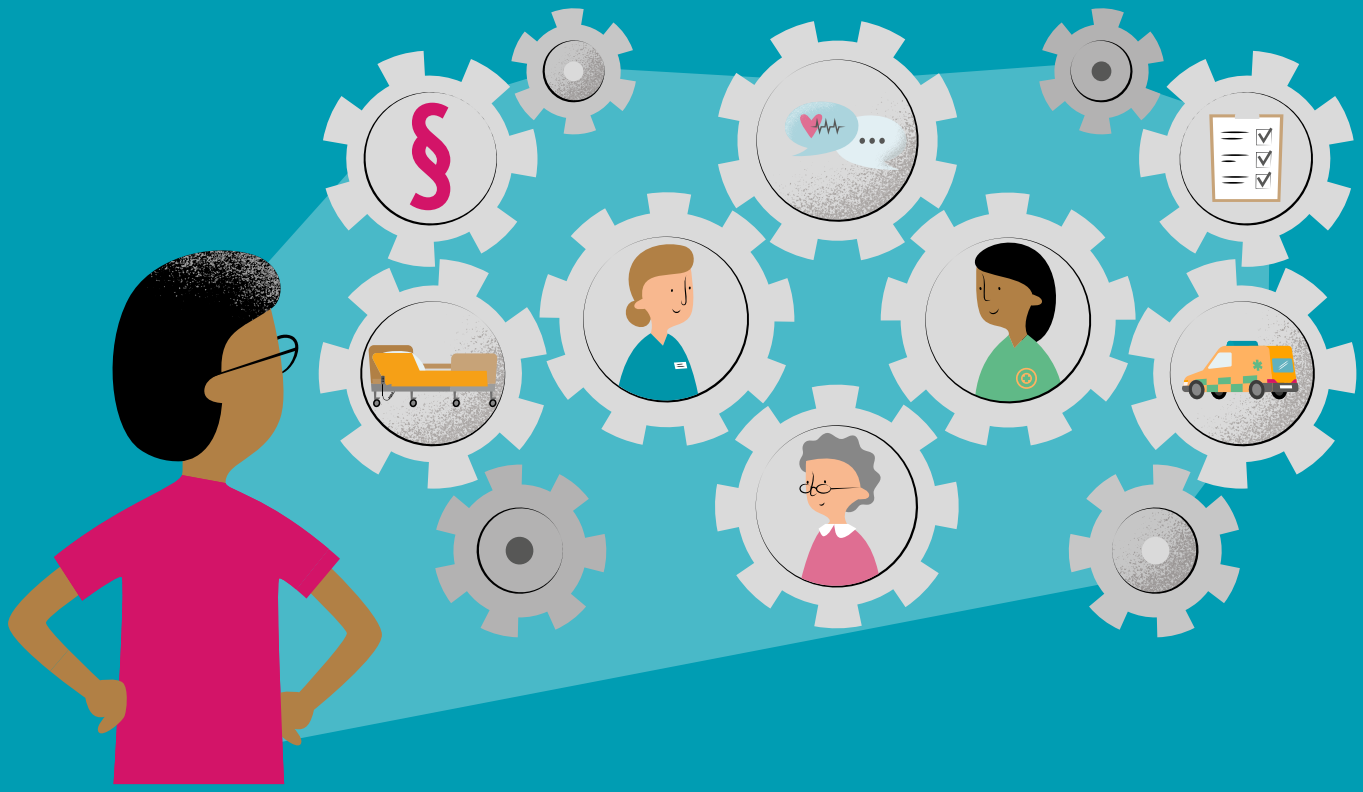
Swedish Agency for Work Environment Expertise

Safe

patient handling and movement



~~A~~ research-based guide for a better work environment

A RESEARCH-BASED GUIDE

Safe patient handling and movement – A research-based guide for a better work environment

Research-based guide
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Safe patient handling and movement

– A research-based guide for a better work environment

This guide is directed at workplaces within healthcare, ambulance care, dental care, and public and private care, including home nursing, domestic services and personal assistance.

The purpose of the guide is to describe how employers and employees can work together to ensure safe patient handling and movement. These measures can significantly help in preventing numerous occupational and healthcare-related injuries.

The guide initially addresses the background and important conditions for safe patient handling and movement followed by a practical work process consisting of five-steps. The five steps are based on and can be easily integrated into the systematic work environment management process (SAM in Swedish). An important part of the practical work involves risk assessments, and this guide provides specific knowledge about how risk assessments related to patient handling and movement can be carried out. Finally, guidance is given on measures at individual, group and/or organisational level and how managers, employees and safety representatives can jointly plan and choose measures based on the three perspectives of health promotion, prevention and rehabilitation. By including all these perspectives in the work, opportunities and conditions are created for safe patient handling and movement and a sustainable working life.

Creating sustainable, systematic work environment management is achieved by adopting a smarter, more focused, and structured approach to work. Actively implementing this guide in the workplace can result in the development of effective procedures and working methods for patient handling and movement, ensuring safety for both employees and care recipients in their daily activities.

Note that the guide is originally written for a Swedish context and based on Swedish work environment legislation. Readers should familiar themselves with relevant legislation and regulations pertaining to patient handling and movement in their own country to ensure compliance and best practices.

Reading instructions

The guide consists of two parts and appendices:

Part 1 – Background and prerequisites for safe patient handling and movement is a theoretical and knowledge-oriented part. It explains why it is important to work actively with health-promoting work environment management and to ensure safe patient handling and movement. A few different environments with frequent patient handling and movement are presented in brief. Important conditions for enabling safe patient handling and movement are also highlighted.

Part 1 also deals with why and how systematic work environment management forms such a central part of the work. Finally, there is a brief overview of the relevant legislation in this area.

Part 2 – Work process for safe patient handling and movement is a more practical part. Here, the reader is guided through a work process that describes step by step how the work of safe patient handling and movement can be raised to the next level and become part of the strategic and systematic work environment management. Wherever the workplace is for the moment in this work, the presented work process can form part of, or support, it. The five-step process follows the same model as the systematic work environment management and is based around policies, procedures, knowledge, collaboration, role allocation and the ongoing work to investigate, assess risk, remedy and follow up.

The appendices contain examples, checklists and selected supporting documents for the process. There are also tips on literature and web pages to read here.

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Part 1: Background and conditions for safe patient handling and movement

Why we need to invest in safe patient handling and movement

It is common for employees in healthcare and caregiving sectors to struggle with occupational injuries and musculoskeletal disorders. These disorders, which arise in the muscles and joints, cause pain and often impair the employee's ability to perform tasks. The symptoms can appear acute or insidious and there is a risk they will develop into long-term disorders. Supported by both research and legislation, workplaces are advised to conduct more comprehensive risk assessments and make targeted investments in measures that contribute to safe patient handling and movement. The goal is to prevent injuries in both employees and individuals receiving care and to achieve a healthy work environment.

Patient handling and movement, as well as falls, are behind many injuries

To sum up, research shows that injuries occur in different healthcare situations. Every year, more than 100,000 patients sustain with injuries within health care that could have been avoided, so-called healthcare injuries. Some of these are caused by falls and arise in connection with handling and movement, and some when care recipients move by themselves or are assisted by healthcare workers. In 2019, falls accounted for about five per cent of healthcare injuries sustained in hospitals.

Annually, thousands of healthcare professionals experience musculoskeletal disorders. The Swedish Work Environment Authority (Arbetsmiljöverket) reports approximately 2,600 cases of such accidents and disorders each year from healthcare and care workers. Notably, women represent nine out of ten affected individuals. However, it's important to note that occupational injuries are often under-reported in Sweden, suggesting that the actual number of injuries could surpass the reported figures. Commonly, these musculoskeletal accidents occur during lifting or transferring activities, such as in patient handling and movement. High physical and mental demands are frequently cited as causes of these disorders, with staff shortages also identified as a significant risk factor.

Each reported injury often represents a personal story of suffering, leading to compromised health, diminished work capacity, and sick leave — situations that might have been preventable. In 2021, musculoskeletal pain was the

second leading cause of sickness absence for both women and men. While not all such conditions are work-related, they nonetheless significantly affect work performance. In terms of sickness benefits, women received 62 percent of the total SEK 37.6 billion distributed in 2021, with men receiving 38 percent, as reported by the Swedish Social Insurance Agency.

Patient handling and movement constitute a significant part of the workday

Patient handling and movement is a frequent task in healthcare and caregiving settings. Throughout this guide, the term "safe patient handling and movement" is used frequently. This concept refers to scenarios where a patient, individual receiving care, or care user alters their position or is moved from one location to another. These transfers may occur with or without the use of aids, and either with or without assistance from healthcare professionals and work equipment. The process is conducted in a manner that ensures maximum safety for all involved and minimises risk exposure to prevent injuries.

Patient handling and movement can take various forms, such as a healthcare worker assisting an individual to sit up in bed or helping them move from the bed to the bathroom. It might also involve transferring a wheelchair-bound individual to a treatment chair during a dental appointment, either with or without assistance from dental staff. Another scenario could be helping a person who has fallen at home to move from the floor to their bed, using a mobile lift with the support of home-help service staff. Ambulance personnel frequently perform patient handling and movement in diverse settings like outdoors, in homes, or public places, which includes lifting, carrying, and moving patients on stretchers in cases of acute medical conditions, injuries, or illnesses such as heart attacks or strokes.

Figure 1. A common task is helping a care recipient to move from a wheelchair to a bed. This transfer can be carried out more safely if the risks are assessed before the transfer. Then the right work equipment can be used to reduce the physical exposure for the health-care workers. Here, two employees work together and the transfer is facilitated by a sliding board and a care belt.

Patient transfers occur under a variety of situations and conditions, underscoring the importance of assessing risks before each individual transfer. Choosing and using the appropriate aids and work equipment is crucial for safe patient handling and movement. In emergency situations, where there is limited time to deliberate, relying on established and well-known procedures becomes essential.

Promote safety and health at work

A safe care and work environment for both individuals receiving care and employees is founded on effective systematic patient safety management and work environment management. To ensure the safety of patient handling and movement, it is essential for both managers and employees to prioritise safety practices. The ultimate responsibility for maintaining a safe work environment rests with the employer. By investing in a safe work environment, complete with modern, accessible work equipment and training in transfer skills, employers can prevent occupational injuries and reduce employee sick leave. However, additional measures are necessary to guarantee safe patient handling and movement. Investing in a work environment that promotes health can also lower staff turnover and aid in recruitment. Employees should adhere to established procedures and avoid taking unnecessary risks. If safe working conditions are not met, it is crucial for employees to inform management.

A robust safety culture at work is vital for several reasons: it safeguards each employee and individual receiving care from injury, protects the health and quality of life of employees, and enhances the efficiency and productivity of operations. The nature of tasks, work content, exposure, and the opportunity for movement and variation during the workday impact employee safety and health. It is important for employees to have the flexibility to make decisions, receive support in their tasks, and have opportunities to learn and develop skills related to work environment and safety. Additionally, ensuring sufficient resources is crucial so employees can perform effectively without compromising the quality of their work.

Are you prepared to prioritise patient handling and movement in your daily tasks? This guide is designed to assist you in initiating and maintaining long-term, systematic efforts for safe patient handling and movement!

Health economic benefits

Prevention and health promotion should also be seen from an occupational health economic perspective. A workplace where employees thrive, feel good and are healthy is an attractive workplace. Investments in areas like training, equipment, and appropriate staffing are not only cost-effective but also yield profitable returns. Beyond the personal struggles, employees who are injured or on sick leave can cause a range of operational issues, including loss of expertise, staffing challenges, and financial burdens due to sick leave costs.

About the research-based guide

This guide is directed at healthcare, ambulance services, dental care, and caregiving sectors. These sectors operate under both public and private management and include organizations that provide home nursing, domestic services, and personal assistance. In the guide, the concept of care recipient is used as a collective term for individuals seeking care, including patients, care users, and those needing support and interventions where patient handling and movement are involved. In the same way, the concepts of *employees* and *healthcare workers* are used about the professionals who assist the care recipients.

The aim of this guide, grounded in research, is to outline collaborative methods for ensuring safe patient handling and movement, and to incorporate these methods into a structured approach to workplace environment management. It offers practical and strategic guidance for patient handling and movement, aiming to prevent harm to both healthcare workers and care recipients. The guide also seeks to foster practice-based learning and collaboration between managers and employees, utilizing evidence-based knowledge in daily operations. Safe patient handling and movement rely on active participation and effective communication, not just among healthcare workers but also between them and care recipients, maximising independence, and transferability.

This guide was developed as part of the European campaign 'Healthy Workplaces Lighten the Load' (2020–2022), with a specific focus in 2022 on patient handling and movement in Sweden.

The guide is directed at the entire workplace

The guide is primarily directed at managers, employees and safety representatives who, through collaboration, who are committed to improving the work environment and ensuring safe patient handling and movement. Employee refers to all staff in health care, care, ambulance care and dental care who work with personal transfers, i.e. nurses, auxiliary nurses, nursing assistants, physiotherapists, occupational therapists, doctors, biomedical analysts, X-ray staff, attendants, dental staff, personal assistants or other healthcare workers, who have duties that involve patient handling and movement. Additionally, staff in human resources (HR), business development, and work

environment roles play a crucial role in fostering a positive work environment and will find this guide beneficial.

The guide is also valuable for:

- Occupational health professionals and other experts who provide support in work environment initiatives, risk analysis, training, work adjustments, and equipment procurement.
- Trade union representatives, safety representatives, trade union organisations, patient representative organisations, and employers' organisations as a source of knowledge.
- Decision-makers, including elected politicians responsible for work environment policies in healthcare, dental care, and caregiving. Managers need organisational support, determined at a political level, including financial and human resources, to fulfill their work environment responsibilities as mandated by the Work Environment Act.

Work environments involving patient handling and movement

The Work Environment Act covers all activities where employees work. Effective work environment management, characterised by systematic and structured methods, is essential regardless of the organization. Future healthcare trends suggest a shift towards more primary care-based services and an increase in home healthcare. Efforts are underway to transition to person-centred, equitable, and knowledge-based care.

In this guide, we refer to three different types of work environments where patient handling and movement and lifting are common tasks for healthcare workers:

- **Work in a healthcare environment – in a workplace,** such as a healthcare unit, dental clinic or a nursing home.
- **Work in a home environment – in the care recipient's home,** such as home care services, home nursing or personal assistance.
- **Work in a public environment – pre-hospital care, ambulance care.**

In all these types of work environments, many aspects of the work environment need to be taken into consideration to be able to work safely so that no one is injured. Read more about different aspects on page 33.

Work in a healthcare environment – in a workplace

Common settings for patient handling and movement include healthcare units in hospitals, care/health centres, nursing homes, and dental clinics.

Care recipients may need support from healthcare workers during different transfers due to functional limitations or illnesses. Injury reports show that there are several typical risk situations in patient handling and movement where injuries such as musculoskeletal disorders occur. These involve transfers from a bed to a chair or wheelchair, transfers to and from toilet visits and transfers to and from a treatment bed/stretcher. When a care recipient is

moving within a facility with assistance from a healthcare worker, there is a possibility of losing balance. This can lead to an accident where either the care recipient or both the individual and the healthcare worker might fall, especially if the healthcare worker instinctively attempts to break the care recipient's fall.

Fall accidents, involving both care recipients and healthcare professionals, are among the most frequently reported injuries. Annually, nearly 11,000 falls occur during working hours, making it the most common occupational injury. In 2018 and 2019, there were about 8,300 falls classified as serious workplace accidents. Many occupational injuries also result from not using the correct work equipment in specific transfer situations. In healthcare, fall injuries constitute about five percent of all injuries.

Figure 2. The majority of healthcare workers and dental staff in Sweden perform their work at a healthcare workplace: a healthcare unit, a dental clinic or a nursing home. Workplaces differ in how well the premises and work environment are adapted for the activities to be carried out.

Figure 3. In the home environment, space is often narrow and it is not uncommon with obstacles in the form of furniture and carpets that can pose risks.

Work in a home environment – in the care recipient's home

In Sweden, the aging population is on the rise, leading to an increased reliance on domestic services and home nursing. Consequently, patient handling and movement in the homes of care recipients is becoming more frequent. This trend necessitates a particularly safe and effective work environment for employees.

Studies indicate that employees in domestic services, home nursing, and personal assistance often find their tasks physically and

mentally demanding. Additionally, there is frequently a lack of necessary work equipment in the homes of care recipients, which can complicate the provision of care.

Additionally, the shortage of substitute staff has been highlighted, resulting in reduced care time for each care recipient. Situations may arise where the needs and preferences of the care recipient must be balanced with the necessity for healthcare workers to employ safe practices in providing support and medical care. Furthermore, in home settings, there are considerations regarding how family members can safely manage patient handling and movement during caregiving situations.

Work in a public environment – pre-hospital care, ambulance care

Pre-hospital care is the first care that the care recipient encounters in the case of an acute illness or accident. This care can take place in any environment outside the hospital, i.e. at home, in a public place, in a workplace or in different outdoor environments. The work environment in ambulance care differs from the other activities in this guide. Conditions for a good work environment in ambulance care require clear procedures for how to act in emergency situations. The technological development means that more advanced medical care can be performed in the ambulance.

Ambulances are often well equipped with transfer equipment as the work can be physically heavy as well as mentally stressful. Risks in the work environment can range from threats and violence, musculoskeletal-related risks, risky public places, and so on. Patient handling and movement is a commonly recurring task for healthcare workers in pre-hospital care. Patient handling and movement is often unpredictable due to a changing healthcare situation. If lifting an individual is challenging and strenuous, emergency services can be called to give the healthcare workers help with the actual transfer stages.

Figure 4. The environment that the ambulance staff encounter can be varied and requires an adaptation of the situation so that the staff do not expose themselves or the care recipient to risky handling and movement elements.

Systematic work environment management is central to safe patient handling and movement

Systematic work environment management (SAM) involves methodical research, risk assessment, implementation, and monitoring of workplace conditions to prevent accidents and ill health. This approach is fundamental in establishing safe patient handling and movement.

The employer has the responsibility to routinely evaluate working conditions and assess the risks associated with the operations. This process should consider the organisation of work, and both procedures and flexibility should be examined in terms of ensuring the safety of both employees and care recipients. Systematic work environment management also involves strategic efforts to improve the work environment, focusing on initiatives that enhance the health and safety of healthcare workers in all aspects of their duties, particularly in tasks involving patient handling and movement. These measures should align with findings from risk assessments and investigations.

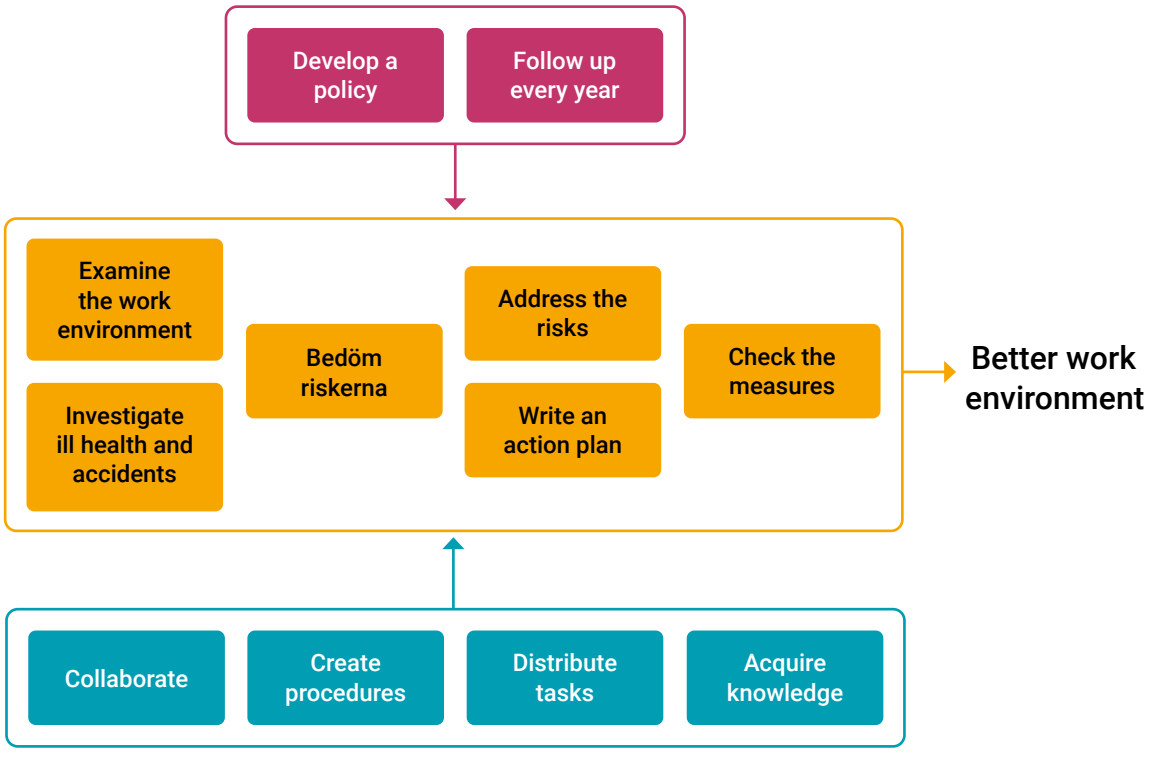


Figure 5. The Swedish Work Environment Authority's schematic description of the systematic work environment management

An important part of systematic work environment management is to regularly examine and conduct risk assessments, address what is needed immediately and produce action plans with appropriate work environment measures for matters that cannot be addressed immediately. It is also important to follow up and check that the implemented measures have produced the desired results.

Regardless of the context, managers need to identify risks at work in collaboration with employees, considering psychological, physical, organisational and social risks in the work environment. It is important to remember to assess both the mental and physical exposure, as well as the requirements during the working day and throughout the working week, linked to different tasks. All these parts are often connected and affect whether patient handling and movement can be carried out safely. In many operations, conditions in the work environment change depending on whether the employee performs the work during the day, evening or night. It is therefore important to identify when and where patient handling and movement takes place throughout the day and night.

It is also important to analyse the risk of injury during patient handling and movement in relation to other risks in the work environment that may arise at work. This can include situations that involve a risk of threats and violence, a risk of infection and a risk of fall accidents as well as situations with high exposure, both physically and mentally. According to the Work Environment Act, the employer is obliged to work systematically and in a planned way on all parts of the work environment.

The work environment also has a major influence on patient safety. The safety of healthcare workers and care recipients go hand in hand. Although different legislation regulates patient safety and the work environment, there are many similarities between them. According to the Patient Safety Act, the healthcare provider must carry out systematic patient safety work to prevent the risk of injuries. Risk assessments must be conducted, measures implemented and action plans used, and annual follow-ups carried out. If they do not work, they should be improved. The employer is also obliged to conduct investigations and review reports.

Participation – an important prerequisite for safe patient handling and movement

According to the Work Environment Act and its regulations, the employer has the ultimate responsibility for the work environment and is the one that controls and leads the work. The employee also has a responsibility to follow procedures, take on board instructions and training on safety at work, use protective equipment and work equipment offered through the workplace. Employees are represented by safety representatives who are tasked with monitoring the protection of employees and working with the employer to create a good work environment.

Systematic work environment management is best conducted in collaboration between the manager, employees and safety representatives. In this collaboration, values, norms and procedures related to safety need to be

discussed between managers and employees. By collaborating, they can foster a culture of safety in the workplace and propel continuous improvement efforts that enhance both the work and healthcare environments. This benefits the health of both healthcare workers and care recipients. A key element for lasting improvement is the creation of opportunities for practice-based learning. This involves establishing learning leadership and structured procedures for meaningful learning processes that benefit both individuals and work groups.

Research highlights the importance of both managers and employees being involved and engaged in the work to promote safe patient handling and movement. Trust-based leadership creates the conditions for employees to be involved and to drive the development of a safe work environment. It's essential that employees are provided with the necessary conditions, flexibility, and knowledge to safely conduct their professional duties and have the freedom to organize their daily work. This empowers them to take responsibility and actively participate.

In a workplace, the manager needs to consider that employees have different conditions and needs to be able to perform their work. By risk assessing and adapting workplaces, more people can feel well at work. If expert support is needed in work environment management, occupational health or equivalent competence must be used.

Figure 6. Participation and collaboration are key in work environment management and for safe patient handling and movement.

Current legislation

Every country has its own work environment legislation that needs to be considered when promoting occupational safety and health and safe patient handling and movement. Note that the guide is originally written for a Swedish context and based on Swedish work environment legislation. The Swedish Work Environment Authority's website, www.av.se, has information about current work environment legislation and the regulations that should form the basis for creating safe patient handling and movement at the workplace. But there is also other legislation to consider.

The following legislation and regulations are particularly important when it comes to patient handling and movement:

- The Work Environment Act (1977:1160)
- Systematic Work Environment Management (AFS 2001:1)
- Ergonomics for the Prevention of Musculoskeletal Disorders (AFS 2012:2)
- Organisational and Social Work Environment (AFS 2015:4)
- Workplace Design (AFS 2020:1)
- Work Environment Act (1982:673)
- Health and Medical Services Act (2017:30)
- Patient Safety Act (2010:659, 2021:739)
- Patient Act (2014:821)
- Social Services Act (2001:453).

Among the above-mentioned, the **Working Hours Act** is particularly important, as the workload, measured in hours, and the time for recovery can play a crucial role in preventing musculoskeletal disorders. It regulates how much employees are allowed to work per day, per week and per year. The Working Hours Act also concerns breaks and pauses that employees are entitled to and what applies to night rest.

The chance to take a break during the working day is important to create opportunities for variation in work and for recovery.

The Swedish Work Environment Authority has developed practical support for systematic work environment management (SAM) in the form of templates, checklists, brochures and documentation structure. Information can also be found on the websites of the following organisations:

- Working life: **www.suntarbetsliv.se**
- Prevent: **www.prevent.se**
- Swedish Association of Local Authorities and Regions (SALAR): **www.skr.se**
- National Board of Health and Welfare: **www.socialstyrelsen.se**

These organisations provide work materials and methods that are useful in both systematic work environment management and systematic patient safety management.

Under the section *More reading, in-depth study and literature* at the end of this guide, there are tips on literature, websites and other sources that can provide support for work environment management with a focus on personal transfers and safe and good care; see page 75.

Safe patient handling and movement from a system perspective

We will now take a closer look at some parameters that are important for safe patient handling and movement. In a workplace, the manager needs to see the workplace as a system and ensure that employees have the knowledge needed to work safely. It is also important to understand how human, technical and organisational factors (MTO) affect each other in the work.

A system perspective is needed to ensure that patient handling and movement is safe for both employees and care recipients. One of the best-known models, used nationally and internationally in health care to raise the system perspective, is the *System Engineering Initiative for Patient Safety* (SEIPS) and has been developed by a Canadian researcher (Carayon 2014, 2020, Holden 2013).

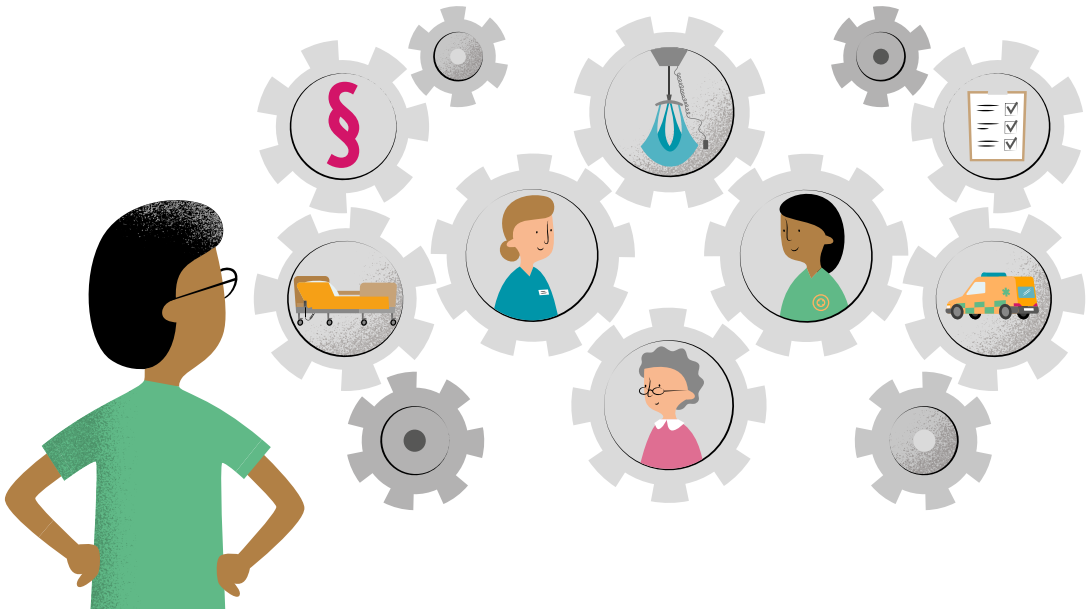


Figure 7. It is important that the manager sees and focuses on the workplace system with the ongoing care processes and work processes that have an impact on patient safety and employee safety and health.

A good safety culture is based on the operations having clear goals, known procedures that are applied and actively prevent and manage injuries and ill health. If the work environment at the workplace is open, it is easier to talk about incidents and injuries that may occur during a working day. Everyone, both managers and employees, has an important role in the work to create a good safety culture and to contribute to practice-based learning.

Work environment and patient safety are also linked. The safety of the care recipient and the employee depends on clear leadership and management of the organisation at all levels. **There should be a management system for systematic patient safety management and systematic work environment management at all healthcare providers.** A similar structure can facilitate coordination of the perspectives. Interesting proposals exist for having an operational management system instead to put the whole operation in focus in order to naturally be able to include the areas that are relevant to each part of the operation. This may include areas such as the work environment, patient safety, quality or the environment (Shamoun 2020). To create safe patient handling and movement, it is very important to apply a system perspective, to see the whole to ensure the safety of both employees and care recipients.

Care recipient safety – the care process

In the care process, it's crucial to approach each care recipient based on their unique situation and current health status. Adopting a person-centred approach, the employee recognises and responds to the individual needs and conditions of each care recipient, actively involving them in patient handling and movement. This involves discussing potential fall risks, addressing any fear of falling or previous falls, leveraging functional abilities and transfer capabilities, all while respecting the care recipient's autonomy and their capacity for independence (as a co-creator). It is important to ask the simple question: “What is important to you as a care recipient?”

In the care process, so-called burden of care is also measured. It is a measure that specifies the overall care needs of the care recipients and that healthcare units within municipalities and regions use to plan their resources and to understand the overall needs among the care recipients. Measuring the burden of care is about balancing knowledge of the care recipient’s abilities: physical and cognitive ability, communicative ability, degree of independence to manage their daily activities (ADL) on their own, transfer ability, risk of falls, pressure sores, nutritional status, nursing needs and current medical care. These factors have a major impact on the work environment and affect the staffing that needs to be available at the healthcare unit. Since care recipients may be in the care process for a short or long period and health conditions change, measurements of the burden of care must be taken often. Thus, care processes undergo constant change. In the case of systematic patient safety work, reference is made to further reading of Ödegård and co-authors (Ödegård 2019) and to the National Board of Health and Welfare’s publications (National Board of Health and Welfare 2020, 2021).

Employee safety – the work process

The work process is based on the activity's mission, to contribute to health and service on equal terms. Ill health and accidents must be prevented and a satisfactory work environment maintained. The manager has a key role to lead and distribute the work with support for and trust in their employees.

In the work process, conditions need to be made visible at the individual, group and organisational level. It is important to define tasks and assess physical and mental exposure and to review the design of the workplace so that it is optimal. Furthermore, it is important to offer competence development so that employees develop their skills to perform their tasks safely. Each employee has their own physical and mental capabilities and health. It is important that the manager adapts the work to the different conditions of the employees.

Musculoskeletal disorders and other injuries among healthcare workers

The reasons for healthcare workers' injuries at work are often high physical and mental exposure, staff shortages, lack of influence and deficiencies in the design of the premises. Injuries can also occur as a result of lack of support and communication, for example by leading to staff not using the right work equipment.

Figure 8. Persons who transfer care recipients many times a day are at greater risk of suffering a musculoskeletal disorder. Remember to assess the risks that can occur in every transfer situation.

There is also research that shows that healthcare workers who carry out patient handling and movement daily have an increased risk of developing lower back problems, and the risk increases with the number of times the task is carried out. This risk can be reduced ifwork equipment is used to lighten the load of transfers. Common occupational injuries in transfer situations are musculoskeletal disorders such as from the lower back, neck and shoulders.

The risks of sustaining musculoskeletal disorders can be divided into three groups that often interact with each other (Andersen 2019):

- physical exposure
- organisational and social factors
- individual factors with regard to the age and physical capacity of the person

The next page shows examples of some occupational accidents that have been reported to the Swedish Social Insurance Agency (Försäkringskassan) and that are included in the Swedish Work Environment Authority's statistics. Think about the descriptions of the events.

- Could these accidents have been prevented in any way?
- If so, how?
- What would you need to do at your workplace to prevent something like this from happening where you are?

In the section *More reading, in-depth study and literature* on page 75, there are tips on literature and other sources where you can read more about risk factors for healthcare injuries and occupational injuries such as musculoskeletal disorders, as well as the Swedish Work Environment Authority's and the National Board of Health and Welfare's statistics, legislation and knowledge support.

Examples of reported occupational accidents involving patient handling and movement

REPORTING AN OCCUPATIONAL INJURY

Workplace: Home-help service

Description of the event: The care user at whose home I work does not have appropriate aids. For example, the care user does not have a hospital bed but an ordinary bed that is too low. This means poor working positions when the care user needs care in bed. The care user must also be moved from the low bed to a wheelchair. It is done with the help of a turner and care belt. As the bed has no gates, the risk of falls is also significant. Many sessions with these working conditions have led me to injure my back.

REPORTING AN OCCUPATIONAL INJURY

Workplace: Hospital department

Description of the event: I was going to help a patient to the toilet. The patient walked with the help of a walking frame with wheels and suddenly they swayed and almost fell. I propped them up and managed to put them on the floor. When I caught the patient, I felt pain in my right arm and shoulder. The pain lasts and radiates into my neck. To get through the days, I need pain medication.

REPORTING AN OCCUPATIONAL INJURY

Workplace: Ambulance care

Description of the event: A person under the influence of drugs lies on the ground and cannot move themself onto a stretcher. When we are going to lift the patient, they resist. This results in a lopsided lift. I have pain in my back as a result of the uneven loading.

REPORTING AN OCCUPATIONAL INJURY

Workplace: Hospital department

Description of the event: I was going to help a patient sit up in bed. Instead of grasping my shoulders, the patient held me around the neck during the lift. A shooting pain arose and a feeling of numbness and tingling went down my leg and toes. I still have pain in my neck and upper back.

REPORTING AN OCCUPATIONAL INJURY

Workplace: Personal assistance

Description of the event: A physically heavy care user with limited mobility sat in an armchair. I was going to straighten up the care user who had ended up a little crooked in the armchair and pulled them towards me. I got a sharp pain in my shoulder, and since then I have had pain in my arm, shoulder and neck.

Occupational health economics

The costs that musculoskeletal disorders can lead to affect both the activity and the affected person. Occupational health economic calculations can help to get a grasp of how health-promoting and preventive measures relate to remedial measures and costs as a result of, for example, sickness absence. There are several ways to calculate this. Tools for occupational health economics that can be used to calculate the costs related to, among other things, lower back pain and mental illness, are available for download from mynak.se. Appendix 1 also presents a description, and a simpler occupational health economic calculation, of a relatively common scenario involving patient handling and movement. The case illustrates the costs of preventive measures in relation to the costs incurred in the event of injury and sick leave.

Part 2: Work process for safe patient handling and movement

The practical work in five steps

This is the practical part of the guide. Part 1 gave reasons for why it is important to work on safe patient handling and movement and described the conditions that are required to succeed. Part 2 presents a more practical work process in five steps aimed at creating conditions for safe patient handling and movement through systematic work environment management.

The work process can be used regardless of where the workplace currently is in the work with safe patient handling and movement. The work that has already been done and/or is being done today within the framework of the systematic work environment management is covered by these five process steps; see next page.

Figure 9. In step 1 of the work process, a working group is formed and roles allocated. A range of competences are needed and the safety representative must be involved throughout the process.

RAISE THE QUESTION

STEP 1: START UP AND ESTABLISH

- Formulate purpose and goals
- Allocate roles in the work
- Establish the work in the organisation
- Create a communication plan

RAISE YOUR EYES

STEP 2: INVESTIGATE AND ANALYSE

- Describe the activity
- Take stock of the current situation
- Compile statistics on incidents
- Take stock of procedures and policies

RAISE THE RISK

STEP 3: IDENTIFY AND ASSESS RISKS

- Identify risky tasks in the activity
- Analyse and assess the risks
- Plan and assess the risks of every transfer situation

RAISE THE PROCESS

STEP 4: PLAN AND IMPLEMENT ACTIONS

- Prioritise risks based on the severity level
- Set measurable goals
- Formulate measures and activities
- Establish an action plan

RAISE THE RESULT

STEP 5: FOLLOW UP AND EVALUATE

- Follow up and update the action plan
- Evaluate the effects of the implemented measures

Figure 10. Brief description of the five steps of the work process.

Step 1: Start up and establish

If there are already structures in the systematic work environment management, a collaboration group, established procedures and continuous meetings, then the work on safe patient handling and movement can become part of an effort to develop that work. Regardless of the conditions in the workplace, the work needs to be structured and planned. It is important that the manager clearly shows that safety at work is a priority issue for the operation.

Create a working group and allocate the roles

Initially, it is the responsibility of the manager to either form a working group or engage an existing collaboration group, including safety representatives, to plan and lead the efforts on safe patient handling and movement. It is important to ensure that individuals assigned tasks have sufficient time allocated to focus on these responsibilities. While the employer can delegate tasks, they cannot delegate their overall responsibility for managing the work environment. Additionally, consider what extra expertise may be required. Involving expert assistance from occupational health services or similar entities from an early stage can be beneficial.

Define the purpose of the work

In the working group, initiate a discussion about the objectives you aim to achieve in creating safe patient handling and movement. Collectively, define the purpose of your efforts. When considering this purpose, it's important to incorporate three perspectives that collectively contribute to a sustainable working life. These perspectives, which should be carried through the entire process and are often interwoven, include:

- **The health-promotion perspective** is focused on creating good conditions for a healthy workplace. Here, the focus is on choosing and implementing measures that can contribute to safe patient handling and movement and a healthy workload, which in turn is important for maintaining good health among the employees.
- **The prevention perspective,** like the health-promotion perspective, is focused on creating good conditions for safe patient handling and movement. Here, the focus is on trying to predict and, through well-chosen measures, prevent risks and injuries, such as musculoskeletal disorders and ill health, which may otherwise occur if patient handling and movement is done badly.
- **The corrective perspective** focuses on learning from the risks and injuries that have occurred during patient handling and movement in order to prevent new injuries. Employees who have suffered injuries also need support with work-oriented rehabilitation and work adjustments to be able to cope with the work.

The purpose of the work may be to, for example:

- promote and strengthen the work environment to be safe
- maintain good health among employees
- reduce the number of injuries among both care recipients and healthcare workers in connection with patient handling and movement.

Regardless of the purpose, it is important that everyone in the working group has the same picture and expectations of the work environment management itself with safe patient handling and movement.
Read more about creating conditions for and choosing measures that contribute to safe patient handling and movement from page 45 onwards.

Specify and define the work

Define which part(s) of the workplace should be covered and thus which employees and professions the work concerns. For example, it may be employees at your healthcare unit, or it may include an entire clinic or several departments or large parts of the organisation.

Review steering documents

Identify the key governing documents that should inform your work. These might include work environment policies, guidelines, or relevant laws and regulations. For more detailed information on laws and regulations, refer to the Swedish Work Environment Authority's website. Investigate how systematic work environment management is organised in your workplace, paying special attention to how patient handling and movement is integrated into these processes. Assess the health factors that can bolster patient handling and movement initiatives and support employee health. Additionally, determine if there are any existing or planned efforts, health promotion activities, preventive measures, or remediation strategies at the individual, group, and organizational levels.

The work process described here from step 2 to step 5 follows the methodology in the systematic work environment management, which makes it easier for the group to combine its work with the systematic work environment management. The procedures for systematic work environment management should be in written form and can be updated and developed using the results from this process.

Establish the work with employees and management

Establish the planned work at the workplace with employees and management. It is important to continue to have a plan for dialogue and to continuously communicate at, for example, workplace meetings, via intranets or targets that may be present at the workplace.

Checklist for the next step

- [ ] The purpose of the work to promote safe patient handling and movement has been formulated.
- [ ] The roles in the work have been allocated and clear.
- [ ] Safety representatives are involved in the work.
- [ ] Procedures for the systematic work environment management have been mapped.
- [ ] The work has been established with the management/at organisation level.
- [ ] The work has been established with the employees at the workplace.
- [ ] Continuous communication about the work has been planned.

Step 2: Investigate and analyse

The subsequent phase involves conducting an investigation and analysis of the current situation, as well as describing the activity in a manner that provides a comprehensive and shared understanding of the situation at your workplace. Here, you will discuss and capture what has already been done and how you work today to promote safe patient handling and movement, what the daily work looks like and the extent of patient handling and movement. Think about how the work can be done safely every day to maintain employee health. What can you identify that works well and that can be strengthened so that employees experience an improved work environment and better health protection? This section provides suggestions on how you can examine your current situation.

Description of the activity

The description of the activity is a central part of the work. It lays the foundation and creates the conditions for planning the continued work environment management. Review and examine any work environment measures that have been implemented previously. Below are some examples of questions that should be answered in the description of the activity. Examples include both general questions needed for the continued work environment management and questions specifically related to patient handling and movement. Try to answer the questions below and document your answers so that they are available for further work in the process.

General questions

- How many employees work in the workplace?
- On average, how many care recipients and care places are there in the unit concerned?
- On average, how many care recipients does one employee meet per shift?
- Has an assessment of care burden been conducted in relation to the current staffing levels? Assess how this can affect the safety of patient handling and movement.
- Have work environment mappings and risk assessments been carried out previously?
- Have work environment measures been implemented previously? If so, what effects have they had on the activity?
- Have health-promoting efforts/activities been implemented, or is there a plan to implement them? If so, which ones?

- What works well from a work environment perspective and how can you continue to work on or strengthen this?

Questions relating specifically to the field of patient handling and movement

- How many of the healthcare workers perform tasks that include patient handling and movement?
- In what situations is patient handling and movement carried out and at what time of the day or night?
- Are there competence supply plans that include training in work environment and patient transfer knowledge?
- Is there established and available training in the organisation in the field of work environment and patient transfer knowledge for employees and managers?
- Are there funds in the budget allocated to implement strategic investments in, for example, the purchase of work equipment and training?
- Are there any procedures for patient handling and movement in the workplace? Are they locally adapted and known by the employees?
- Is there any explicit strategy, work environment policy or guideline in the activity that relates to patient handling and movement?
- How knowledgeable are the management and employees about patient handling and movement and the associated risks and consequences?

Work environment mapping

If you are not already familiar and work systematically with the work environment, a so-called work environment mapping can provide a good overall picture of the work environment.

At group level, such a mapping can provide valuable information on how employees at a workplace experience their work environment, exposure and demands of the work, whether they experience any musculoskeletal disorders and how much they work with patient handling and movement.

Before a work environment mapping is carried out, it is important to formulate its purpose, determine the target group of the survey, how and when it should be reported and how it forms part of the systematic work environment management. Occupational health or another expert on the work environment may be appointed to provide support to carry out the survey. They can also collect the responses and compile the results at group level.

There are several different methods for mapping the work environment, both questionnaires and interviews can be used. One of these is the Structured Multidisciplinary Work Evaluation Tool (the SMET method). You can read more about SMET in Appendix 2. Use some activity-related questions specific to patient handling and movement to get a picture of the current situation. You can use these later for follow-up once you have completed the process. For specific questions on this, see Appendix 3.

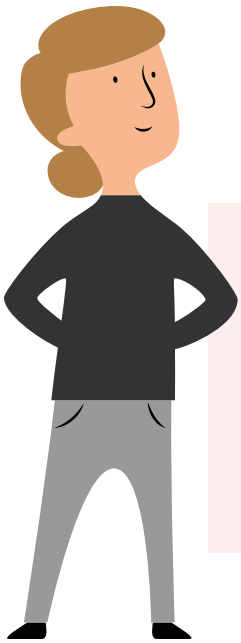
Learning about the risks and injuries that occur in the workplace

To prevent healthcare injuries and occupational injuries that occur during patient handling and movement and other tasks, healthcare workers need to receive feedback on the injury statistics. Through feedback, conditions are created for increased learning about what has happened. This increases risk awareness.

Many healthcare and care activities use reporting systems for deviation management with a focus on managing incidents and deviations. These are situations that arise where an accident could almost have occurred. Some of the reporting systems also have functions in which improvement suggestions can be picked up from employees. Do you use a reporting system at your workplace? If not, make sure to set up procedures for this in your workplace. While all employees learn from the risks that have arisen, the manager needs to focus on what works well at work. In many workplaces in health care, different working methods are used for practice-based learning. These are then reflected on and discussed together with regard to what is going well in the healthcare and nursing work as well as what risks and injuries could have occurred and which actually did. In the actual transfer situation, it is a matter of every day, in every situation, making well-considered assessments of risks that may exist.

Statistics and investigations of events provide important information about the activity. Find out and document:

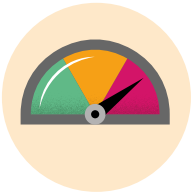
- The accident and incident statistics from recent years, specifically identifying what percentage is related to musculoskeletal disorders associated with lifting, patient handling, and movement.
- Details about the nature of reported accidents and incidents that occurred during patient handling and movement.
- The actions taken in response to accidents and incidents involving patient handling and movement, and the resulting impact on sickness absence statistics. Determine how these are connected to patient handling and movement.



"Since we started following up and investigating reported incidents and accidents, we also talk more openly about things that have happened. We have also solved many problems that have previously been irritations and potential risks of injury. We are now working in a more structured way, and employees have become more aware of risks, and more reports of incidents are coming in. We also highlight situations that have worked well because we need to learn from these."

Checklist for the next step

- [ ] There is a description of the activity.
- [ ] We have taken stock of the frequency and type of patient handling and movement.
- [ ] We have taken stock of existing procedures for patient handling and movement.
- [ ] Competence supply plans for transfer knowledge have been mapped.
- [ ] We have mapped which employees work with patient handling and movement.
- [ ] We have taken stock of procedures for reporting injuries.
- [ ] The occurrence of incidents and injuries has been mapped. Health-promoting efforts have been mapped.
- [ ] Health-promoting efforts have been mapped.



Step 3: Identify and assess risks

Risk assessment is a fundamental piece of the puzzle in work environment management. By working methodically with risk assessment, risks in the work environment are discovered at an early stage and the right measures can be implemented. According to the Work Environment Act and its regulations, the employer is obliged to examine the conditions at work and assess the risks that exist and that may lead to employees suffering from ill health or accidents at work. Here, in step 3, you will be guided in how risk assessment with special focus on patient handling and movement can be carried out in practice.

A risk assessment must be documented in writing in accordance with the work environment legislation, and as an employer you must indicate whether the risks are serious or not. In this guide, risk assessment means **identifying and analysing risks and assessing their seriousness.** This will then help you prioritise your remedial work. At the end of step 3, we also give tips on how healthcare workers can plan for every patient transfer situation in their daily work by analysing and assessing the risks associated with the transfer concerned.

Risk assessment focusing on patient handling and movement

To succeed with a risk assessment and obtain a good summary of the risks associated with the activity requires safety representatives and employees to be involved. If required, external competence such as an ergonomist/work environment consultant from occupational health and safety or equivalent expert support should be used to lead or support the risk assessment work.

Bear in mind that in this guide, the risk assessment focuses on the healthcare workers' work environment and aims to identify and analyse risk and not risky exposure for healthcare workers during patient handling and movement. However, it is also important to identify risky situations for care recipients. They can have an impact on the work environment and need to be risk assessed

The risk assessment should:

- Be conducted in collaboration
- Be documented in writing
- Be made recurrently and systematically and when there are changes in the activity

within the framework of the systematic patient safety work to prevent healthcare injuries. Risk assessment of patient handling and movement can and should be done in different ways depending on the purpose. It is important to conduct risk assessments based on your conditions and the needs of your activity.

At the core of the risk assessment is identifying risky tasks linked to patient handling and movement. However, the risk assessment can also identify other risk factors, such as high mental exposure and the transfer of objects. In a risk assessment focusing on patient handling and movement, seven different aspects should be highlighted and considered. These seven aspects are based on laws and regulations as well as research on the work environment, risk factors, methods for risk assessment in patient handling and movement, and clinical experience. Based on these, the manager and safety representative together with the healthcare workers can discuss the workplace and identify potential risks in the environment, working methods, surroundings and more. All aspects should be highlighted in the risk assessment, as they create the conditions for safe patient handling and movement; see the aspects and related explanations below.

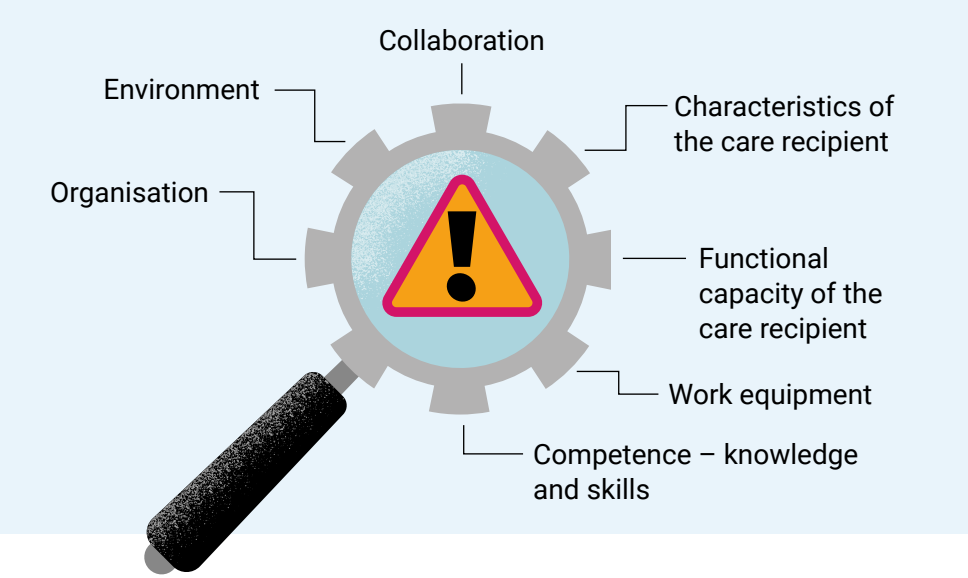


Figure 11: The seven aspects that are important to consider when conducting a risk assessment focusing on patient handling and movement.

Organisation

The organisational aspect concerns issues such as whether there are enough staff to carry out patient handling and movement safely and adequately, or whether employees often need to take short cuts due to time constraints, stress and/or staff shortages. It is also important that the workplace has updated guidelines and procedures for patient handling and movement that can be applied to the practical work. If these do not exist, or if for some reason they are not or cannot be followed, for example, this can give rise to risks that are important to identify.

Environment

The environment, for example the size and furnishing of the premises, is important for how safe the patient handling and movement will be. According to the Workplace Design (AFS 2020:1), the space around each patient transfer must be at least 0.8 metre, the so-called 80 rule (read more in the special facts box). The design of the premises, such as light, sound and surfaces, is an important aspect. In the home and out in public, there may also be animals or other moving objects that can create risks.

An important prerequisite for safe patient handling and movement in a healthcare unit or nursing home is that premises and other spaces are designed based on the needs of the activity and in a way that prevents and minimises the risk of ill health and accidents. The risk of injury to healthcare workers is greater if space is tight.

Collaboration

Collaboration between the manager, employee and care recipient is important to create safety during patient handling and movement. Good collaboration and communication reduce the risk of an employee or care recipient being injured. It is therefore important to have a common position and approach.

Collaboration groups and safety representatives are important resources in this work. Furthermore, healthcare workers' stress is reduced when they feel that they are seen, heard and appreciated by superiors and other colleagues, which in turn decreases the risk of misunderstandings and stress-related ill health.

The Health and Medical Services Act (HSL) regulates the head of operations' responsibility for continuity and safety of the patient to ensure that the patient's needs for security, continuity, coordination and safety in care are met. The Patient Act aims to strengthen and clarify the position of the patient/care recipient in healthcare activities and promote the patient's integrity, self-determination and participation.

Characteristics of the care recipient

The characteristics of the care recipient can affect how safe patient handling and movement can be carried out. The healthcare workers assess each care recipient's weight, height, health condition and disease progression. Bear in mind also that the care recipient's 'day form' is of great importance and can change quickly. The risk needs to be analysed for each care recipient.

Functional capacity of the care recipient

The care recipient's functional capacity is important to assess before each transfer. Where possible, encourage the patient to carry out much of the transfer themself, among other things to reduce the risk of injury during patient handling and movement. When the care recipient takes an active part in the handling and movement, their independence is also encouraged. Gaining an overall picture at group level of the care recipient's mobility is an important part of risk assessment.

Work equipment

Work equipment is an essential part of safe patient handling and movement. Here, you need to identify and assess whether adequate work equipment is available, whether it functions and is used, and whether it is used correctly. It is also important that there are clear procedures for procurement and purchasing and that the purchaser has the right competence or the right competence support to set the right requirements when purchasing equipment. Non-existent or incorrectly adapted equipment can create risks and cause damage.

Competence – knowledge and skills

Competence is needed in the work to create safe patient handling and movement. Employees as well as managers often possess valuable knowledge and skills in work environment, work environment risks, risky tasks, risks of musculoskeletal disorders and transfer knowledge, appropriate working postures and work equipment. But there may also be knowledge gaps that open up risks that should be clarified in the risk assessment.

- What practical knowledge and training have employees received in safe patient handling and movement? A lack of practical skills can lead to risks in patient handling and movement.
- What knowledge is there among managers and HR strategists within the organisation of leadership and management for a good work environment and safe patient handling and movement? If there is a lack of strategic work environment competence, risks can arise.

These seven aspects also form the basis for assessing risks that may exist at the time, i.e. how healthcare workers can analyse and assess risks associated with each transfer step. **Read more about this on page 42.**

The 80 rule

The so-called '80 rule' means that there must be at least 0.8 metres of free space around the areas where patient handling and movement is carried out. The rule also applies when patient handling and movement is carried out in areas such as bathrooms and toilets. In addition, when aids and work equipment, or other technical equipment, is used, free space is needed to handle and operate them, which means that more than 0.8 metres may be needed.

Risk assessment in practice

Practical risk assessment can be divided into three parts: plan and delimit, identify, analyse and assess, and document.

Plan and delimit the risk assessment

At the initial stage, the working group needs to plan, specifically, the risk assessment itself. In step 2, the activities were examined and described in broad outline. The risk assessment step is based on what you have done in previous steps and forms the basis for how you now decide what the risk assessment should include.

It is good if you can narrow down the work early and describe what the risk assessment should include at your workplace. It can be tasks performed by an individual employee at a workplace, a particular professional group, or all employees at the workplace. It may be a physical or organisational area such as a healthcare unit or activities in home care, personal assistance, dental care or ambulance care.

Identify and assess the risks

Based on what you have documented so far through the process, several risks can probably be identified. In order not to miss any perspective, start from the aspects described above when conducting the risk assessment. **One tip is to discuss in the working group what risks you experience in your daily work.** Document the risks in some form of action plan. Read more about the action plan on page 38.

Figure 12. The group that carries out the risk assessment needs to be composed of several competences from the workplace to have as broad a basis and perspective as possible. To ensure no perspective is missed, start from the seven described aspects.

There are recommended risk assessment methods to use for assessing the specific risks of patient handling and movement. They measure different aspects, but none of the methods covers all risks. It is advisable to select one of these risk assessment methods for your work, choosing the most appropriate one based on the specific risks to be assessed and the nature of the activity in question. For example, in a healthcare unit, risks need to be analysed for each patient so that a result can be summarised at group level. A good tool to use for this is the risk assessment method TilThermometer. Read more about the methods and the aspects they cover on page 39.

Once the risks have been identified, they must be analysed and assessed in terms of their severity level. This approach is crucial for prioritising among various risks and selecting appropriate measures to either eliminate or minimise these risks. It also aids in defining clear objectives for the outcomes you wish to achieve through the remediation efforts. The severity level also helps you choose which risks to address immediately, in the short and the long term. The working group you have appointed should be involved throughout the risk assessment. The recommended risk assessment methods contain assessment scales that pertain to the respective method. For other risks that you identify, and/or if you do not use any of the specific risk assessment methods, you may grade risks according to the scale below designed to assess the risks of hazardous physical exposure for employees (low risk, medium risk and high risk of injury).

Table 1. Scale for assessing the risk level

Risk level	Description of the risk of hazardous or unnecessarily tiring exposure.
High	Patient handling and movement cannot be carried out safely and employees are subjected to a high risk of harmful physical exposure.
Medium	Patient handling and movement can be carried out safely, to an extent; correct work equipment is sometimes used and at times under good conditions. There is a risk of harmful physical exposure.
Low	Patient handling and movement can be carried out safely, with correct equipment and under good conditions. There is no risk of harmful physical exposure.

Document the risk assessment

Many activities have their own established procedures and templates for risk assessment as well as documentation for risk assessment, in which case you can use these. Prevent, Suntarbetsliv and other actors also offer useful templates to support risk assessment. It is good if the template you use for documentation supports the actual risk analysis, and it is preferable to include the risk assessment in the same document as an action plan (read more about measures and the action plan in step 4).

Table 2 below shows an example of a template for how managers and employees can document the risk assessment in an action plan. The template can also be used to fill in the objectives of the measures, descriptions of measures you intend to take to eliminate or reduce the risk, who is responsible, when it should be completed and a follow-up of the implementation and schedule, i.e. in each of the remaining steps of the process. Appendix 4 also contains an action plan with two examples.

Table 2. An example of how a risk assessment can be documented. Fields marked in purple are filled in under step 3. The objectives, planned actions, who and when it is to be implemented, pink boxes, are filled in under step 4 and the field for checking that measures have been implemented, green box, under step 5. See examples of what the documentation might look like in Appendix 4.

Risk and possible conse-quences	**Causes**	**Risk level**	**Target**	**Action**	**Who**	**Schedule**	**Follow-up**
Step 3			Step 4				Step 5
Describe the risk and possible conse-quences	Describe the reason the risk exists or may occur	Low Medium High	Set a measurable target for the activity that can be followed up	Describe which measure(s) you intend to take to eliminate or reduce the risk	Decide who is to work on implemen-ting the measures	Describe when the measure(s) should be implemen-ted. Adjust the dates associated with the follow-up.	Check and evaluate when the risk has been corrected.

About the interval for risk assessments

Keep in mind that risk assessments have a limited lifespan and must be conducted regularly within the activity. How often they need to be carried out depends on the type of activity and number of care recipients who pass through. This means that a healthcare unit with a high turnover of care recipients may need to carry out risk assessments more often, while a healthcare unit with a low turnover of care recipients may carry them out less frequently. Risk assessment must also be carried out in connection with changes in the activity. However, the rule of thumb is that there should not be more than 12 months between risk assessments, and here we advocate more frequent intervals than that.

Risk assessment methods focusing on patient handling and movement

There are a number of different risk assessment methods that can be used to work in a structured way with risk assessments of patient handling and movement. It is important to note that these methods are scientifically documented and tested, although the extent of their validation varies. To determine the most suitable risk assessment method, begin by clearly defining the purpose of the assessment. Ensure that you select a risk assessment tool that aligns with your objectives or addresses the risks you have identified, considering the seven key aspects.

Below is a brief description of five different risk assessment methods:

- TilThermometer
- The PTAI method (Patient Transfer Assessment Instrument)
- The MAPO method
- The HEMPA method
- The DINO method (Direct Nurse Observation Instrument)

TilThermometer

This risk assessment method can be used to assess hazardous physical exposure of patient handling and movement. It is recommended for healthcare units and nursing homes and can be used by healthcare workers. The method assesses five different transfers and nursing situations based on the care recipient's functional ability and the use of work equipment for these transfers and care situations. The result is presented in the form of a red or green profile based on the different transfers and care situations. The results are compiled at group level and provide an overall summary for the healthcare unit. The Swedish version of TilThermometer is available for download from the website: **www.tilthermometer.com** (Buck 2022).

Patient Transfer Assessment Instrument

The Patient Transfer Assessment Instrument (PTAI) is a tool used to assess healthcare workers' exposure when working with patient handling and movement. It is recommended for healthcare units, nursing homes and home care services and evaluates a specific transfer task via observation and interview with the healthcare workers. The method covers several aspects, such as working posture, skills of the healthcare workers and surrounding conditions. The method can be used by ergonomists, healthcare workers and safety representatives who have been trained in using the method (Karhula 2006).

The MAPO method

This method takes its name from an abbreviation of the Italian *Movimentazione e assistenza dei pazienti ospedalizzati*. It allows you to assess the risk of patient handling and movement in different situations. It is recommended for use by healthcare units and nursing homes to gain an overall picture of the unit via observation and interview. It takes organisational aspects into account, assesses the number of patient transfers carried out by healthcare workers and focuses on

work equipment linked to the respective transfer. The method can be used by ergonomists or persons who are knowledgeable in the method (Menoni 2022).

The Direct Nurse Observation Instrument

The Direct Nurse Observation Instrument (DINO method) is a method for assessing whether the healthcare workers' work technique for patient handling and movement is safe. It is based on 16 questions that are categorised as preparation, implementation of patient handling and movement, and results. The answers are combined in a points system that gives an indication of whether the work with patient handling and movement is carried out safely. The method can be used by an ergonomist or a person with knowledge of patient handling and movement (Johansson 2004).

The HEMPA method

This method has a Spanish origin and the abbreviation is from the Spanish *Herramienta de evaluacion de movilizacion de pacientes*. This assessment tool is mainly based on observations made at workplaces where patient handling and movement takes place regularly. This method requires knowledge of the work environment and how the calculation should be carried out. The method provides a summary and can provide support to determine whether there is a low, medium or high risk of healthcare workers suffering from musculoskeletal disorders. It takes into account, among other things, organisational aspects, work equipment and environmental factors. It also assesses the care recipient's degree of dependence and need for support during patient handling and movement. The method is called the *Patient Handling Assessment Tool* (Villarroya 2017).

Compilation of risk assessment methods

The risk assessment methods are presented below in a clear table that shows the different dimensions they capture. The first two, TilThermometer and PTAI, work well for use in the workplace by, for example, managers, employees and safety representatives, provided they have understood the description of how the method should be used. The other three, MAPO, DINO and HEMPA, are methods that should preferably be carried out with the support of a person with special competence in the field of ergonomics and the relevant aspects.

Once the risk assessment is completed, it is time to take the next step – to formulate goals, plan for and implement appropriate measures. This is described in more detail in step 4.

Table 3. Matrix showing which aspects the different risk assessment methods highlight.

Aspects	Risk assessment methods				
	TilThermometer	PTAI	MAPO	DINO	HOME
Organisation		X	X		X
Environment	X	X	X	X	X
Collaboration					
Characteristics of the care recipient	X			X	X
Functional capacity of the care recipient	X		X	X	X
Work equipment	X	X	X	X	X
Competence		X	X		X

Assess risks in the daily work

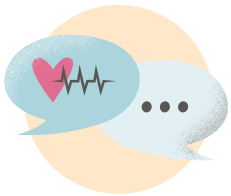
As part of their day-to-day work, healthcare workers need to plan every individual patient transfer. The planning involves thinking through the transfer and assessing the risks that exist in the situation for the healthcare workers and the care recipient. When, where and how should the transfer be carried out and how can it be done safely?

The assessment of the risks associated with the individual transfer situation must also be permeated by the seven aspects described on page 33, i.e. organisation, environment, collaboration, characteristics of the care recipient, functional capacity of the care recipient, work equipment and competence – knowledge and skills. These are integrated into the five points to support the assessment of risks in the current transfer situation on the next page.

Planning and assessing the risks in each transfer situation

How can risks associated with each individual transfer be planned and assessed? The next page presents five important points that should be established so that they become a habit and part of the ordinary working method.

Five points for safe patient handling and movement



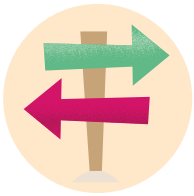
1. Communicate with the care recipient

Tell the care recipient what will happen when the transfer is carried out. Communication involves the care recipient in their care and creates trust and security.

2. Find out what the care recipient can do on their own

Find out the ability of the care recipient to move themself.

- Can the care recipient help?
- Are there circumstances that can affect a transfer, such as an increased risk of falls or a risk of pressure sores?



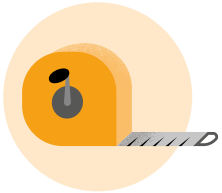
3. Choose a safe working method

The transfer should be safe for you as a healthcare worker.

- Can you carry out the transfer yourself or are several people needed?
- Is appropriate work equipment available?
- Are there other risk factors to consider for the transfer to be carried out safely?

4. Allow sufficient time

If you do not think you have enough time, consider how you can change this, and do not let time be a risk factor.



5. Ensure you have space

Every situation is different.

- What do the premises look like?
- Is there anything that is in the way for the transfer?

Important considerations

It's important to consider that a care recipient need for rehabilitation, particularly in practicing their independence during transfers, can sometimes pose a risk to you as an employee, turning the task into a potentially hazardous physical exposure. In such situations, the risk always needs to be assessed in relation to the benefit. Discuss in the team the continued care planning and rehabilitation needs for each care recipient so that they are safe for both parties. Document it in a care plan. Discuss and take support from occupational therapists and physiotherapists as they usually have dialogue with the care recipient and are responsible for coordinating the planning of the care recipient's rehabilitation.

Figure 13. Using a ceiling lift to move a care recipient from a bed to wheelchair when a care recipient has reduced mobility can be a safe and less demanding way to carry out a transfer. In each transfer situation, any risks must be analysed so that no one is injured.

A good way to start working on increasing the safety of every patient transfer is to talk about the five points with colleagues and at times when staff get together, such as at workplace meetings. What is it like where we are? Do we have enough time to carry out transfers? Is there enough space, or is space tight? Is appropriate work equipment available and is it being used? This can serve as support also in daily practice-based learning.

Checklist for the next step

- ☐ The seven aspects have been used, and they permeate the risk assessment.
- ☐ The risks associated with patient handling and movement have been identified using a risk assessment method.
- ☐ The risks you have identified have been assessed for severity level.
- ☐ The risk assessment has been documented.
- ☐ It has been discussed how the activity can carry out risk assessments more routinely in the daily work with support of the five points.

Think ahead

Think before you conduct a transfer. Can risky hazardous exposure be prevented? If you do not believe that the right conditions are in place to carry out safe patient handling and movement according to the five points above, the things that do not work need to be addressed. Discuss this with your manager and safety representative. Together, you must take the issue of safety seriously if injuries are to be prevented.

Step 4: Plan and implement measures

Now you have reached step 4 in the process: choosing and implementing measures. The measures need to be a mix of health-promoting, preventive and remedial and involve several levels in the activity. Measures are chosen based on the purpose you have formulated and your own risk assessment.

According to the Swedish Work Environment Act, risks that have been assessed as serious should, if possible, be addressed immediately by eliminating the risk. If this is not possible, measures should be taken to minimise the risk so that it becomes manageable. Other measures, linked to risks that you have assessed as less serious, may involve long-term efforts and investments. Just like the risk assessment, the measures you choose must be documented in some way, for example in an action plan; see example in Appendix 4.

For each risk that you have identified, it is good to formulate goals for the remedial work. What do you want to achieve? Several risks may require measures aimed at the same objective. In the choice of health-promoting, preventive and remedial measures, the measures can also be aimed at the same objective. The follow-up of the remedial work is simplified if the objectives have been formulated in a SMART way. Formulating goals in a SMART way means that the goals should be specific, measurable, accepted, realistic and timely.

An example of a measurable goal can be competence supply, setting goals for the training initiative and following up. **Goals:** The right basic competence in transfer knowledge. Within one year, seventy-five per cent of the healthcare workers should have completed basic training in transfer knowledge. All new employees must undergo introductory training in transfer knowledge when they start their employment. We should have appointed two coaches in our care department.

Choosing measures that contribute to safe patient handling and movement

A compilation of measures based on research, legislation and recommendations in international policies can help you choose measures that can create the conditions for and contribute to safe patient handling and movement at your workplace. In this guide, working with evidence-based practice (EBP) means:

- taking into account the best available knowledge based on current research
- considering the conditions and needs of the workplace
- using the experiences and wishes of the manager and employees

Current research shows that there are several effective measures and working methods that result in safe patient handling and movement. In 2019, a compilation of knowledge was published summarising 20 years of research

on measures in the work environment that can contribute to safe patient handling and movement. It can be read in its entirety on the Swedish Work Environment Authority's website. It is also published as a scientific article in English (Wåhlin 2021).

The measures that can contribute to creating conditions for safe patient handling and movement and which are highlighted in this guide are presented at three levels and from three perspectives: health promotion, prevention and remediation. For a more detailed description of the perspectives, see page 25. These perspectives often overlap. In a workplace, you often need to work with all perspectives at the same time to promote safety at work and achieve a sustainable working life in which no one is injured.

Table 4. The so-called 9-fielder can be used to see which measures are used in the current situation at a workplace and which measures can be used going forwards that can help create good conditions for safe patient handling and movement.

Level	Health promotion	Prevention	Remediation
Organisation			
Group/workplace			
Individual/employee			

What is meant by health promoting?

If the work environment is good and promotes health, the unit's productivity as well as the employees and the care recipients will benefit. A definition of a health-promoting workplace, which is well suited to the conditions needed to create safe patient handling and movement, is that formulated at the Institute of Stress Medicine in Gothenburg in 2018 (ISM-report-21).

> *A characteristic feature of health-promoting workplaces is that they, with the workplace as a starting point, aim to offer good working conditions, a good working climate and provide conditions for personal and professional development.*

This definition puts the focus on the workplace itself and illustrates that it is about both the work environment and health at different levels: organisational (working conditions), group (working climate) and individual (personal and professional development). In this guide, we highlight the importance of the conditions needed for safe patient handling and movement with the focus on health-promoting and preventive work environment management, as well as the need for necessary organisational conditions. Specifically, this involves policies and procedures, favourable working conditions, and a work climate deeply linked to a culture of safety and professional growth, underscored by practice-based learning.

The following pages list a range of proposed measures that you can choose to use, based on either your risk assessment or your health-promoting and preventive work to create safe patient handling and movement. The measures are divided into organisation, group and individual levels. Some of the proposed measures are also first described in more detail under each part.

Measures and conditions at organisation level

This section looks at measures and conditions related to policies and procedures, organisation, remedial programmes and work equipment. Finally, the organisational measures are summarised in a table.

Policies, guidelines and procedures

In accordance with legal requirements, the employer must have a policy for work environment management. But aside from the legal requirements, it is also a valuable tool. In addition, specific guidelines for safe patient handling and movement can be a good complement. A guideline is a document, a kind of handbook for the organisation's employees that provides instructions on how the work in a particular task should be carried out in practice. The guidelines contribute to achieving the policy for a good work environment. Structure and procedures create safety for both managers and healthcare workers. A workplace must have written procedures that describe the systematic work environment management and accordingly also for the work on patient handling and movement.

Good examples of international guidelines for patient handling and movement can be found from Ireland, the UK, the US and Australia. Several countries use the concept 'no lifting policy' or 'zero lifting policy' which has been developed to replace manual lifting and unfavourable transfers of patients with other work equipment. The purpose is to reduce the burden on healthcare workers and to reduce the number of injuries. This strategy has been evaluated in several international studies and also summarised in two literature reviews. In summary, there is some support in research that the 'no lifting policy' with increased use of work equipment can reduce back problems and sickness absence. **The message is that healthcare workers should implement transfers rather than lift.**

An important measure is therefore to safeguard the organisation's active work by strengthening the safety culture. Its norms, values and common views are central factors, as is the fact that work environment policy/guidelines and procedures exist for safe patient handling and movement and that risk assessments are carried out at healthcare units that can then be compiled for the entire organisation.

Organisation, structure, resources and participation

From an organisational perspective, managers at different levels need to be provided with the conditions to conduct strategic work for safe patient handling and movement. It is about having the time, resources and support functions available. The managers need a structure with forums where they can meet to discuss problems and solutions to systematically improve the work environment and prevent problems from arising in the organisation. Integrating and applying

management systems in practice for patient safety and the work environment can contribute to more resource-efficient management.

The systematic work requires many types of resources, for example different forms of management support from HR or equivalent. Similarly, the manager needs support when procuring and purchasing work equipment. If there is a lack of support or it does not meet the needs, this shortcoming needs to be included in the remedial work. Other measures may include drawing up competence plans for further training of managers and employees on the work environment, for example focusing on knowledge about transfers, and that funds are allocated for this in the budget.

Research shows that one success factor in the workplace is the manager and employees being actively involved in developing the work to create safer patient handling and movement and together creating a good safety culture. Current research shows that remedial programmes in which managers and employees are involved in identifying and analysing demanding tasks in connection with patient handling and movement, finding solutions and introducing new working methods lead to increased use of work equipment and reduce exposure-related problems. Support from the management is important.

Remedial programme

In international studies, measures in remedial programmes are described at individual, group and organisational level. The remedial programmes can include clear establishment at management level, collaboration procedures, access to appropriate work equipment, specially trained staff who can promote safe patient handling and movement, an established policy and risk assessments being carried out during patient handling and movement. Targeted physical activity has also been included in these remedial programmes, which has helped, among other things, to reduce problems of back pain among healthcare workers. The efforts in the remedial programmes have also shown that aids and work equipment are used more frequently.

Work equipment

Research has shown that healthcare workers who receive training and increased access to work equipment perform fewer manual lifts and increase their use of work equipment. This can reduce the risk of injury and musculoskeletal disorders as well as the experience of exertion. To illustrate the costs that may arise when someone is injured at work, there is an example of an occupational health economic scenario in which the employer can choose, among other things, to invest in purchasing work equipment; see Appendix 1.

The employer bears the responsibility for procuring and providing work equipment necessary for patient handling and movement. It's also crucial that employees are trained in the proper use of this equipment. Begin by evaluating what equipment is currently available, guided by the results of your risk assessment, and then determine what additional equipment needs to be purchased for your workplace.

The Swedish National Agency for Public Procurement (Upphandlingsmyndigheten) has compiled guidelines to support the procurement of aids (Upphandling av hjälpmedel och välfärdsteknik, vägledning

nr 1, 2017). They describe that procurement is often conducted by a central body within the organisation and that it is appropriate to collaborate with staff with specialist expertise in the procurement process. In procurement, it is necessary to consider how to meet service and maintenance needs, as well as to secure the budget and procedures, and designate who is responsible for checking that the aids and work equipment are safe to use. At the end of the guide there are suggestions for literature for those who want to immerse themselves in the field of work equipment and procurement.

Considerations ahead of purchasing and procuring work equipment

- Draw up procedures for how the purchase of work equipment should be done at your workplace, who does what and allocate responsibility for purchasing.
- Involve health professionals and safety representatives when choosing
- Work equipment.
- If necessary, involve an ergonomist from the occupational health service or an occupational therapist, physiotherapist or equivalent expert support when assessing equipment needs.
- Invite different suppliers to present their products.
- Collect documentation and quotes from different suppliers.
- Formulate the mandatory requirements to be included in the procurement and how these are to be evaluated.
- Consider sustainability and environmental aspects when selecting and purchasing work equipment and related products.
- Are service agreements and training on how to use the equipment included?
- What other added value can the supplier add?

The table on the next page presents a summary of evidence-based measures at organisation level. They have been divided into health-promoting, preventive and remedial measures.

Table of organisational measures

The table on the next page lists strategies and measures that can help create organisational conditions for safe patient handling and movement. The measures are based on health and safety legislation, research and recommendations from international guidelines at the organisation level. Some measures that are placed as health-promoting measures can also be categorised as preventive measures.

Table 5. Measures and conditions at the organisation level.

Health promotion	– Health and safety policy and work environment procedures – Guidelines for patient handling and movement – Health and wellness policy – Systems, working methods and numerical values to follow up and evaluate measures for safe patient handling and movement – Plan and budget for the procurement and purchase of work equipment – Work environment mapping – Agreements with external resources such as the occupational health service or equivalent for support with health-promoting work environment management, with working methods to promote safe patient handling and movement – Procedures for how and when expert resources, ergonomics or equivalent should be used – Staffing and resources in relation to the burden of care – Organisation for employee recovery
Prevention	– Starting from and applying the Work Environment Act with systematic work environment management to prevent ill health – Well-functioning systematic work environment management – Safety rounds – Procedures for interaction with safety representatives – Procedures for risk assessments and allocation of roles, and decisions when they are to be implemented – Procedures and systems for reporting and investigating incidents, accidents, occupational and health injuries – Management forum for dialogue on safety culture and problem-solving of injury situations – Active support from HR for managers in work environment management – Support from managers in the systematic work environment management and the work on sustainable exposure and working life – Budget and plan for competence development – Hiring the right competence, with knowledge of the work environment, patient safety and transfers – external or internal supplier
Remediation	– Analyses and follow-up of accidents and other incidents and injuries that have occurred among care recipients and employees – Analysis and compilation for the entire activity – Procedures for rehabilitation and follow-up after an occupational injury – Occupational health agreements – focus on rehabilitation and support for return to work

Measures and conditions at group level

In a workplace, the manager needs to make it clear that issues concerning the work environment and safety of patient handling and movement is a priority issue. This means that managers and employees should work together to promote a good safety culture and create awareness of safe patient handling and movement, such as ensuring that all employees in the workplace know how to assess possible risks, that work equipment is used correctly and that they are offered training in transfer skills.

Practice-based learning and training in transfer knowledge

All staff at the healthcare unit should be offered regular theoretical and practical training based on research and legislation. It should take the form of basic and further training in the field of work environment knowledge and, in this context, with the focus on transfer knowledge. In order for the training to have the desired effect and contribute to safe patient handling and movement, the manager with work environment responsibility needs to ensure that the knowledge is linked to the everyday work and the activity's procedures.

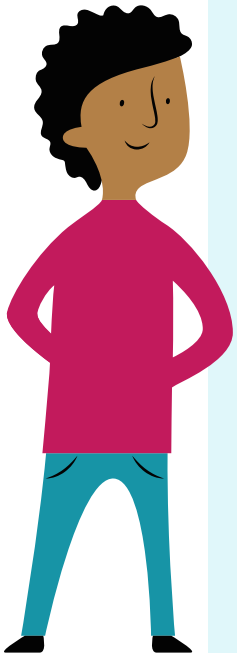
The knowledge needs to be followed up, linked to the systematic work environment management and discussed regularly at workplace meetings. Managers and employees both need access to training.

Training can be offered by an internal expert or an external supplier. Several regions, municipalities and private care providers have trained their own instructors who are responsible for the organisation's training on transfer knowledge (sometimes known as transfer technique). However, it is important that the knowledge conveyed through training is linked to knowledge about the work environment, the systematic work environment management and patient safety work. Discussions on how the procedures for practice-based learning in workplaces work are also recommended.

There is research that indicates that employees who have been trained as coaches can provide good everyday support for their colleagues when it comes to instructing and guiding safe patient handling and movement and showing how work equipment should be used. This can form an important part of the long-term work to prevent musculoskeletal disorders.

Design of theoretical and practical basic training in transfer knowledge

The theoretical part of the training can be offered digitally or physically. In both cases, however, a practical part needs to be included, in which the healthcare staff can practise different transfer tasks and the use of different aids and work equipment. It is important that the healthcare workers also receive practical training in specific transfer steps for the group of care recipients with whom they work. The goal is for the course participants to be able to apply the knowledge to their workplace and thus obtain the right conditions to prevent injuries and ensure that patient handling and movement can be carried out safely.



The following areas should be included in the basic training in transfer knowledge:

- Safety culture that promotes safe patient handling and movement
- System perspective: work environment knowledge – patient safety
- Promoting healthy exposure
- Preventing occupational injuries and care injuries
- Risk factors for injury
- How, when and why risk assessment is carried out
- Employees' and care recipients' perspectives
- Integration of patient handling and movement into the care recipient's care plan
- Person-centred approach
- Collaboration – communication – dialogue
- Practical training on key basic transfer steps
- Using the natural motion pattern
- Making use of the care recipient's function, ability and independence
- Presentation of suitable aids and work equipment for each transfer
- Working methodology with the application of new knowledge in the own workplace

The table below/on the next page lists the conditions and measures that can contribute to safe patient handling and movement at group level based on the same classification as described above, i.e. health-promoting, preventive and remedial measures.

Table of measures and conditions at group level

The table on the next page lists working methods and measures that can help to create conditions for safe patient handling and movement. The measures are based on health and safety legislation, research and recommendations from international guidelines at the organisation level. Some measures that are placed as health-promoting measures can also be categorised as preventive measures.

Table 6. Measures and conditions at group level.

Health promotion	– Ensure access to work equipment based on analysed needs and current conditions – Design and scheduling of transfer knowledge training – Introduction training for new employees and stand-ins – Job description and role allocation for tasks related to patient transfers – for example, to appoint a person responsible for taking stock and the safety of work equipment – Appointment of coaches or equivalent to support colleagues in everyday learning – Competence development – Make the most of the team's expertise – practice-based learning – Prioritisation and allocation of tasks in the working group – Promote and support collaboration in the working group – Discussions on norms and values in the working group – Procedures for recovery between shifts
Prevention	– Risk assessment with established methods and compilation of results at unit level – Establish an action plan for risks that are not addressed immediately – Managers and employees together create awareness of safe transfers through so-called 'co-leadership' – Appointment of a safety representative – Practice-based learning: Workplace meetings and other forums for dialogue on safe patient handling and movement that create commitment to the issues. What do we do at our workplace? – Set aside time to train practical ergonomics in everyday work for safe patient handling and movement – Participation and influence – add working groups for improvement work
Remediation	– Analysis at the activity level. Learn from incidents and injuries that have occurred. – At workplace meetings, discuss what has happened and what it looks like at your workplace. – Support in the team from the manager. Respond to concerns about employee health. – Take measures and change any procedures to prevent the same scenario from being repeated.

Measures and conditions at individual level (employee level)

There is much that an employee can do to influence and improve their work environment. How a person stresses their body at work every day, every week, every year matters to their health. Every patient transfer is a task in which a situation can arise that needs to be handled, either by a person on their own or together with colleagues. It is important that employees are familiar with the aims of the operation and that they follow established procedures to actively contribute to strengthening the safety culture. The employee should receive both initial training and up-to-date further training in transfer knowledge.

Every employee should know how to make risk assessments and plan each individual lift or transfer. They also need to know what work equipment to use and be able to handle it in every transfer situation.

If an employee feels that working according to existing procedures does not work in practice, or if there are other shortcomings in the training, work equipment, etc., they need to tell both their manager and the safety representative.

Aids or work equipment?

To ensure a safe care and work environment where there is patient handling and movement, aids and work equipment are often needed. The type required depends on what kind of patient handling and movement is to be carried out and where. Needs vary depending on whether the work is to be carried out at a workplace such as a healthcare unit, dental clinic, nursing home or a care recipient's home, or in connection with ambulance care (pre-hospital care).

Work equipment that is used correctly and safely can increase the patient's experience of comfort and safety. The choice of work equipment is based on which care recipients are at the unit. The care recipient's functional capacity and cognition, and the specific situations in which patient handling and movement is to be carried out must be taken into consideration. A care recipient often receives help from the relatives they live with. In such cases, it may be relevant that relatives also receive instruction from an occupational therapist or physiotherapist on, for example, how an aid functions so that they can also support patient handling and movement in a safe way. According to legislation (Patient Act 2014:821), the care recipient's close relatives should be given the opportunity to participate in the design and implementation of the care, if appropriate.

The two concepts of *aids* and *work equipment* are used in everyday life, in workplaces and in this guide, often as synonyms. However, there are differences between these two concepts:

An **aid** can be personally prescribed or a self-care product.

A personally prescribed aid is used by the care recipient for an activity or patient handling and movement. This aid, for example a walking frame with wheels, is tested by a licensed professional practitioner with special expertise in the aid. Some aids cannot be prescribed and are then considered self-care products, and these are paid for by the person themself. There are major differences in Sweden in terms of rules regarding what is considered personally prescribed aids and self-care products.

Work equipment refers to equipment designed to facilitate patient handling and movement by reducing the physical exposure for healthcare workers, thereby reducing the risk of musculoskeletal disorders. The term is used to clarify the employer's responsibility to purchase and ensure that work equipment is available. When work equipment is purchased for a unit, training in its use may be included, but this is not always the case. Sometimes these products can also be referred to as working technical aids or basic equipment.

Basic work equipment

There is a wide range of work equipment on the market that is used in different healthcare units and activities. Some basic suggestions for useful work equipment are presented below.

- **A support belt** should be used for all transfers that are carried out when the care recipient is unable to do the transfer independently. A support belt should also be used when there is a risk of falls and when a care recipient is mobilised again after a long period of immobility.
- **A sliding sheet/sliding tunnel/sailcloth** is used to reduce friction between the care recipient and the surface, for example when transferring a care recipient who needs to get higher up in the bed, turn in the bed, rotate sitting or move further back in a wheelchair.
- **A sliding board** is used to reduce friction between the patient and the surface, as well as for low transfers without lifting. For example, a sliding board is used for low transfers from a bed to a wheelchair.
- For so-called high transfers, work equipment such as **a standing plate, stand tall walker** or **walking frame with wheels** can be used.
- **Foot lifts** can be used for persons who can partially support themselves on their legs. However, when the person is not able to support themself on their legs, a sling is used. A sling can be combined with a manual, mobile **patient lift** or a **ceiling lift**.

Appendix 5, Register and checklist of work equipment and transfer aids presents a selection of basic equipment in a checklist that can be used in various activities such as in healthcare units and nursing homes.

Variation, physical activity and recovery for employees

The research literature presents ergonomic programmes that combine transfer knowledge and ergonomics with targeted physical training, which has been able to reduce, for example, lower back problems among healthcare workers. What is the right amount and well-dosed physical activity and training varies with the tasks and the kind of physical and mental exposure the work entails for the individual employee. How exposure and movement occur during the working day and during leisure time is important for health. If the work involves much

movement and variation so that the employee gets their daily physical activity during the working day, they may instead need more time for recovery. However, the physical activity of the work may need to be supplemented with strength training, balance training or cardio training. But physical activity can never replace active systematic work environment management.

We also need to consider ageing in relation to the conditions of working life. After the age of 40, physical capacity decreases by about one percentage point per year. This means that, on average, we have lost 20 per cent of the physical capacity we had at the age of 40 when we are 60 years old. If the physical work requirements are constant, for example the person carries on working under the same conditions, then the relative physical exposure increases. There is also a growing risk with increasing age of suffering from musculoskeletal disorders. But just starting from the chronological age says little about whether employees are able to work or not. The researcher Kerstin Nilson has developed the Sustainable Working Life for All Ages (SwAge) model, which considers chronological, biological, social and mental age (Nilsson 2021). Talking about age becomes important for employees when they enter and once they are in working life, as well as when employees leave working life. Often work adjustments may need to be made to enable a longer and sustainable working life. The competence and functional ability (physical, mental, social) that an employee has therefore needs to be considered against the tasks and the demands of the work. Does the ability match the demands of the job? It is important to create individual solutions based on age and possible functional variation in relation to the activities carried out.

Read more about how micro-pauses, targeted exercise, physical activity and everyday movements can have health effects. Tips on literature and websites can be found under the section *More reading, in-depth reading and literature* on page 75.

Table of contributing measures and conditions at individual/ employee level

The table on the next page lists measures that can help to create conditions for safe patient handling and movement. The measures are based on health and safety legislation, research and recommendations from international guidelines. Some measures that are set as health-promoting measures can also be categorised as preventive measures.

Table 7. Measures and conditions at individual/employee level.

Health promotion	– Know the organisation's objectives, follow procedures and safety rules, participate in work to strengthen the safety culture. – Learn from what works well. – Communicate – dialogue with manager, colleagues and care recipient/patient. – Participate in practical and theoretical training in transfer knowledge. – Use work equipment that reduces physical exposure. – Take micro-brakes during the working day; create scope for recovery. – Choose specific training and physical activity in relation to health condition, work requirements and exposure. – Create procedures in everyday life that allow for recovery during the working day and between shifts.
Prevention	– Assess the possible risks in each transfer situation. – Ensure that the current work equipment is suitable for the care recipient and the situation. – Use a checklist and established risk assessment methods. – Take a person-centred approach: check out the care recipient's updated care plan. Maintain a close dialogue with care recipients and any relatives. – Create awareness of risk situations. Contribute to strengthening the safety culture. – Set aside time and apply knowledge from training to prevent injuries. – Be a supportive and safety-conscious colleague. – Work adaptations: adapt tasks to employees' abilities, health and needs.
Remediation	– Talk about incidents and injuries. – Provide access to rehabilitation, job adaptation and follow-up after an occupational injury. – Offer adapted training for, for example, problems in the neck, shoulder, lower back.

Checklist for the next step

- ☐ The identified risks have been prioritised based on severity level.
- ☐ Targets for the remedial work linked to the respective risk have been formulated.
- ☐ Goals and measures have been chosen at individual, group and organisation level with different perspectives, promotion, prevention and remediation.
- ☐ The measures have been documented in some form of action plan.

Step 5: Follow up and evaluate

Once you have gone through the process steps above, you have come a long way on the road to safe patient handling and movement, even if you have not been able to complete all the planned measures. In this step, you edit and update the action plan from steps 3 and 4.

Monitor the progress of your efforts to see how much has been accomplished. Which measures have/have not been implemented, which objectives have/have not been achieved. What adjustments need to be made? The more clearly you have described the chosen measures and the specific objectives, the easier it will be to measure and follow up on the results. When setting new goals, remember that you can use SMART goals: specific – measurable – accepted – realistic and timed.

Planned and implemented activities should be followed up regularly as part of the systematic work environment management. The working group learns from the measures implemented and acts on the basis of the new knowledge that has been acquired.

Follow up any work environment mapping that has been done

If you conducted a work environment survey in step 2 or if you examined the current situation using the questions in Appendix 3, it may be a good idea to follow up with the same questionnaire. Then you can compare the results before and after and draw conclusions from them. If necessary, use expert support from occupational health or equivalent to receive support to plan, implement and evaluate the work for safe patient handling and movement.

To evaluate

The purpose of an impact evaluation or a summative evaluation is to find out whether the results of the measures correspond to the goals and expectations set before the start. It may also be important to assess the benefit in relation to costs (Nilsson 2021). To get an overall picture of where you stand right now, it may be good to do a summative evaluation and find out what you have achieved in the work with safe patient handling and movement in relation to goals that have been formulated. Simple summative measures can be answered with questions such as:

- Do we feel that we are working more systematically with patient handling and movement now? If yes, how do we do that?
- Are we talking more about the safety of care recipients and employees at work now than before? In what way and when?
- Have any new procedures for patient handling and movement been established? Who and how do they affect everyday work?
- Have we bought enough work equipment?
- Is there a budget or plan for employee competence development? How and when are training courses conducted?
- Have we arranged coaches that can promote safe patient handling and movement in the daily work? If yes, how do they provide support?

Checklist for the next step

- ☐ The measures specified have been followed up with regard to whether they have been implemented.
- ☐ The measures that have been implemented are followed up against the set targets. Measures that have not been implemented have been given new time frames.
- ☐ A summary evaluation to assess how far you have come in the work has been carried out.

Completion and continued work

You have now taken important steps towards safer patient handling and movement and made efforts that have and will continue to improve the work environment in your activity. But you have not finished – work environment management never stops. New risks will arise, the activity changes regularly and employees and managers come and go. The operation is constantly in motion. Please evaluate what you think it has been like to work with the work process for safe patient handling and movement (process evaluation). What have been success factors and what have been obstacles in the work process? Your reflections can also provide input and support to other healthcare units or departments within your organisation that are about to start a similar work process.

Finally, a few words along the way

Raise the issue of patient handling and movement in your workplace! The key is to work in a structured and systematic way with patient handling and movement, at both a strategic and a practical level.

- Create and establish procedures and working methods that everyone understands and can follow.
- Staffing is a critical issue; In lean organizations, achieving the right balance and working safely can be challenging. It's essential to ensure that you have adequate resources, including sufficient staffing and support, as well as accessible and appropriate work equipment.
- Employees also need the right and up-to-date knowledge about transfers. Learn from what works well in your own activity and ensure that everyone receives training in transfer knowledge.
- Systematic work environment management is central – to identify and analyse risks, incidents and accidents that occur. Use expert support from occupational health or equivalent in the preventive and corrective work environment management.

And remember, a good and safe work environment for employees is an important prerequisite for good and safe care for the care recipients.

Together we create safe patient handling and movement!

Appendices

Appendix 1: An occupational health economic example

Appendix 2: Structured multidisciplinary work environment mapping

Appendix 3: Specific issues for patient handling and movement

Appendix 4: Plan of action – an example

Appendix 5: Registers and checklist of work equipment and transfer aids

Appendix 1: An occupational health economic example

The following describes an occupational health economic example based on a relatively common event involving a patient transfer.

Lena, aged 45, works as an assistant nurse in a healthcare unit:

> *"I work in a healthcare unit at a hospital and enjoy my job very much. But two weeks ago, something happened. There was a lot to do at work and I was going to help a patient move from the bed to the wheelchair. I felt like I was standing a little oddly and had to adjust to prevent the patient from falling. I felt my back creak, but I clenched my teeth and finished working that day. Now, it's been a week and it has only become worse and I have been on sick leave for some time."*

What direct consequences did the event have? Lena suffered pain in her back but still finished her work that day. Immediately after the incident, Lena was on full-time sick leave for two weeks due to fully reduced work capacity; i.e. she could not do her work as she had difficulty bending and coping with the daily work at the unit, such as making beds and handling and moving patients. During Lena's sick leave, the employer pays her sick pay for two weeks.

What short- and long-term consequences might the event lead to? A stand-in needs to be appointed to replace Lena, unless her colleagues take over her tasks. If Lena is on sick leave for more than these two weeks, the costs will be passed on to the Swedish Social Insurance Agency, and the socio-economic costs will increase. Lower back problems usually go away, but they can persist, vary and recur, leading to reduced work capacity. This may mean that Lena will be on sick leave again, and the employer will then have a recurring cost for Lena's short-term sickness absence. The major cost for the employer, however, is that of loss of production for so-called sickness attendance. If Lena works with reduced capacity, this will affect the employer, as productivity decreases when the capacity to work does not match the tasks. Furthermore, her colleagues may end up with a higher workload if they take over tasks that Lena cannot carry out. The employer has an obligation to investigate whether the employee, in this case Lena, needs any work adaptations and, if so, carry out the adaptations and follow them up. Any adaptations must not adversely affect other workers. The employer can use occupational health as an expert resource in matters of work adaptation and rehabilitation. Lena may also need to visit her health centre for assessment and rehabilitation with a physiotherapist, as well as a doctor for pain relief medicine and a medical certificate, if she is unable to work because of her disorder.

In summary, the costs of an incident that does not seem serious can ultimately be costly for employers, society and the individual themself. The individual often suffers reduced work capacity, worse health, quality of life and a worse financial situation.

How could the incident have been prevented? What risks can be identified in the described case and how could the incident have been avoided? According to the description, there was much work to do, which can mean that the staffing level was low in relation to the needs, and Lena may have been stressed. Both of these factors increase the risk of incidents and actual injuries.

Furthermore, Lena carries out a transfer between a bed and a wheelchair and describes that she stood oddly and needed to adjust so that the patient would not fall. Does Lena need training in transfer skills? When was the last time training was given in the unit and what is the level of knowledge among employees? Has the employer budgeted for staff training? The cost of internal training in transfer knowledge is approximately SEK 3,000 per person. The case of Lena also raises the question of whether the unit has adequate work equipment and whether it has budgeted for the purchase and service of equipment. In this case, a so-called turner could have been used in the patient transfer to make the transfer safer for both the patient and the employee. A turner costs about SEK 3,500 including VAT to purchase.

When calculating the costs for the employer, the cost of purchasing work equipment and training can be related to the cost of loss of production in the case of sick leave and short- and long-term sickness absence. The standard calculation of the costs in the case of Lena is carried out according to 'Arbetshälsoekonomiskt analysverktyg - ett komplement till Riktlinjer för ländryggsbesvär' (occupational health economic analysis tool – a supplement to guidelines for lower back problems; Mynak 2019). The costs for society and the personal suffering are not included in this calculation.

Example of an orthopaedic unit

The median salary for an assistant nurse at an orthopaedic unit is SEK 25,659. The standard rate for short-term sickness absence, cost per day, is 10% of the monthly salary.

The standard rate for long-term sickness absence, cost per day, is 1% of the monthly salary. Reduced work capacity in the case of back problems means a production loss of 10–15%.

Case

Sick leave 100% for 2 weeks, then 50% for 2 weeks, and then work 100% but with reduced capacity due to back problems for another 3 months.

Cost of sickness absence	SEK
Days 1–14 (10 working days):	25,659
Days 15–28 sick leave 50% (10 working days):	1,283
Loss of production sickness presence	
3 months with back pain:	14,210
Total cost of an injury from a transfer	**41,152**
Cost of measures	**SEK**
Purchase of turner* (incl. VAT)	3500
Cost of internal training (per person)	3000
Total cost of measures	**6500**

Return on investment

In this example, we do not know the proportion of injuries that could have been avoided through preventive measures (the effect of the measure). But by putting the cost of an injury in relation to the cost of preventive measures to reduce the proportion of injuries, we can calculate how great the effect of the measure needs to be for it to be worth the investment.

Break-even SEK 6,500/SEK 41,152 = 15.8%

If the measure (turner+training) reduces the proportion of injuries during transfers by at least 15.8%, then the measure is worth the investment.

** A turner is a piece of work equipment that all employees in the unit can use for patient transfers, not just Lena in this case.*

Appendix 2: Structured multidisciplinary work environment mapping

Structured multidisciplinary work environment mapping (SMET) – Occupational health services (OHS) method for support in systematic work environment management

Structured multidisciplinary work environment mapping is an OHS method of support for systematic work environment management and consists of four parts:

1. Start-up work
2. Mapping (the SMET survey and in-depth analysis)
3. Tailored interventions
4. Evaluation

Work is underway to develop a digital version of SMET. Ease of use and support are central to this work. The programme should guide the user through all the stages of the SMET method and then automatically compile results, reports and presentation material.

The SMET computer program is expected to be available for occupational health in 2023.

The SMET survey

While waiting for the SMET method and associated computer program to be ready, the paper version of the SMET questionnaire can be used to evaluate the working environment. The survey was developed through research in the field of the work environment and is divided into three types of factors: physical, physiotherapeutic and organisational/social factors. Each part ends with a question (which is worse?) and a free text question. The survey only contains 30 questions and is designed to be time-efficient and minimise the time taken from the workplace. The average response time is only 12 minutes. The survey has been scientifically evaluated and shown to have good psychometric properties. The questions in the survey identify problems in the work environment. After that, tailored interventions can be applied and their effects evaluated.

Scientific references

Haraldsson P, Jonker D, Rolander B, Strengbom E, Areskoug-Josefsson K. Structured multidisciplinary work evaluation tool (SMET): Reliability testing of a multi-disciplinary/multi-factorial work questionnaire. Work. 2019;62(2):287–997. Haraldsson P, Jonker D, Strengbom E, Areskoug-Josefsson K. Structured multidisciplinary work evaluation tool: Development and validation of a multidisciplinary work questionnaire. Work. 2016;55:883–91.

Read more about SMET and study the user manual on the website:
www.fhvmetodik.se

Appendix 3: Specific issues for patient handling and movement

Below are questions that can be used to map the safety work on patient handling and movement in the workplace. If employees are asked to answer the questions at the beginning of the work, their answers can form a basis for further work. You can appoint occupational health or an equivalent expert to get support with an independent compilation.

The areas of the questionnaire in which several employees choose the responses 'Not at all accurate' or 'Not very accurate' indicate particular aspects of the work environment that need improvement.

Part A. Please indicate to what extent you, as an employee, agree with the statements below on how you manage safety of patient handling and movement in your workplace.				
	Not at all accurate	**Not very accurate**	**Partly accurate**	**Completely accurate**
1. Those of us who work here endeavour to cooperate to carry out safe patient handling and movement.	Only put one X against each question			
2. At our workplace, we have access to work equipment and aids that we can use for patient handling and movement.				
3. At our workplace there are fixed ceiling lifts where they are needed.				
4. At our workplace, we have a procedure for maintenance of the equipment so that it is safe.				
5. Those of us who work here take joint responsibility for work equipment and aids being used for patient handling and movement.				
6. At our workplace, we work based on a work environment policy.				
7. At our workplace, we work based on a written guideline or guidance for patient handling and movement.				
8. At our workplace, we work based on an established procedure for how to conduct risk assessments during patient handling and movement.				
9. Before we carry out patient handling and movement, we evaluate the risks that may exist in each situation in a systematic way.				
10. Before we carry out patient handling and movement, we assess the health and functional capacity of the care recipient.				
11. Before we carry out patient handling and movement, we assess the care recipient's risk of a fall.				
12. Before we carry out patient handling and movement, we assess the care recipient's ability to move themself.				
13. Before we carry out patient handling and movement, we assess whether we need more healthcare professionals to be able to transfer the care recipient in a safe way.				
14. At our workplace, we have regular training in the field of patient handling and movement and transfer knowledge/ transfer technology.				
15. At our workplace, we regularly discuss how we can prevent injuries during patient handling and movement.				
16. At our workplace, we have a designated coach who can support the everyday work for safe patient handling and movement.				

Part B. Use the questions below to reflect on how you as an employee carry out patient handling and movement at your workplace. **Discuss together in the working group.**
17. How often do you take part in tasks involving patient handling and movement?
18. How often do you carry out patient handling and movement with a colleague?
19. How often do you carry out patient handling and movement without using the work equipment needed to do so safely?
20. In the past week, what percentage of the care recipients do you consider to be independent enough not to need any help from healthcare workers?
21. In the past week, what percentage of care recipients do you think need a lot of help from healthcare workers for transfers?

Appendix 4 Action plan – An example

Risk and possible consequences	Causes	Risk level	Goals	Measures	Who	Schedule	Completed
Describe the risk and possible consequences.	Describe the reason that the risk exists or can arise.	Low Medium High	Set a measurable goal for the activity that can be followed up.	Describe which measures you intend to take to eliminate or reduce the risk.	Decide who will work on the measures being implemented.	When should the measure(s)/have been implemented. Adjust date for follow-up.	Tick off when the risk measure has been taken.
Example 1: Transferring a care recipient with impaired balance from a wheelchair to a shower chair is heavy and difficult to do. The different stages can carry a risk of exposing working postures that lead to problems such as back pain for healthcare workers. There is also a risk of injury to the care recipient in the transfer situation, with an increased risk of falls.	It is unclear for the healthcare workers how to carry out the transfer in the safest way. Ignorance of how to best carry out the transfer. Ignorance and lack of work equipment.	Means	All healthcare workers should learn/increase their knowledge of basic transfer skills. Ensure that the unit has adapted work equipment for the transfers that are to be carried out.	Basic training in transfer skills. Height-adjustable shower chairs to be purchased. A method for assessing the risk of falls to be used in the daily work. Purchase and service of work equipment.	The Head of Unit takes responsibility for managing and allocating the work and planning training and purchasing of suitable work equipment. Tasks are delegated according to a specific plan.	The manager, in dialogue with the safety representative, decides on a plan that means that during the coming year (20XX) all employees should have been offered training. The purchase of equipment takes place gradually over years. The plan must be completed at the latest by 15 December 20XX.	
Example 2: When assessing the care recipient's mobility and at the first mobilisation/transfer of the care recipient, there is uncertainty about what the employees should do. There is also uncertainty about who to turn to for questions about transfers.	There is currently no explicit working method for patient handling and movement at the unit. There are currently no clear procedures for what to do in different types of difficult transfer situations.	Means	A written procedure for how the unit works with safe patient handling and movement.	Develop a procedure for how the work with patient handling and movement should be done. It should, in part, contain how and who makes the assessment of transfer ability, procedures for difficult transfers and which work equipment should be used for different transfers. Include how new employees and summer workers are informed about the work with patient handling and movement.	The Head of Unit takes responsibility together with the collaboration group for establishing a procedure for patient handling and movement.	The procedure must be completed by 30 January 20XX.	

Appendix 5: Registers and checklist of equipment for work and transfer aids

This is a checklist to support the inventory and creation of a register of work equipment and mobility aids that are used in the care environment concerned. Having access to safe and appropriate products is a prerequisite for carrying out safe patient handling and movement. Therefore, it is essential to check that you have the right type of work equipment, in sufficient quantity and that it is safe to use and is maintained regularly.

Register and checklist of equipment for work and transfer aids

Available in the workplace?		Are there enough?		Has the work equipment been inspected?		Work equipment/mobility aids
Yes	No	Yes	No	Yes	No	
						When moving/walking:
						Walking stick/crutch/four-point support
						Walking frame with wheels
						Stand tall walker
						Support belt
						When washing, bathing and showering
						Bath and shower chair on wheels, manual
						Bath and shower chair on wheels, electric
						When moving and turning
						Sliding sheet
						Sliding sheet, sliding mat, turning mat
						Anti-slip mat, anti-slip sock
						Sliding board
						Lifting stretcher/bed with handles
						Swivel plate (turntable) Swivel plate with handles (without wheels)
						Transfer platform (with wheels)
						For lifting patients
						Mobile personal lift
						Stand lift
						Ceiling lift
						Slings
						Electric adjustable bed
						Bed accessories: bed gate/lifting pole/rope ladder

Are there procedures for checking that the equipment works and is available? Yes/No
Person responsible for the checks. Name:

About producing this guide

This research-based guide has been compiled on behalf of the Swedish Agency for Work Environment Expertise. The work to establish, discuss and write it was done during 2022 and launched in December 2022.

The guide "Safe patient handling and movement – A research-based guide for a better work environment" was translated from Swedish into English in collaboration with Charlotte Wåhlin, Glykeria Skamagki and Liv Nilsson. This version of the guide was launched 2024.

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Dialogue groups and partners have communicated knowledge and experiences that have been taken into account during the work with the preparation of the guide. The working group would like to thank experts, technical specialists and organisations for their valuable input into the work.

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Dialogue with networks and reference group

Nätverket för aktivt lärande och utveckling om personförflyttningar (NALUP; network for active learning and development on patient handling and movement). The network is made up of various representatives from regions and municipalities, and private actors with an interest in developing the area of patient handling and movement and knowledge pertaining to it. Various professions are involved, such as reg. physiotherapists, reg. occupational therapists, ergonomists, reg. nurses and assistant nurses.

The reference group for the research project Patient and Workers Safety Study (PAWSS).

The group is made up of representatives such as a healthcare unit manager, HR strategist, the Swedish Association of Health Professionals (Vårdförbundet), Kommunal (trade union), Swedish Confederation of Professional Associations (Saco; Sveriges akademikers centralorganisation), Swedish Association of Local Authorities and Regions (Sveriges kommuner och regioner), the Swedish Work Environment Authority, and the Innovation Office of Region Östergötland.

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Sveriges Företagshälsor (Swedish Association of Occupational Health and Safety)

The Swedish Disability Rights Federation (Funktionsrätt) *Östergötland*

More reading, in-depth study and literature

Web pages

As a reader you can download more information from the following websites about issues related to work environment, health care, patient safety, patient handling and movement, and ergonomics.

Authorities

The Swedish Agency for Work Environment Expertise: **www.mynak.se**
Swedish work Environment Authority: **www.av.se**
National Board of Health and Welfare: **www.socialstyrelsen.se**
National Board of Health and Welfare. Support for patient safety
https://patientsakerhet.socialstyrelsen.se/

The parties

Swedish Association of Local Authorities and Regions: **www.skr.se**
Suntarbetsliv: **www.suntarbetsliv.se**
Prevent: **www.prevent.se**

International

European Agency for Safety and Health at work, EU-OSHA:
www.osha.europa.eu/en
International EU projects: Safe Transfer technique: **https://velfaerdsteknologi.aarhus.dk/eu-projekter/safe-transfer-techniques/**
E-learning: Safe patient handling and movement E-Training (SE) – Safe patient handling and movement (STT)
(elaer.dk)

Methods and ways of working

Risk assessment with TilThermometer: **www.tilthermometer.com**
Joint website of the Occupational and Environmental Medicine Units:
www.fhvmetodik.se

Other

Vårdhandboken: **www.vardhandboken.se**. Read the pages on occupational ergonomics in healthcare and care, and on responsibilities and regulations.

National system for knowledge-driven management within Swedish healthcare:
www.kunskapsstyrningvard.se

Senior Alert. National quality registers and tools for healthcare prevention:

www.senioralert.se

Literature

A selection of the literature that has been used in the preparation of this research-based guide is presented below, divided by subject area. The selection was put together to provide tips on further reading and in-depth study. The literature is divided into the following areas:

- Injuries, exposure disorders and injuries in healthcare and care
- System perspective, safety culture, leadership, work environment and patient safety
- Work environment mapping, risk assessment, health promotion and ergonomics
- Policies and guidelines for safe patient handling and movement
- Learning and measures for safe patient handling and movement
- Aids and work equipment, purchasing and use
- Physical activity, variation and movement, recovery
- Evaluation and implementation
- Occupational health economics

Injuries, exposure disorders and injuries in healthcare and care

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