between NACE main sectors (1 digit code). - Details by economic sector (hsw_n2): this section includes statistics that differentiate between NACE divisions (2 digit codes; hsw_n2_1 to hsw_n2_4) or NACE main sectors (1 digit code; hsw_n1_5 to hsw_n1_7).
Socio-demographic characteristics	The following sociodemographic characteristics related to accidents are available for NACE divisions: Age and sex of victim
Enterprise characteristics	Enterprise size class
Causes and circumstances of accidents at work	The following causes and circumstances of the accidents (9 variables) are available for NACE main sectors (only 1 digit code): - Workstation - Working environment - Working process - Physical activity that resulted in the accident - Deviation: events differing from the norm and leading to the accident - Contact mode of injury: how the victim was hurt by a material agent - Material agent (tool, object, instrument) - associated with specific physical activity - associated with the deviation - associated with the contact mode of injury
Severity	Data of accidents is available for NACE divisions (2 digit code) according to days lost

▪ **Main sectors comprising Health and Social care activities (NACE rev 2 Section Q)**

The human health and social care activities (HeSCare) sector is known as NACE section Q. The sector is composed of three separate types of overarching activities: healthcare activities (NACE division Q86), residential care activities (NACE division Q87) and social work activities (NACE division Q88). Together, the three divisions encapsulate several different types of work including: hospital activities, specialist medical practice activities, and dental practice activities (NACE division Q86); residential nursing care activities, and residential care activities for the elderly and disabled (NACE division Q87); and social work activities without accommodation for the elderly and disabled, and child day-care activities (NACE division Q88). The table below provides a more detailed overview of the activities in each division.

Table 16 Main sectors comprising Health and Social care activities (NACE rev 2 Section Q)

Division	Class	Description
Q86 - Human health activities (Referred to as: <i>Healthcare</i>)	Q86.1	Hospital activities
	Q86.2	Medical and dental practice activities
	Q86.2.1	General medical practice activities

Division	Class	Description
	Q86.2.2	Specialist medical practice activities
	Q86.2.3	Dental practice activities
	Q86.9	Other human health activities
Q87 - Residential care activities (Referred to as: <i>Residential care</i>)	Q87.1	Residential nursing care activities
	Q87.2	Residential care activities for mental retardation, mental health and substance abuse
	Q87.3	Residential care activities for the elderly and disabled
	Q87.9	Other residential care activities
	Q88.1	Social work activities without accommodation for the elderly and disabled
Q88 - Social work activities without accommodation (Referred to as: <i>Social Work</i>)	Q88.9	Other social work activities without accommodation
	Q88.9.1	Child day-care activities
	Q88.9.9	Other social work activities without accommodation n.e.c.

Source: Eurostat's NACE classification.

▪ Which sections of the ESAW database are relevant for this study?

ESAW data are disseminated through 3 different sections (main indicators (hsw_mi); causes and circumstances of accidents at work (hsw_ph3); details by economic sector (hsw_n2)). The focus of this study is on non-fatal accidents for the HeSCare sector, several tables on fatal accidents for the HeSCare sector are however also included in the report. This implies that the following ESAW sections and tables are relevant for this study²⁷:

- Details by NACE activity (hsw_n2)
 - Non-fatal accidents at work: by sector and
 - sex (hsw_n2_01)
 - age (hsw_n2_03)
 - days lost (hsw_n2_04)
 - size of enterprise (hsw_n2_05)
 - part of body injured (hsw_n2_06)
 - type of injury (hsw_n2_07)
 - Fatal accidents at work:
 - by sector (hsw_n2_02, hsw_n2_04)
 - by sector and size of enterprise (hsw_n2_05)
 - by sector and part of body injured (hsw_n2_06)
 - by sector and type of injury (hsw_n2_07)
- Causes and circumstances of accidents at work (ESAW phase III) (hsw_ph3):
 - Non-fatal accidents at work: by sector, sex, age²⁸ and:
 - workstation (hsw_ph3_01)
 - working environment (hsw_ph3_02)
 - working process (hsw_ph3_03)

²⁷ The ESAW tables in the data browser are titled 'Non-fatal accidents at work', 'Fatal accidents at work' or 'Accidents at work'. Tables on 'Accidents at work' include statistics on non-fatal accidents as well as on fatal accidents, where information on the severity of the accidents can be used to distinguish non-fatal accidents from fatal accidents.

²⁸ The section 'causes and circumstances' allows for a differentiation between three different age groups (< 25 years; 25-54 years; 55 years or over). In contrast, the table on non-fatal accidents at work by sector and age from the section 'Details by NACE activity' allows for a differentiation between 7 age groups (< 18 years; 18-24 years; 25-34 years; 35-44 years; 45-54 years; 55-64 years; 65 years or over).

- specific physical activity (hsw_ph3_04)
- material agent of specific physical activity (hsw_ph3_05)
- deviation (hsw_ph3_06)
- material agent of deviation (hsw_ph3_07)
- contact mode of injury (hsw_ph3_08)
- material agent of contact mode of injury (hsw_ph3_09)
- Fatal accidents at work: by sector, sex age and:
 - workstation (hsw_ph3_01)
 - working environment (hsw_ph3_02)
 - working process (hsw_ph3_03)
 - specific physical activity (hsw_ph3_04)
 - material agent of specific physical activity (hsw_ph3_05)
 - deviation (hsw_ph3_06)
 - material agent of deviation (hsw_ph3_07)
 - contact mode of injury (hsw_ph3_08)
 - material agent of contact mode of injury (hsw_ph3_09)

This includes two of the three sections that are available from the Eurostat website on ESAW. The section on main indicators (hsw_mi) is not relevant for the current study. The tables in this section only provide macro-economic statistics, tables with statistics for the HeSCare sector are therefore not available within this section.

It is important to note that the ESAW section 'details by NACE activity (hsw_n2)' does not include tables on fatal accidents at work by sex and by age; within this section, tables by sex and by age are only available for non-fatal accidents at work. Tables on fatal accidents at work by sex and by age (for different sectors) can however be obtained from the ESAW section 'causes and circumstances of accidents at work (ESAW phase III) (hsw_ph3)'. For each of the different causes and circumstances, tables on fatal accidents at work can be prepared by selecting data on fatal accidents (available as a category within the dimension 'Severity (days lost)') for the total of the selected cause or circumstance (which specific cause or circumstance does not matter, since the total number of fatal accidents does not depend on the cause or circumstance). By selecting the required NACE sections, sex and/or age classes, tables on the number and incidence rates of fatal accidents at work by sex and by age can be obtained for all NACE rev.2 sections.

▪ Which relevant sections of the ESAW database provide statistics for the three HeSCare divisions?

Whenever possible, differences between the three divisions within the HeSCare sector (Q86 Healthcare, Q87 Residential care and Q88 Social work) are presented. This distinction is possible for the following section and tables from the ESAW database:

- Details by economic sector (hsw_n2):
 - Non-fatal accidents at work: by sector and
 - sex (hsw_n2_01)
 - age (hsw_n2_03)
 - days lost (hsw_n2_04)
 - Fatal accidents at work:
 - by sector (hsw_n2_02, hsw_n2_04).

Statistics on causes and circumstances of accidents at work are only available for the HeSCare sector as a whole and not for the three divisions.

▪ Which measurement units of the ESAW database are relevant for this study?

For most topics the following two measurement units are used:

- Percentages of accidents (in relation to different totals and breakdowns).
- Incidence rates of accidents: number of accidents per 100,000 workers.

There is a third measurement that is used to present a picture of the current situation in the HeSCare sector, but is much less suited to analyse developments over time:

- Number of accidents. This is an absolute number. This is less suitable to examine trends because changes over time in the number of accidents will be the result of two different causes: changes in the number of accidents per 100,000 workers, and changes in the total number of workers. Since the ESAW database does not distinguish between these two causes, trends in the development of the number of accidents is difficult to interpret.

Nevertheless, for certain classifications it may still be relevant to present tables on the number of accidents:

- Tables on fatal accidents. The number of fatal accidents in the HeSCare sector is so low (< 100) that incidence rates become very small (even more so when incidence rates are divided across several categories). For fatal accidents, statistics on the number of fatal accidents may therefore provide a better insight into the matter than incidence rates.
- Tables that distinguish by size class, part of body injured or type of injury. In the Eurostat data browser on ESAW statistics, these categories are only available for the measurement unit 'number of accidents'.

The fourth measurement unit is not suitable for the current study under any circumstance:

- Standardised incidence rates: number of accidents per 100,000 workers adjusted for the relative sizes of economic sectors at EU level. Standardised incidence rates are especially relevant when comparing ESAW statistics across different countries, because the standardised rates assume that the relative sizes of economic activities within each national economy are the same as within the EU as a whole. The standardised incidence rates are however not available per sector but only at country level. Furthermore, they do not include all economic sectors. In particular, NACE sections B and O to U are excluded from the calculation of the standardised incidence rates. Therefore results based on standardised incidence rates are not used.

▪ For which years should aggregated data at EU-level be presented?

Since 2012, the composition of the EU has changed twice²⁹:

- In July 2013, Croatia entered the EU
- In January 2020, the UK left the EU.

Because of this, the ESAW datasets include three different aggregates (variables provided in the ESAW datasets):

- EU27_2007 (before Croatia joined), referring to the period 2007 – 2013;
- EU28, referring to the period 2013 – 2020;
- EU27_2020 (after UK left), referring to the period from 2020 onwards.

In order to make comparisons over time, the aggregates according to the variable EU27_2020 were used. For many tables, this aggregate is available from 2020 onwards but also for previous years. The period covered by this aggregate varies, however, between ESAW sections:

- The overall data coverage of the ESAW section on details by NACE activity (hsw_n2) is 2008 – 2022. Statistics for EU27_2020 are available from 2010 onwards (see e.g. non-fatal accidents at work by sector and sex hsw_n2_01)).
- The overall data coverage of the ESAW section on causes and circumstances (hsw_ph3) is 2014 – 2022. Statistics for EU27_2020 are available for this period (see e.g. statistics on accidents at work by sex, age, severity, sector and deviation hsw_ph3_06).

Therefore, the length of the time series presented in the report varies between tables, depending on the subject at hand.

²⁹ Note that the changes in the EU composition only matter for the aggregated data at EU-level, not for the data at country level.

ESAW contains annual data only. This implies that once a year, data on a new (calendar) year become available. The published data can however be updated more than once a year, for example if additional checks have been performed. Thus, data originally flagged as '(u) unreliable' may later turn out to be reliable. For this study, 2022 was the most recent year available in the ESAW database. All of the tables included in this report have been downloaded between 27/01/2025 (the large majority) and 01/05/2025. By that time, most of the data appeared reliable (in the sense that they were not flagged as unreliable). For one specific table however (the number of fatal accidents at work for EU-27 for the HeSCare sector, by type of injury), the data for 2022 were flagged as unreliable (as are the data for 2021). Statistics for this specific classification are not included in this report.

▪ COVID-19

As long as COVID-19 cases are considered to be work-related, they may be included in the ESAW statistics. Eurostat has written a separate note on the inclusion of COVID-19 cases in ESAW.³⁰ The main conclusion from this note is formulated as follows:

“National practices are different, nonetheless in all EU Member States and in Switzerland and Norway it has been decided that COVID-19 could be related to an event in the workplace and received a recognition of occupational origin. In practice, for statistical purposes, occupational COVID-19 could be recorded as an accident at work (ESAW data collection), as an occupational disease (European Occupational Diseases Statistics - EODS data collection) or both following the national rules in place. (...) The report shows that national practices are different when it comes to the recognition in one of the two categories (accident at work or occupational disease), the economic sectors and the occupations concerned or the national criteria for recognition”.

In 2020, Eurostat created a new code in the ESAW database to capture occupational COVID-19 cases (where possible). This has led to a break in time series for 2020, as indicated in all of the ESAW tables provided by Eurostat³¹.

▪ Are ESAW statistics comparable between countries?

Given the focus of the study, the data selected is not intended to be used for comparison between countries, but rather to examine the developments over time for EU-27 and to take an in-depth look at the developments within individual Member States. This study focuses on non-fatal accidents at work, and according to the ESAW meta-data “data on non-fatal accidents are considered to be of limited comparability across certain groups of countries”. In contrast, the comparability of data on fatal accidents between all countries is considered by Eurostat to be high³².

▪ Which causes and circumstances are relevant for this study?

The variables on the causes and circumstances of the accidents at work provide additional information to identify **where, and especially how**, accidents occur, with the aim of establishing a prevention policy. As provided above, there are nine different available causes and circumstances in ESAW which are: workstation; physical activity that resulted in the accident; deviation; contact mode of injury; working process; working environment; and material agents as associated with specific physical activity, with the deviation, and with the contact mode of injury. The first four are addressed in the report, the other five are not presented, either because information is missing for a large share of accidents at work (this is especially true for the data on material agents), or because it does not provide relevant insights for the HeSCare sector (this applies to the cause ‘working environment’, which mainly shows that the large majority of non-fatal accidents in the HeSCare sector take place in health establishments).

Workstation

- Usual workstation or within the usual local unit of work
- Occasional or mobile workstation or in a journey on behalf of the employer
- Another workstation

³⁰ Source: ESAW metadata, section 15.2.

https://ec.europa.eu/eurostat/cache/metadata/Annexes/hsw_acc_work_esms_an_3.pdf

³¹ Source: https://ec.europa.eu/eurostat/cache/metadata/en/hsw_acc_work_esms.htm.

³² Source: ESAW metadata, section 15.1.

- Not specified.

Physical activity that resulted in the accident

- Operating machine
- Working with hand-held tools
- Driving/being on board a means of transport or handling equipment
- Handling of objects
- Carrying by hand
- Movement
- Presence
- Other specific physical activities not listed in this classification.

Deviation: events differing from the norm and leading to the accident

- Deviation due to electrical problems, explosion, fire
- Deviation by overflow, overturn, leak, flow, vaporisation, emission³³
- Breakage, bursting, splitting, slipping, fall, collapse of material agent
- Loss of control (total or partial) of machine, means of transport or handling equipment, hand-held tool, object, animal
- Slipping - stumbling and falling - fall of persons
- Body movement without any physical stress (generally leading to an external injury)
- Body movement under or with physical stress (generally leading to an internal injury)
- Shock, fright, violence, aggression, threat, presence
- Other deviations not listed above in this classification.

It is important to note that in the context of the ESAW database, the phrase 'shock' can refer to two different topics:

- A type of injury; this type refers to 'shocks after aggression and threats', 'traumatic shocks' and 'other types of shocks'
- A deviation category; this deviation category refers to shock or fright; violence, aggression or threat (either between company employees or from people external to the company); aggression, jostle by animals; or when the presence of the victim or of a third person in itself creates a danger for oneself and possibly others.

Contact mode of injury

- Contact with electrical voltage, temperature, hazardous substances - not specified
- Drowned, buried, enveloped - not specified
- Horizontal or vertical impact with or against a stationary object (the victim is in motion) - not specified
- Struck by object in motion, collision with - not specified
- Contact with sharp, pointed, rough, coarse Material Agent - not specified
- Trapped, crushed, etc. - not specified
- Physical or mental stress - not specified
- Bite, kick, etc. (animal or human) - not specified
- Other contacts - modes of injury not listed in this classification.

³³ This code must be used when the deviation is "due to an outflow, vaporisation or emission of gases, liquids, vapours or dust etc. that either should not have occurred or should not have come into contact with people" (European Commission/Eurostat 2013).

Material agent (tool, object, instrument)

- **associated with specific physical activity**
 - Buildings, structures, surfaces - at ground level (indoor or outdoor, fixed or mobile, temporary or not) - not specified
 - Buildings, structures, surfaces - above ground level (indoor or outdoor) - not specified
 - Buildings, structures, surfaces - below ground level (indoor or outdoor) - not specified
 - Systems for the supply and distribution of materials, pipe networks - not specified
 - Motors, systems for energy transmission and storage - not specified
 - Hand tools, not powered - not specified
 - Hand-held or hand-guided tools, mechanical - not specified
 - Hand tools - without specification of power source - not specified
 - Machines and equipment - portable or mobile - not specified
 - Machines and equipment - fixed - not specified
 - Conveying, transport and storage systems - not specified
 - Land vehicles - not specified
 - Other transport vehicles - not specified
 - Materials, objects, products, machine components, debris, dust - not specified
 - Chemical, explosive, radioactive, biological substances - not specified
 - Safety devices and equipment - not specified
 - Office equipment, personal equipment, sports equipment, weapons, domestic appliances - not specified
 - Living organisms and human-beings - not specified
 - Bulk waste - not specified
 - Physical phenomena and natural elements - not specified
 - Other material agents not listed in this classification
- **associated with the deviation**
 - Buildings, structures, surfaces - at ground level (indoor or outdoor, fixed or mobile, temporary or not) - not specified
 - Buildings, structures, surfaces - above ground level (indoor or outdoor) - not specified
 - Buildings, structures, surfaces - below ground level (indoor or outdoor) - not specified
 - Systems for the supply and distribution of materials, pipe networks - not specified
 - Motors, systems for energy transmission and storage - not specified
 - Hand tools, not powered - not specified
 - Hand-held or hand-guided tools, mechanical - not specified
 - Hand tools - without specification of power source - not specified
 - Machines and equipment - portable or mobile - not specified
 - Machines and equipment - fixed - not specified
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 - Materials, objects, products, machine components, debris, dust - not specified
 - Chemical, explosive, radioactive, biological substances - not specified
 - Safety devices and equipment - not specified
 - Office equipment, personal equipment, sports equipment, weapons, domestic appliances - not specified
 - Living organisms and human-beings - not specified
 - Bulk waste - not specified

- Physical phenomena and natural elements - not specified
- Other material agents not listed in this classification
- **associated with the contact-mode of injury**
 - Buildings, structures, surfaces - at ground level (indoor or outdoor, fixed or mobile, temporary or not) - not specified
 - Buildings, structures, surfaces - above ground level (indoor or outdoor) - not specified
 - Buildings, structures, surfaces - below ground level (indoor or outdoor) - not specified
 - Systems for the supply and distribution of materials, pipe networks - not specified
 - Motors, systems for energy transmission and storage - not specified
 - Hand tools, not powered - not specified
 - Hand-held or hand-guided tools, mechanical - not specified
 - Hand tools - without specification of power source - not specified
 - Machines and equipment - portable or mobile - not specified
 - Machines and equipment - fixed - not specified
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 - Safety devices and equipment - not specified
 - Office equipment, personal equipment, sports equipment, weapons, domestic appliances - not specified
 - Living organisms and human-beings - not specified
 - Bulk waste - not specified
 - Physical phenomena and natural elements - not specified
 - Other material agents not listed in this classification

Working environment

- No information
- Industrial site
- Construction site, construction, opencast quarry, opencast mine
- Farming, breeding, fish farming, forest zone
- Tertiary activity area, office, amusement area, miscellaneous
- Health
- Public area
- In the home
- Sports area
- In the air, elevated, excluding construction sites
- Underground, excluding construction sites
- On /over water, excluding construction sites
- In high pressure environments, excluding construction sites
- Other working environments not listed in the classification

Working process

- No information
- Production, manufacturing, processing, storing
- Excavation, construction, repair, demolition
- Agriculture, forestry, horticulture, fish farming, work with live animals
- Service provided to enterprise and/or to the general public; intellectual activity
- Other work processes related to: production, manufacturing, processing, storing (WPR1); excavation, construction, repair, demolition (WPR2); agriculture, forestry, horticulture, fish farming, work with live animals (WPR3); service provided to enterprise and/or to the general public, intellectual activity (WPR4)
- Movement, sport, artistic activity
- Other

Category ‘no information’ missing in tables on causes and circumstances

In ESAW tables on causes and circumstances, the total often seems to exceed the summation across all categories that should make up the total. For example, consider the following table on the number of accidents at work (4 days lost or over) by deviation, for EU27_2020, for all sexes and age classes, for the HeSCare sector 2022³⁴:

	UNIT (Labels)	Number of accidents
DEVIATN (codes)	DEVIATN (Labels)	
TOTAL	Total	469.685
DEV_1	Deviation due to electrical problems, explosion, fire	741
DEV_2	Deviation by overflow, overturn, leak, flow, vaporisation, emission	106.799
DEV_3	Breakage, bursting, splitting, slipping, fall, collapse of material agent	10.674
DEV_4	Loss of control (total or partial) of machine, means of transport or handling equipment, hand-held tool, object, animal	28.809
DEV_5	Slipping - stumbling and falling - fall of persons	67.707
DEV_6	Body movement without any physical stress (generally leading to an external injury)	42.517
DEV_7	Body movement under or with physical stress (generally leading to an internal injury)	87.738
DEV_8	Shock, fright, violence, aggression, threat, presence	35.545
DEV_9	Other deviations not listed above in this classification.	33.661

The summation of the number of accidents across all of the 9 available types of deviation equals 414.191 accidents, while the total number of accidents equals 469.685.

³⁴ https://ec.europa.eu/eurostat/databrowser/view/hsw_ph3_06_custom_14888098/default/table?lang=en&page=time:2022

The explanation for this difference seems to be that the deviation code DEV_0 'no information' is not included in this table. According to annex II of the ESAW summary methodology, it can be the case that the accident report does not give information allowing the accident to be coded. In each classification, the first line (code 00 or 000) reads 'No information' (ESAW summary methodology, page 39). This can also be seen in annex I of the ESAW summary methodology, where the first code that is mentioned for each cause and circumstance is 00 or 000, labeled 'No information' (see e.g. page 27 in the case of deviation). For tables on material agents, the number of incidents for which no information is available will be larger, since in some cases there is no material agent to be recorded or coded. For example, a shop assistant stands up and turns to serve a customer, but the movement causes an internal injury and leaves her unable to move. This is a case of injury without external cause. (...) For none of these three variables there is a material agent, and code 00.01 'no material agent' must be entered for each of the three Agents." (ESAW summary methodology, page 40).

The tables that can be downloaded from the ESAW database do not seem to include the measurements for the 'no information' categories of the various causes and circumstances. This must be taken into account when interpreting the results.

▪ **How should the statistics concerning severity be interpreted?**

In the ESAW database, severity is determined according to days lost. Eurostat defines days lost as the "number of full calendar days where the victim is unfit for work due to an accident at work". There are two levels of severity. The first level includes accidents which are fatal and then there are accidents which lead to a number of days being lost (which implies non-fatality). Thereafter, the number of days lost can be categorised into³⁵:

- 4 days or over
- from 4 to 6 days;
- from 7 to 13 days;
- from 14 to 20 days;
- from 21 days to 1 month;
- from 1 to 3 months;
- from 3 to 6 months.
- permanent incapacity or 183 days or over;

The data for severity represents absolute numbers. As discussed earlier, absolute numbers change over time and the number of days lost will be the result of two different causes: changes in the number of days lost per 100,000 workers, and changes in the total number of workers. Since the ESAW database does not distinguish between these two causes, trends in the development of the number of days lost are difficult to interpret.

³⁵ Not all ESAW tables distinguish between different categories of severity; in several tables, only the total number of days lost (4 days or over) is available.

The European Agency for Safety and Health at Work (EU-OSHA) contributes to making Europe a safer, healthier and more productive place to work. The Agency researches, develops, and distributes reliable, balanced, and impartial safety and health information and organises pan-European awareness raising campaigns. Set up by the European Union in 1994 and based in Bilbao, Spain, the Agency brings together representatives from the European Commission, Member State governments, employers' and workers' organisations, as well as leading experts in each of the EU Member States and beyond.

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