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A Management Model for Physical Risks in the Care Work



Finnish Institute of
Occupational Health

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Managing the physical risks of care work

Physical and psychological stress has increased substantially over the last ten years in care work. Work is most stressful in those units with basic treatment, care of the elderly and other patients with reduced mobility (Laine et al. 2006). Research has shown that in addition to the lifting and handling of patients, repeated back bending and twisted posture are also known risk factors for back pain (Hansson 2001). If one adds constant standing, walking, hurrying and the psychosocial factors of the job, it is no surprise that many stress factors manifest themselves as common complaints and diseases of the musculoskeletal system, and force healthcare staff into early retirement.

According to the Finnish Occupational Safety and Health Act, the employer (healthcare facility) is responsible for healthy working conditions of its employees. The Act is based on modern safety considerations, consisting of systematic safety management and constant improvement of working conditions. According to Occupational Safety and Health Act, employers shall organise and pay for occupational health care in order to protect employees and prevent job and working condition related health risks and hazards.

In this book a management model for physical risks assessment is introduced to the employers focusing on the problems caused by physical strain of care work. There is usually an awareness of the problems, but methods to reduce strain are either unknown or not believed in. In the workplace the management model for physical risks will be developed by employer and employees. The safe handling policy model to which the organisation commits itself describes the actions promoting workplace safety. The model must be regularly updated and can help to improve the safety climate in which care workers have to carry out their physically and emotionally demanding tasks.

This guide has been written by specialists of the Finnish Institute of Occupational Health and ARvire Ip, based on management models for physical risks produced by geriatric care units. The models were produced under expert guidance by several municipal boards¹ in Southern and Eastern Finland.

Warm thanks to all those who participated in the production of this guide.

Turku, 28 April 2010

Leena Tamminen-Peter, Aija Moilanen and Virpi Fagerström

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I

The management model for physical risks as a practical tool

Many people working in the care, especially those active in geriatric care, suffer of disorders of the musculoskeletal system. According to surveys carried out in 1997 and 2008 by Tamminen-Peter et al., the most common complaints among healthcare workers are pains in the neck and shoulder area and in the lower back. Over this ten-year period lower back complaints have decreased by about 10 %, whilst the reduction in complaints regarding the neck and shoulder area is only about 5 %. In the care musculoskeletal disorders are the leading cause of work absences due to illness. Home care assistants have 29 sick leave days annually, practical nurses and nursing assistants 28 days and registered nurses 20 days, of which more than a third, 37 %, are due to musculoskeletal disorders (Vahtera et al. 2008).

The purpose of the management model for physical risks carried out at the workplace is to reduce the physical risks of care work and to thus improve employees' health. The model helps to manage the physical risks at workplaces in the care as part of a comprehensive safety management system. The present guide focuses on the risks related to handling patients, as this is a serious physical risk for many people working in the care. Employees still manually lift patients that are too heavy, and their skill in guiding and helping with the handling of patients does not always correspond to patients' needs. Neither do employees always follow the recommendations drawn from research results in their assistance methods (Rantsi 2005; Tamminen-Peter 2007).

The purpose of the management model for physical risks is to

- help create a safe working environment
- encourage safe working methods in wards
- reduce employee strain in physically demanding work-related tasks
- develop good working practices that support care work objectives

The management model for physical risks describes the methods with which new procedures leading to more safety can be integrated into the daily work of the healthcare community.

The idea behind the management model for physical risks is that the issues raised in the model should be individually considered at each workplace. The model is produced as the result of cooperation between various participants. A good group would for example consist of the supervisor of an organisation's care work (senior nurse), the unit's immediate manager (charge nurse), and representatives from the occupational health services and safety unit and the staff. With a team make-up like this, specialists from different sections of the organisation can work together naturally to discuss and find solutions. Agreed matters can be written down on paper, and if possible the form 'we' should be used in texts to emphasise commitment. It is especially important to assign all the agreed tasks to responsible persons.

The management model for physical risks includes operational targets for safety management, the organisation's objectives and the methods to achieve them. The model includes:

- the safety responsibilities and authority of the employer and employees
- working procedures and skills for physically arduous and risk-prone work-related tasks
- training to improve skills
- acquisition and maintenance of assistive products for handling patients
- monitoring of the model's implementation

The management model for physical risks is a process (Figure 1), which can be based on the Occupational Health and Safety Assessment Series (OHSAS 18001:fi). The system is based on the "Assess - Plan - Implement - Monitor"-procedure. In the planning stage objectives are set and processes created related to the achievement of the organisation's occupational health and safety policy results. Subsequently the processes are implemented and the implementation monitored. In the monitoring of the implementation

the attainment of the designated objectives is analysed and measured, as well the adherence to legal requirements and other requirements within and outside of the organisation. On the basis of monitoring assessments, measures are taken by which the performance of the occupational health and safety management system (OHSAS 18001:fi) is continuously improved. Successful risk assessment procedures are characterised by actors with clear roles and by smooth information flow and cooperation (Parantainen & Soini 2010).



Figure 1. The process of the management model for physical risks.

2

Legal obligations guide risk assessment and planning

Assess the risk and plan

- Revise previous risk assessments and agree on measures.
- If necessary, compile additional reports concerning physical risk factors.
- Justify the need for the management model for risks with regard to responsibilities and obligations in the organisation and those ensuing from legislation.
- Assemble regulations and organisation-internal rules and agreements as a basis for work.
- Agree on objectives at ward and organisation level.
- Agree on working practices, division of labour and timetables.
- Agree on cooperation in risk management with occupational health services.

Safety management is the comprehensive management of safety. It applies equally to voluntary as statutory activity. Safety management is taken to mean the management of procedures, people and operations such that safety and health is promoted at the workplace systematically and proactively. Continuous planning, performance, and the monitoring and assessment thereof are all aspects of safety management (Finnish Occupational Safety and Health Administration 2008).

The main objective of the Finnish Occupational Safety and Health Act (738/2002) is the management of safety as whole, and it is to be implemented through proactive and organised safety measures. According to the Act, an employer is responsible for healthy working conditions for employees, but employees also have obligations resulting from the Act (Table 1).

According to the Finnish Occupational Safety and Health Act, possible physical risk at the workplace must be assessed. Risks thereby uncovered can

be managed through good planning and the implementation of a management model. In order to manage the risks, the employer shall use the workplace reports compiled by the occupational health services and the information from the company's own risk assessment and organise safety training.

Table 1. Obligations of the employer and employees according to the Finnish Occupational Safety and Health Act with regard to the reduction of physical strain and the implementation of occupational safety of handling patients.

	Employer's obligations	Employee's obligations
Assess	Employers are required to exercise care of the safety and health of their employees while at work (Chapter 2, Section 8).	Employees shall follow the orders and instructions given by the employer and take care of their own and the other employees' safety and health (Chapter 4, Section 18).
	The hazards caused by the work shall be analysed and assessed in advance (Chapter 2, Section 10).	
	Obligation of designing the working environment (Chapter 2, Section 12).	
Plan	In designing and planning the work the physical and mental capacities of employees shall be taken into account (Chapter 2, Section 13).	
Implement	Employees shall be given instructions and guidance on the hazards and risk factors of the workplace (Chapter 2, Section 14).	Machines, work equipment and other devices shall be used in accordance with user instructions and according to the employees' occupational skill (Chapter 4, Section 21).
Implement	Employers shall acquire assistive products necessary for handling patients (Chapter 2, Section 15, Subsection 2). The structures of a workstation and the work equipment used shall be chosen, designed and placed in an ergonomically appropriate way (Chapter 5, Section 24).	Employees shall use and care for the equipment the employer has provided for them in accordance with Section 15 (Chapter 4, Section 20).
Implement	A specially chosen employee shall be made responsible for the maintenance (but not repair) of assistive products for patient handling, whose task includes carrying out periodic inspections (Chapter 5, Section 43). In addition, the Government Decree on the Safe Use and Inspection of Work Equipment (403/2008) entered into force on 1 July 2008.	Employees shall without delay inform the employer and occupational health and safety representative of any faults or defects (Chapter 4, Section 19).

2.1. Risk assessment as a starting point in the management of physical strain

The physical risks of care work include heavy lifting and manual handling of patients (Finnish Ministry of Social Affairs and Health 2008), which employees experience as the most demanding physical aspect of care work. A third of those working in the social and health sector have said they have lifted loads of over 25 kg (Perkiö-Mäkelä et al. 2006). Regularly lifting loads weighing more than 15 kg increases the incidence of back injuries, whilst lifting loads of under 10 kg has not been shown to increase it (Hansson 2001). In addition to the lifting and handling of patients, repeated back bending and twisted posture are also risk factors for back pain, and for care workers such positions make up nearly a fourth of their working time. Most bad positions occur during washing, dressing, handling patients and making beds (Engels et al. 1994). The joint effect of many physical risk factors is reflected in the incidence of care workers' disorders of the musculoskeletal system and in early retirement.

Risk assessment refers to the identification of hazards at work, the determination of the extent of risks caused by these hazards, and the assessment of the consequence of the risks, with the aim of effectively improving safety at work (Murtonen 2003). Hazards related to the physical workload may be recognised by examining the properties of the workplace and tools as well as the employees' activities, work posture, work motions and use of physical force (Pääkkönen et al. 2006). The Finnish Occupational Safety and Health Act functions as a guide for identifying the hazards that must be taken into account when planning the management of the physical risk of care work (Table 2). The employer shall organise the risk assessment, with the participation of employer representatives, experts and employees (Murtonen 2003). In care work it is expedient if as many employees as possible participate in the risk assessment, as along with the change in patients' health and general conditions also the risks change.

The occupational safety and health staff are risk assessment experts. They have various risk assessment methods at their disposal with which health hazards can be identified (Pääkkönen et al. 2006). When starting

Table 2. Examples to start the risk assessment conversation

Finnish Occupational Safety and Health Act (738/2002)	An example of how the Occupational Safety and Health Act can be taken into account in the assessment of physical risks.
Ergonomics of the workstation, work postures and work motions (Chapter 5, Section 24).	Which assistive products are there in our workplace to lighten manual lifting and handling? In what kind of work postures do we work? What kind of adjustment possibilities does our work equipment have?
Avoiding and reducing workload-related factors (Chapter 5, Section 25).	What methods are there at our workplace to avoid workload-related factors? How can these methods be utilised whilst working?
Workplace equipment shall be safe (Chapter 5, Section 32).	What equipment is there at our workplace to avoid manual lifting and handling? What kinds of rules are there at our workplace for the safe use of equipment?
The volume and area of the workplace shall be adequate (Chapter 5, Section 33).	What kinds of workplaces do we have? In which places is there not enough space? Why is this?
Machinery must comply with provisions (Chapter 5, Sections 41 and 43).	How do we ensure proper maintenance of the assistive products and devices used at our place of work? How have we organised the initial and periodic inspections of the devices?

a management model for physical risks, the following may be used: *Riskien arviointi työpaikalla* ('Risk Assessment at the Workplace', a workbook published by the Finnish Ministry of Social Affairs and Health) (Murtonen 2003), a procedure for assessing strain due to patient handling (Karhula et al. 2007), or SOPMAS, an observation instrument developed to assess nurses' skills in handling patients (Tamminen-Peter 2005). In addition, available for the assessment of work postures are e.g. the OWAS or REBA method (Karhu et al. 1977; Hignett and McAtamney 2000), the DINO method for the assessment of patient handling techniques (Johnson et al. 2004), the Care Thermometer to assess the appropriate use of assistive products (Knibbe & Friele 1999), and the MAPO index for a comprehensive assessment of the ergonomics of the working environment (Battevi et al. 2006).

2.2 Planning a management model for physical risks

For the management model for physical risks to function properly it is essential that matters be mutually agreed and planned. This means that all employees should have the possibility to take part in the development of the model so that commitment to common rules can be more readily achieved. Agreed matters are written down and responsible persons are appointed to oversee all activities which are to be carried out. At the beginning of the planning stage the working group agrees on working practices, the division of labour and timetables. When working on the management model a good start can be made if the rules and agreements existing in the organisation are put on record. An examination of previous risk assessments will also reveal health hazards at the workplace on which the management model must concentrate.

Integrating the management model for physical risks in the safety management policy is important so that the management of the organisation commits to it and that the model gets a response from the staff. Only staff commitment can show whether safety management thinking and ensuing actions can establish a culture of safety at the workplace (Finnish Occupational Safety and Health Administration 2008). A management model for physical risks must include the organisation's reasons for the model's necessity and responsibilities and obligations resulting from legislation. In the planning stage establishing objectives at both organisation and ward level will help to achieve them. In order to avoid overlapping, cooperation between the workplace and the occupational health services should be agreed on.

2.3 Occupational health care as an aid for risk management

According to Section 2(4) of the Finnish Occupational Health Care Act, the employer shall arrange occupational health care at his own expense in order to prevent and control health risks and problems related to work and working conditions and promote the safety, working capacity and health of his employees. According to Section 12 of the Act, occupational health

care shall, in accordance with good occupational health care practices, include the investigation and assessment of the healthiness and safety of the work and the working conditions. The occupational health services representative shall therefore make repeated workplace visits and use other occupational health methods to investigate exposure in the workplace, the workload, the working arrangements and the risk of accidents and violence. These factors shall also be taken into account when planning and changing the work, working methods and workspaces.

Occupational health care staff and experts know a great deal of physical strain, its assessment and how to reduce it which the supervisor and the whole work community can make use of when developing their own working techniques. An awareness of how occupational health care works and what it entails facilitates cooperation between the occupational health services and the workplace throughout the occupational health services' area of operations, especially in the management of physical risks. Occupational health and safety should be an integral part of an organisation's strategy, development and other operations, and cooperation is more effective if operational objectives and the content of the occupational health services' operating plans are mutually agreed on, which in turn creates opportunities for wide-ranging welfare activities and facilitates impact assessments.

A description of the activities of the occupational health services, making its role for the workplace clearer, could, for example, contain the following:

- the general objectives of occupational health care activity
- the central objectives concerning the care community in the occupational health services' operating plans for the planning period
- the central activities and participation in the management of physical risks
- cooperation with the workplace and occupational safety services
- practices concerning early intervention and approaches to rehabilitation

In order to facilitate communication it is practical if the contact details of the occupational health services and of the ward's occupational health care contact person are recorded in the model.



Making work practices safer

The development of work practices for care work is based on an understanding of the workload and risks of care work in various assistance situations and their reduction through ergonomic and other methods. A basic principle is to avoid the manual lifting of patients and prolonged working in a wrong posture.

Of central importance in rehabilitative care is the utilisation of a patient's resources and moving capability. This means that the care worker must be familiar with the patient's resources and the limits of their moving capability. In addition, they must have a good verbal and tactile interaction to exploit the patient's own resources and moving ability in order to optimally encourage a patient's independence (Tamminen-Peter et al. 2007).

Ergonomically correct work methods, i.e. good handling skills, are part of a care worker's ability to be aware of a patient's resources and to know how to utilise them for handling the patient such that the patient can move safely and pleasantly with the least possible amount of assistance. The care worker should work in a good, balanced posture and utilise assistive products for handling and the assistance environment in the appropriate manner (Tamminen-Peter 2005).

3.1 The principles of safe and healthy assistance

Implement

- Record the most important instructions according to the needs of the ward
- Illustrate them with figures
- Add special guides and links to other material

Changes in a patient's condition and unexpected movements can cause dangerous situations for care workers that can be difficult to predict. Care staff must be aware of this and of the dangers that can arise from such unforeseen situations, and they must comply with the patient assistance principles and recording practices mutually agreed on at the workplace so that occupational safety and quality of care can be ensured.

Correct assistance methods are safe and pleasant for both the patient and staff. Acting in accordance with them promotes the patient's care objectives and staff wellbeing.

Finnish legislation does not provide a weight limit to patient lifting, but research has shown that manually lifting a patient's total weight causes care workers excessive strain, even if two people are assisting.

Choosing the assistance method

- Take the patient's care objectives and physical ability into account when choosing the patient assistance method, and utilise the patient's existing resources in the best possible way.
- Ask the patient what the most natural way to move is for them, and adapt the assistance method accordingly.

ex.

Assisting a patient

- Provided that patient's legs support their weight, help him/her via a standing position into a wheelchair
- Guide a patient to help with his/her hands when they turn in bed.



Figure 2. *Assisting a patient via a standing position into a wheelchair.*

- Make manual moves easier by using small assistive products, e.g. give the patient a fixed hand grip, as it reduces strain for the assistant and gives the patient a safe feeling (Figure 2).
- Use sliding material when assisting bed patients.
- Start to use a patient lift if the patient's legs can no longer bear their weight. Decide in the work community on when you will start to use a patient lift (Figure 3).
- The lift and lift sheet must be chosen according to the patient's physical ability, size and weight.

- Work in pairs if the assistance situation requires it, for example if there are changes in the patient's physical ability or if the work partner has musculoskeletal complaints.

Taking the surroundings into account

- Check before assisting that there is enough space to work.
- Remove any obstructions in order to move safely and smoothly. For example wheelchair leg rests can be removed.
- Remove obstructions from the floor and check the slipperiness in order to prevent tripping and slipping.
- Study and utilise the height adjustment possibilities of the assistive products in order to facilitate patient handling and to improve your own work posture.

Figure 3. Assisting a MRSA-patient with a hoist.



Handling guidance

- Assist the patient into a good initial position before handling. Here even a weak patient can utilise their own strength. If a patient can use their own strength, the strain on the care worker's musculoskeletal system diminishes (Figure 4).

ex.

Helping patients to stand up:

- For example, when a patient starts to stand up, help them to sit at the edge of the chair and position her legs at a suitable angle so that it is easier to stand up.



Figure 4. Assisting a patient standing up and transferring to the wheelchair with a standing frame. (A→B→C→D→E)



Lean your body forwards and stand up, please!



- Speak clearly, so that the patients know where they are moving and what they have to do whilst moving. For example, whilst they are getting up say: “Lean your body forwards, hold on to the hand grip and stand up.” When the patient is turning from the supine position to her side say: “Turn your head into the direction you’re moving and pull with your hand on the handrail.”
 - If necessary, show the patient what to do by doing it yourself.
 - Let the patient start the movement, and adapt your movements to the patients’, as they usually move relatively slowly, and need time to activate their muscles.
-
- Help the patients to move for example by placing your soft palms where there is a lot of mass, e.g. at the pelvis, shoulders and back.
 - Do not touch the patient’s joints. Holds with soft palms are experienced as pleasant by the patient and increase their desire to cooperate. Squeeze grips are experienced by the patients as unpleasant and cause unnecessary strain to the care worker.
 - Guide and assist gently, only to the extent that is necessary.
-
- Help the patients to move according to their natural movement patterns, so that they can use their own physical resources in the best possible way.
 - Use three-dimensional movements when assisting. They are easier to carry out and reduce possible stiffness the patient is experiencing.
 - When guiding pay especial attention to the correct direction of movement.
 - Avoid lifting in all circumstances.

The patient can more easily move when weight is taken off the moving part of the body. This means that a part of the patient’s weight is transferred through the skeletal structure to external support surfaces. For example when a patient in a sitting position is moving to the side of the bed, the weight of the body is supported by one hand and hip, making it easier to move the opposite part of the pelvis forward.

- The more a patient needs help, the more the moving should be divided into smaller stages.
- Help the patient from the side so that your own body does not prevent the patient from moving according to her natural movement patterns.

Work posture of the assistant

- Work generally as an upright walking posture, as balance is better and movement more fluid than when straddling.
- Assist at the correct working height by flexing your knees and producing power with your thigh muscles.
- Move with the patient's movements and utilise weight transfer. In this case you engage the large and strong leg muscles instead of smaller and weaker muscles that perform rotation movements (Figure 5).

Figure 5. *Sliding a patient with a sliding sheet as pair work.*



- Avoid working at floor level, but squat if it is necessary.
- Also avoid stretching and bending. Try to work in such a way that the weight stays on your legs and your back is straight.
- Support yourself with your hand or body for example on the side of the bed in order to reduce the static load on your back muscles.

3.2 Recording the patient assistance method

Implement

- Who is responsible for the records?
- What is recorded in the care plan?
- How are the records updated?
- How are the records monitored and controlled?
- What else can be mutually agreed on concerning the records?

The recordings of the patient assistance method are often deficient, which can easily lead to dangerous situations for new employees. The care community must decide what is recorded in the care plan regarding patient assistance methods. In order to implement the principles of safe and healthy assistance it is important to record:

- the care objectives
- the patient's functional ability
- possible changes in functional ability during different times of the day
- the effect of medicine on functional ability and the need for assistance or the timing of care action
- the assistance method and assistive products used
- practices that have been found to be good and effective, for example how to best act in an assistance situation with an aggressive patient

An example of a record is shown in Table 3. In addition, Appendix 1 consists of care plans compiled by a hospice ward, in which functional ability support and handling assistance has been carefully described.

When the patient comes to the ward from another unit, the healthcare team assesses the patient's functional ability and carries out a risk assessment. In this the team can make use of the records concerning the patient's condition made by the sending unit and physiotherapist.

The healthcare team controls the care plan regularly and enters the necessary changes, for example when the patient's functional ability changes and the use of a patient lift is necessary. It is practical to illustrate the assistance method with photographs or drawings. These are kept in the patient room in a specified place.

The application of safe work practices is supported by regular discussion of patient assistance methods at ward meetings and subsequent reporting. The care team plans assistance situations involving risks and, if necessary, consults with the rehabilitation staff.

Finnish Government Decree on the drawing up of patient documents and on keeping them and other material related to treatment (99/2001).

Entries may be made in patient documents by health care professionals participating in the treatment of the patient and by other persons participating in the treatment in accordance with instructions in so far as they participate in the treatment.

Table 3. Example of a patient handling entry on a care sheet.

Nursing Home 'Care' date xx.xx.2010	CARE WORK PLAN	PETER PATIENT 010129-xxxx
Primary nurse Polly Primary Nurse		Associate nurse Nelly Nurse
Care work diagnosis		
Main objective of care work Integration of the patient to a new environment and maintenance of physical ability		
Medical diagnoses Hypertension, coronary disease, chronic obstructive lung disease, Alzheimer's disease (moderate)		
Reason for arrival Due to Alzheimer's, managing the daily activities with the aged carer (80-year-old spouse) cannot be done safely.		
Patient's condition at arrival The patient moves short distances independently with a manual wheelchair (max. 10 m). Needs the assistance of at least one person when moving. Supports on lower extremities when moving; upper extremity grip is very strong. Needs assistance with getting dressed, washing, and going to the toilet. Uses adhesive diapers. Needs spoken assistance when eating. Has a number of memory and behavioural disorders.		
Activities of daily living	Objectives	Methods
Moving	<ul style="list-style-type: none"> - supported transfer through standing position - maintaining independent movement with wheelchair - supporting independent eating 	<ul style="list-style-type: none"> - moving with the help of one person, and firm support for the hands, e.g. a grab bar or rollator, and a handling belt for the nurse, as otherwise the patient may grab hold of the nurse's clothes - taking careful steps when moving - support rails and FlexiMove are used when assistance of two nurses is needed (e.g. in the WC) - daily wheelchair use, independent transfer to day room, spoken guidance only - assistance and spoken guidance only given when needed
Eating and drinking	<ul style="list-style-type: none"> - staying dry 	<ul style="list-style-type: none"> - adhesive diapers are used - two nurses for toilet assistance, support rails and FlexiMove as assistive products - use of bed urinal at night
Elimination	<ul style="list-style-type: none"> - creating a feeling of being integrated 	<ul style="list-style-type: none"> - talking about pictures and objects in the room - practicing the route to the day room and own room
Safe environment		
Assessment		

4

Ensuring competence

Training patient handling skills is part of an organisation's physical risk and safety management. Superiors should be trained first, so that they internalise their role as supporters of change and consider the safe performance of patient handling an important aspect of rehabilitative care work. Training of and familiarisation with patient handling skills should be ensured for all staff who assist in patient handling, as required by EU *Council Directive 90/269/EEC* and the Finnish Occupational Safety and Health Act.

4.1 Training staff in patient handling skills

Implement

- Check the staff's patient handling skills: what kind of training is necessary and for whom.
- Agree on training objectives for patient handling skills.
- Draw up a training plan.
- Define the training content.
- Identify the need for assistive products and make a procurement plan.

Training plan

The training must have clear objectives based on the assessment of risks and needs. For example, a care worker must know how to:

- choose a safe handling method
- work in accordance with mutually agreed methods and reduce the risks to themselves and the patient
- choose the appropriate assistive products

Changing one's work methods is not an easy thing to do, and it has been shown to be useful for changing work methods if specific ward staff members are made responsible for ergonomics. We call those persons ergo-coaches. They will be trained for the task, so that in comparison to other staff members they will have a deeper and broader knowledge of the subject, allowing them to assist their colleagues in applying the right patient handling methods. It makes sense to choose two to three ergo-coaches per unit, so that the system also functions well in case of staff turnover. The names of trained staff are recorded, and ergo-coaches check if refresher training is needed and monitor once yearly if patient handling skills are up-to-date. Part of the training budget must be reserved for ergonomics training for patient handling.

The trainer should preferably be a person who has an 'Ergonomic Patient Handling Card'-trainer qualification. The training should meet the needs and level of the group, so that it is beneficial if the trainer can familiarise him- or herself with the everyday routine of the trainees by making a patient handling risk assessment or a training need and level assessment. The group size should allow practical exercises and individual guidance, and there should be no more than 12 persons per trainer. Sufficient time also needs to be planned for the training, a fact which must be taken into account when planning shifts. It has been shown that 16 hours is enough for a group with similar training needs and know-how to master the basic facts and skills. Whether assistive products are needed should be determined before organising a training session; if so, then the necessary equipment needs to be borrowed or bought, so that it can be used immediately.

For new employees and students there is an introductory programme showing the unit's practices with patient handling situations.

Training content

Training content is based on needs analyses. As a guideline the learning content of the teacher's handbook *Potilaan siirtymisen ergonominen avustaminen* ('Ergonomic assistance in patient handling'; Tamminen-Peter

et al. 2007) may be used. The training should emphasise practical exercises such that the theoretical part should not require more than a third of the time allotted to the training.

Recommended learning content:

- ergonomics of patient handling
- occupational safety responsibilities and obligations related to workplace instructions
- hazard factors in patient handling and risk management
- natural movement patterns and the control of one's own body
- assessment and activation of the patient's physical ability
- the principles and application of assistance in various handling situations, such as getting up from a lying or sitting position, turning and moving in bed, assistance in the toilet, getting up from the floor
- assistive products and patient lifts
- skills for solving problems
- recording

4.2 Tasks and training for ergo-coaches

Implementation

- Appoint ergo-coaches.
- Define their tasks.
- Agree on their authority.
- Agree on co-operation and how their know-how is kept up-to-date.

Ergo-coaches are chosen among healthcare workers interested in ergonomics and rehabilitative care work. It is practical to agree on the tasks of the ergo-coaches in the work community and to write them down. The task description is updated annually or when necessary. Below is an example of what the tasks of ergo-coaches may entail (I), under what authority they act (II) and how their know-how is kept up-to-date (III).

I Tasks

The ergo-coaches

- advise ergonomic work practices to work colleagues, new employees, substitutes and students; if possible also to the patient's relatives;
- gives guidance to patient handling situations mainly occurring in connection with daily care work
- organises refresher training of assistance and handling skills for example at unit meetings, so that know-how is kept up-to-date
- assesses the staff's need for training and informs the supervisor of training needs that have arisen
- keeps a record of training participants
- discusses together with the patient's primary nurse the patient's assistance method and need for assistive products
- trains and advises with regard of the use of new assistive products
- invites product representatives to the workplace and organises familiarisation sessions for new assistive products
- receives acquisition wishes from the staff and makes suggestions for the acquisition of assistive products
- goes through wishes and suggestions with the supervisor, after which they are added to the procurement plan
- monitors the use and condition of assistive products and takes care of the assistive product and device register
- monitors the documentation of physical ability and patient handling
- collects information on the use of assistive products and the implementation of agreed practices at the unit for the monitoring of the management model (Table 4, p. 27)
- collects information on own time spent on guidance and advising for the monitoring of the management model.

II Authority

The ergo-coach plans the patient assistance and assistive product training at the unit. By common agreement they may intervene in colleagues' work practices if the organisation's safety instructions and mutually agreed practices are not observed. They encourage the implementation of ergonomic solutions and inform the charge nurse of care practices. They are also authorised to intervene in other ergonomic problems.

III Keeping know-how up-to-date and cooperation networks

Ergo-coach networks with other ergo-coaches within the organisation and also participates in meetings for ergo-coaches which for example the occupational physiotherapist can organise at least once yearly. They maintain their acquired skills by refreshing them together with other ergo-coaches. They should have the opportunity to consult with the rehabilitation staff if necessary. It makes sense to appoint a person in work units who helps the ergo-coaches in rehabilitation matters.

Ergo-coaches deepen and update their know-how if necessary by participating in training organised outside of the organisation. They follow the development of assistive products, for example by going to assistive product fairs, and actively acquire information about the subject themselves. It is recommended that they can show proof of their skills, for example through possession of the Ergonomic Patient Handling Card.



Figure 6. *The Finnish Ergonomic Patient Handling Card.*

In Finland ergo-coaches have possibility to join the national Interactive Communication Network of Patient Handling Ergonomics and to participate in the annual networking seminars. The network is based on spontaneous participation and it aims at keeping activity open and transparent, emphasizing a sense of responsibility, confidentiality, equality and commitment. One can join the network in Finland in the internet: <http://www.sotergo.fi/>



Lightening the workload with assistive products

The physical strain of healthcare work can be reduced with assistive products that facilitate the moving and handling of patients. An assistive product can be any product preventing, compensating or neutralising activity limitations and participation restrictions, such as the independent moving of patients (EN ISO 9999). Assistive products facilitate patient moving whilst reducing the workload of the assisting care worker (Zhuang et al. 1999). Proper maintenance of assistive products increases both work and patient safety.

5.1 Assistive products and devices for patient handling

Implement

- Agree on the content of the list of assistive products and devices.
- Decide on a responsible person and location for the list.
- Decide where the assistive products are stored.
- Decide on procurement procedures.

Assistive products for patient moving can be classified into assistive products for moving and turning, patient lifting products, assistive products for walking, and support devices (EN ISO 9999). In addition, care workers' ergonomics can be improved by various height-adjustable and wheeled devices, such as worktables, work chairs, shower chairs and electric adjustable beds for patients (Appendix 3). A patient lift especially reduce strain on the assistant's back, and height-adjustable fixtures and assistive products that support hand-holding reduce the static load on the care worker (Marras et al. 1999; Zhuang et al. 1999).

Employers must obtain assistive products for employees' use in order to avoid the danger of accidents and illness (Finnish Occupational Safety and Health Act 2002/738, Section 24). The employer must also ensure that the assistive products function properly and that they are safe. A list of the assistive products and devices available at the workplace, updated by the ergo-coach or the responsible nurse for devices, is convenient for maintenance. The instruction and maintenance manuals should be stored with the list, and their location should be generally known. Cooperation between different units of the organisation with regard to temporary assistive product and device needs is recommended.

Assistive products for patient handling are positioned such that their use is safe and unproblematic. Storage areas for assistive products and devices are mutually decided on at the workplace. A precondition for their use is that they are in the vicinity of patients and care workers, can be employed quickly, and that everybody knows how to use them.

Figure 7. Storing assistive products and devices in patient's room.



Figure 8. Using assistive products and devices in a different patient handling situations.



Transferring a patient with a sliding sheet from a shower trolley to the bed.



Assisting a patient with a sling as pair work.



Moving a patient with a standing aid.



Transferring a patient with a ceiling lift.

For example, transfer belts and sliding boards should hang on hooks in patient rooms, sliding mats should be in bathroom cupboards and lifts at the end of the corridor, ready for use.

Table 4. *User experiences of assistive products and devices.*

Product group and products (exact name and product code)	What works well in practical use	What does not work in practical use	Other information (e.g. serviceability)
1. Assistive products for handling and turning (e.g. sliding boards, sliding mats, sliding sheets, turntables, lifting devices, rope ladders, transfer belts, transfer platforms)			
2. Assistive products for moving (walking frames, sledges, rollators)			
3. Assistive products for lifting (mobile hoists with sling seats, standing mobile hoists)			
4. Ceiling lifts			
5. Shower chairs, shower trolleys			
6. Patient beds			
7. Wheelchairs, geriatric chairs			
8. Others			

Use of assistive products and devices for patient handling are mutually agreed on at the workplace so that everybody commits to and observes safe working practice. A plan is drawn up for the acquisition of assistive products and devices, so that the procurement practice is transparent to everybody and each employee has the possibility to participate in the procurement of workload-reducing assistive products.

ex.

Example of a procurement plan and practice for an elderly care unit:

- The ergo-coaches ask product representatives to make annual visits to the unit in order to introduce new products to be tested.
- During the test period usage experience concerning the product is systematically collected (Table 4).
- The ergo-coaches collect acquisition wishes from the staff throughout the year.
- The charge nurse compiles a short-term and long-term plan on the basis of staff wishes and experiences.

5.2 Maintenance and service practices

Implement

- Agree on initial inspection and regular maintenance and service practice.
- Appoint responsible persons.
- Agree on practices on how to act when faults occur.
- Write down other mutually agreed service practices.

Maintenance and service practices involving hygiene apply to the following devices:

- beds
- patient lifts
- small assistive products for patient moving
- wheelchairs and geriatric chairs
- assistive products for moving (rollators, walking sticks, walking frames)
- shower chairs and beds

Assistive products and devices must be kept safe and in good working order throughout their whole operational life by regular service and maintenance (Finnish Government Decree on the Safe Use and Inspection of Work Equipment 403/2008, Section 5). In connection with the initial inspection, the employees must familiarise themselves with the usage and functioning of the product. It must be ensured that everybody undergoes usage training.

If there is a defect in any assistive product or device the employee noticing it is under the obligation to ensure that the maintenance process for the product is set in motion. The person responsible for workplace devices or ergo-coach can be assigned tasks such that the risks of physical strain at the workplace can be more easily controlled and risk-related matters systematically attended to. The correct use of equipment can be ensured by attaching instructions to the assistive products and devices. Instructions help employees to remember the mutually agreed rules concerning for example product maintenance practices.

An initial inspection must be carried out on all new electric devices before they can be put into use. It is practical if these inspections are the responsibility of one person, who also would be responsible for the updating of the list of assistive products and devices. Maintenance staff is informed of the arrival of a new electric product, e.g. a bed or lift, so that they can inspect it, and the product supplier must be informed immediately of any faults observed during the initial inspection. Before the device is utilised, employees are instructed and trained in its use. Students and new employees must also be taught how to use the assistive products. The functioning of the device must be controlled before it is used to handle patients.

In order to work safely with the assistive products regular service practices and inspection times must be established. For example, patient lifts should be serviced once yearly, whereas for electric adjustable beds twice yearly is recommended. Loading practices for patient lift batteries must be established so that situations endangering patient and work safety can be

prevented. Familiarisation with the instructions for patient lifts should be already conducted during their initial inspection, as device producers have specific recommendations regarding the charging of patient lift batteries.



Figure 9. Labelling broken assistive products promotes occupational safety.

Maintenance of wheelchairs, shower chairs and other assistive products is carried out as needed. It is useful to establish who at the workplace is responsible for the monthly maintenance measures for the assistive products, such as checking the brakes of wheelchairs and electric adjustable beds and controlling the hygienic conditions of the assistive products. The same person could also be responsible for ensuring that the controls of the beds and patient lifts are carried out on time. A maintenance sticker attached to the legs of beds and patient lifts is a good way to show the last maintenance and service date.

If an assistive product or device breaks, the superior and the other employees are told. In urgent situations a fault report is made by phone to the maintenance person, whilst in non-urgent situations a fault notification form is filled out (Appendix 3), the location and forwarding of which has been mutually agreed on. A broken assistive product or device is moved to the storeroom or other location where the maintenance person can pick it up for repairs. If possible a new device must be brought in at the same time to replace the broken one. The superior is informed orally of any assistive product faults; other employees are informed at unit meetings. If the fault has caused a dangerous situation, see paragraph 6.1 'Dealing with dangerous situations' of the risk management model.

ex.

Example of the tasks required of responsible for assistive product or ergo-coaches in order to manage the physical risks at the workplace. Their job description includes:

- being in charge of initial inspections of the devices
- maintaining and updating lists of assistive products
- familiarising other employees with the use of the devices
- compiling simple device-specific instructions for use
- ensuring that the devices are regularly maintained
- ensuring the availability of fault report forms
- ensuring that the devices are in order and in the right location
- following assistive product manufacturer advertising and helping charge nurses or officers with ordering new assistive products



When safety incidents happen

Implement

- Collect regulations and instructions related to patient safety incidents and near misses, violent and threatening situations and occupational accidents.
- Record the organisation's general guidelines, forms and the locations where they can be found.
- Agree on how to deal with incidents at the unit.

It has been shown that reporting and dealing with patient safety incidents at the workplace significantly improves occupational safety and helps to target occupational safety measures at the right problems. The point of the procedure is not to look for a guilty party, but instead to find the causes of the situations as well as methods to prevent them from happening again. Writing and processing reports is best done where the work is carried out, i.e. at the work units. The aim of the report system is to detect all situations where treatment errors and aberration occur in order to prevent harm. In order to prevent harm from happening, it is necessary to know what kinds of mishaps occur and in what kinds of situations (Pasternack 2006).

6.1 Dealing with patient safety incidents

Dealing with patient safety incidents promotes occupational and patient safety. For example, the use of a damaged sling may endanger the patient's safety in handling situations and may cause both the patient and the assisting healthcare worker harm. Whether a patient safety incident turns into a near miss or an adverse event depends on the incident (Figure 10, p. 42).

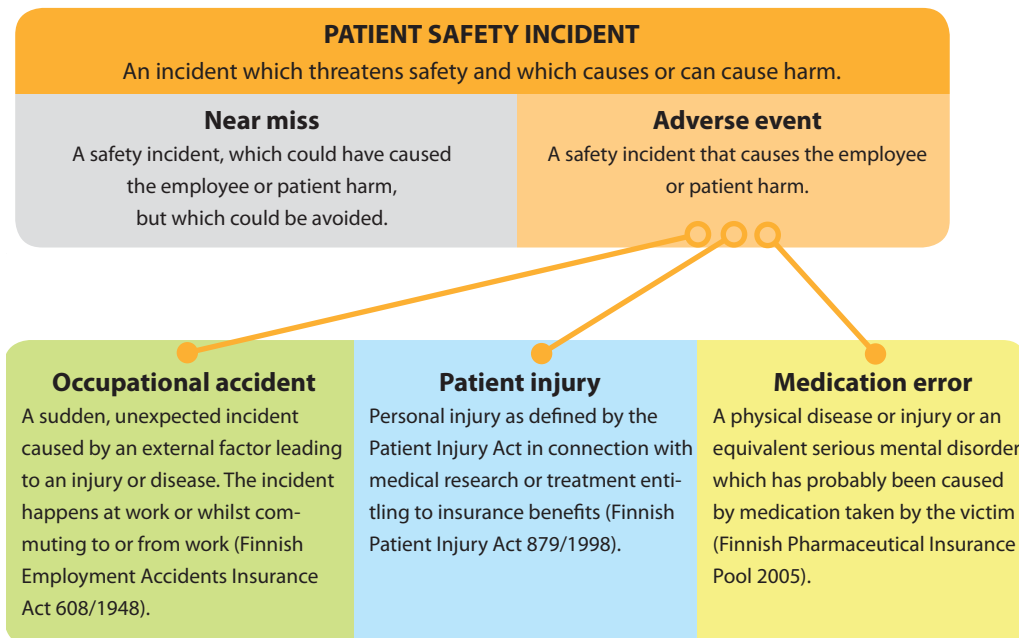


Figure 10. Hierarchy and differences of concepts concerning patient safety incidents.

Patient safety incidents are reported to the superior as quickly as possible. The report can be made using the form (Appendix 4) or in free format. A web-based tool has been developed in the HaiPro project (www.haipro.fi) for the reporting of patient safety incidents; this tool is now widely used in the Finnish healthcare. The report may also be a notification of a fault or defect as referred to in Section 19 of the Finnish Occupational Safety and Health Act, to which the employer must give an answer. Workplace practices concerning the reporting of patient safety incidents should be included in the management model for physical risks.

When an employee sustains an accident, the event must be notified immediately to the employer. The employer must promptly notify the insurance company of an employment accident for which the insurance company is likely to incur a liability to pay compensation (Finnish Employment Accidents Act, Section 39).

A notification form for an employment accident is included as Appendix 5. If it is an electric accident, an electric accident notification must be submitted also to the Finnish Safety and Chemicals Agency ('Tukes' in Finnish) (TUKES Instruction S4-2004; Appendix 6).

An employment accident which results in death or serious injury must be immediately reported to the occupational safety authorities, the police, and the insurance company. A serious injury is one that in all likelihood results in permanent damage and impedes the normal activities of the injured person. A more detailed description of a serious injury and the notification procedure can be found on the website of the Finnish Occupational Safety and Health Administration (<http://www.tyosuojelu.fi/fi/tapaturmailmoitus/837>; accessed 25 March 2010). After the notification an accident investigation must be carried out at the workplace. Instructions for carrying out such investigations can be found on the website of the Centre for Occupational Safety ('Occupational Safety – Employment Accidents – Accident Investigation'). In the most serious situations a debriefing session should be organised for the work community, which aims at alleviating the effect of the occurrence and helping staff to recover from it.

The supervisor discusses the patient safety incident reports at unit meetings. At such meetings measures ensuring that similar situations do not occur in future and on the division of labour for the implementation of preventive measures shall be agreed on by mutual consent.

6.2 Violent and threatening situations

Work-related violence or the threat of it can affect every employee or patient, and even minor violent or threatening situations may cause psychological trauma and absences from work due to illness. Staff and patient safety and comfort can be increased by making the prevention of violent and threatening situations more effective (Saarela et al. 2009).

Workplace violence refers to violent or threatening behaviour by clients or other outsiders towards employees, their relatives or patients. Violence may

occur at the workplace, on the way to or from work, or places equivalent to the workplace, e.g. at a patient's home. Manifestations of workplace violence are threatening behaviour, phone harassment, molestation, intimidation and physical violence. In care work work-related violence may occur for different reasons, e.g. due to treatment not wanted by confused or mentally ill patients or disagreements about treatment or necessary services. Working with patients at home or working alone also increases the risk of violence. Sometimes the relatives or persons accompanying patients behave unexpectedly or in a threatening manner. (Puumi 2008).

Reporting violent and threatening situations is important, as it makes it easier to monitor how situations have changed. One can also learn from such situations, and information in the reports can be used when planning defensive measures. Employees who experience a violent or threatening situation have a mandatory reporting obligation, and common reporting procedures can be agreed on at the workplace. Useful for such reports is for example the KAURIS procedure form for reporting violent and threatening situations (KArtoita Uhkaavat työväkivaltaRISkit 'Charting the risks of violence at work; Appendix 7) (Saarela et al. 2009).

Physical or psychological violence at the workplace cannot be tolerated. Employees must be aware of the risk of violence at work, and as a precautionary measure a written code of conduct for the prevention of violence and the management of violent situations should be drawn up. If violent or dangerous situations do occur, the superior is responsible for the further handling of the situation and the necessary corrective measures. The superior submits a report to the occupational safety representative and the matter will be dealt with in the occupational safety body for cooperation. Preventive measures resulting from violent and threatening situations are to be implemented at workplaces. If necessary, help can be obtained from the occupational safety staff.



Monitoring results

It is important to monitor whether the objectives set in the management model for physical risks have been attained to establish if safety has become part of the normal working day. In this way also information about employees' wellbeing and any changes in it can be obtained. The implementation of the objectives is continually followed when matters related to the management model are discussed in general meetings. Each employee controls if for example the maintenance of an assistive product they have brought into use is progressing satisfactorily. Ergo-coaches and responsible for assistive products control both during work and at meetings if their recommendations have been implemented. The superiors' task is to encourage and remind and to monitor how agreed matters are carried out. Superiors also have a reporting obligation concerning the monitored matters to the top management, who deal with them regularly at their meetings.

Matters to be monitored annually are accidents (number and seriousness), reported patient safety incidents and near misses, absences from work due to illness and especially absences from work due to musculoskeletal disorders. Risk assessment information is also collected and implemented measures updated.

Monitor indicators of care workers' experience of strain, work ability and physical condition include the 'Strain and Job Satisfaction'-questionnaire (Appendix 8) and the work ability and walking test used as indicators by the occupational health service.

There are a number of possibilities for monitoring at the unit:

- care quality indicators, which also include ergonomic factors
- the monitoring and internal auditing of recordings for care plans (the charge nurse and care teams countercheck)
- bringing up competence of patient handling skills and care worker strain during performance appraisals
- monitoring the use of assistive products and work strain using for example the Care Thermometer

Ergo-coaches monitor the use of assistive products at the unit, their own time use for guidance and instruction, and the implementation of agreed practices. Performance is reported on and is discussed both in the group that compiled the model and in the care community. Possible rewards for those who have committed to the agreed safe practices can be discussed at the common meetings.

In the work community rewarding is already the fact that monitoring reveals work to have become easier and safer, and that it plays a role in improving the physical ability of the patients. If not always every method is successful, so new approaches can be considered with the help of the monitoring results and re-assessment. The implementation of the management model for physical risks supports care communities in their continuous development, and according to research the physical risks of care work can be reduced by long-term and systematic occupational safety action at the workplace.

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APPENDICES

Appendix 1 Case overviews

AINO in a nutshell...

Aino has lived in the house for many years.

She's a sewer by trade and used to be interested in an active role in organisational politics.

A favourite topic of conversation is her only son, Åke, whom Aino had raised alone on her income after her spouse's untimely death.

She has many favourite colours and she wears all kinds of clothes as long as they are not too big and baggy.

She likes food made out of mince washed down with a glass of milk. She also likes yoghurt, but she is less keen on fish, porridge and vegetables.

MAINTAINING FUNCTIONALITY

DAILY FUNCTIONALITY

Self-help and cooperation in basic tasks, such as dressing, personal hygiene and eating.

Aino can brush her own teeth, wash her face and hands and assist in dressing by, for example, lifting her legs or pulling her trousers up.

She can eat on her own, although some reminders are needed on occasion.

Functionality varies daily; Aino has trouble concentrating from time to time and she can find instructions disheartening.

TRANSFER PLAN

ROLLATOR, ONE ASSISTANT

Aino can adjust her position in bed well and moves upwards when instructed. The assistant can lightly help her by placing hands under her shoulders to assist movement. Getting out from bed is not a problem, although sometimes she may benefit from a helping hand.

Otherwise Aino needs a lot of verbal guidance, for example, how to hold on to the rollator and which direction she should go. Her right hip is weaker due to a fracture and her walking varies from heavy limping to swift walking. Verbal guidance is enough when sitting down at the table or in a lounge chair; she also manages getting up quite well as Aino has good stomach and thigh muscles.

Sometimes Aino decides to move on her own, which creates a significant risk of collision or fall. When only one assistant is present and Aino must be left alone, for example in the toilet, it is justifiable to use safety belts.

KAISA in a nutshell...

Kaisa has lived in the house for many years.

She has worked among other things as a librarian at the health centre and she has taught lace-making as she is very good with her hands.

Kaisa and her husband Pentti have three children; Anna, Saana and Juho, and many grand children.

Kaisa likes Marimekko designer clothes and she has her own beautiful clothes that she likes to wear. Her own room is important to her; she likes to spend time there relaxing and watching TV. She wants to stay informed of the world around her and she reads her newspapers with great care and attention.

Kaisa likes almost all types of foods. She likes fish and she often has her own herring and other foods in the fridge.

MAINTAINING FUNCTIONALITY

DAILY FUNCTIONALITY

Self-help and cooperation in basic functions like dressing, personal hygiene and eating.

Kaisa can use a wash-cloth to wash her own face etc. She undresses her pyjamas and dresses herself as much as possible, including putting on her shirt and doing up her own buttons.

Kaisa can eat independently, although sometimes her shaking can slow her down.

STIMULATION

- One-on-one conversations
- Reading newspapers, watching TV
- Taking part in exercise sessions and book club meetings and reminiscing about the past.
- Walking as much as possible with a Zimmer frame
- Enjoying the outdoors

ELINA in a nutshell...

Elina has lived in the house for a couple of years.

She worked as the hostess of a farm and she's been active in the Martha Organisation. Arts and crafts, particularly knitting, has been a dear hobby of hers. Keeping her home clean and in order has been important for Elina.

Elina and her husband have one daughter, Leena. She has also taken care of her own parents (her father helped take care of her mother, whose legs had to be amputated).

She loves cats and her two cats, Miina and Liina (latter nicknamed Lilla-Liinu), enjoyed long lives with Elina.

Elina likes all foods and she likes to walk around with her Zimmer frame. Elina likes to keep her hands busy and she likes to browse through magazines.

MAINTAINING FUNCTIONALITY

DAILY FUNCTIONALITY

Self-help and cooperation in basic functions like dressing, personal hygiene and eating.

Elina can somewhat take part in undressing, dressing and washing herself, but this is irregular and slow.

She can eat independently. She cannot sit up straight so her cutlery is good to be placed clearly on the left. She can drink coffee in a lounge chair, where she is more comfortable.

TRANSFER PLAN

ROLLATOR, ONE ASSISTANT

Elina's functionality is limited by a number of reasons, including crooked back, muscular rheumatism and Alzheimer's disease, which all slow her down, make her inflexible and sometimes cause her pain.

Elina has a tendency to sit up in bed and then slide down to the bottom of the bed. Sometimes she sits on the side of the bed with her legs over the side. Elina cannot assist in moving to the right position. Sliding sheet can be placed lower than normal in the bed and she can be moved up with the hygien underpad.

Best way to get her out of bed is to turn to her side and lift her bed to the sitting position. Sometimes she gets up on her own by using her rollator, but usually she gets up by lifting the bed or by helping her by her hand or back.

Elina can move independently using a rollator and she can start moving and sit down if she wants to; it just takes some time. She does, however, need assistance when she needs to sit down at the table.

Elina can leave the toilet on her own, so when only one assistant is on duty, the use of safety belt is justified.

STIMULATION

- One-on-one conversations
- Reading newspapers at the table and in bed
 - Keeping her hands busy
 - Taking part in group activities
- Encouragement to independent movement
 - Enjoying the outdoors

MATTI in a nutshell...

Matti has lived in the house for a few years.

Matti has primarily been a farmer and he's worked as a stone mason and a labourer in a port on the side. He has travelled extensively with his family in their caravan and they have visited, among others, Sweden and Norway. Later in life Matti learned to bake and his treats gained some local fame for being exceptionally good. He also likes to sing and he has a good memory for lyrics and he has a good singing voice.

As a young man, Matti went to find a bride in Laitila as the girls in his own village weren't good enough for him. In Laitila he met the beautiful and red-headed Lahja. Matti and his wife have two children, Hannu and Kaarina. Children are important to him. Matti took care of his wife almost all the way to the end.

They had a lot of animals in their farm, including dogs, cats, horses, cows and pigs.

Matti likes all foods although he rarely goes for seconds. He can walk using a rollator with some assistance. Matti cannot manage long walks due to aching knees. He tends to take very short steps, but when ordered to march he can improve.

MAINTAINING FUNCTIONALITY

DAILY FUNCTIONALITY

Self-help and cooperation in basic tasks, such as dressing, personal hygiene and eating.

Transfers and walking with a rollator.

STIMULATION

- One-on-one conversations
- Reading papers at the table and in bed
 - Keeping his hands busy
- Taking part in group activities
- Encouragement to independent movement
 - Enjoying the outdoors
 - Singing

Appendix 2. Classification of patient movement assisting products.

1) Transport and turning assisting products

= equipment that helps change position

Sliding boards, sliding mats, sliding sheets

Turning boards

Raising supports, moveable

Robe ladder

Handling belt

Transfer platforms



Image: Lojer Oy

2) Assistive products for lifting

= equipment for transferring by lifting and (re)positioning a person to enable an intended activity

Mobile hoists with sling seats



Images: Algol-Trehab Oy and PT-keskus

Standing aids*



Images: Vestek Oy and PT-keskus

Ceiling lifts*

Image: Algol-Trehab Oy

Hoist trolleys

Image: Lojer Oy

3) Assistive products for walking, manipulated by one or by both arms

= devices supporting the users walking

Walking-sticks, elbow crutches, walking-sticks with legs

Walking frames

Rollators

Walking chairs and tables

Walking belts

ISO 9999 standard has been used in the classification and definition of assisting products.

* Classification is based on general language rather than the standard.

4) Support devices

Hand-rails and support-rails

Grab-rails and hand-grips

Supporting armrests



Image: EN-assisting equipment

5) Different assistive products, which helps assistant workposture



Image: PT-keskus



Image: PT-keskus

Human-driven wheelchairs and powered wheelchairs*

Hi-lo hygiene chairs*

Multi-purpose hygiener chairs*



Image: Lojer Oy

Hi-lo shower trolley***Powered hi-lo beds**

Image: EN-apuvälineet



Image: Lojer Oy

Geriatric chairs

ISO 9999 standard has been used in the classification and definition of assisting products.
* Classification is based on general language rather than the standard.

APPENDIX 3. Fault notification form

Fault notification form

Caretaker:		
Objective of corrective action:	Orderer:	date:
Return to:	Receiver:	date:
Service Request		
Place:	Room number:	Cost pool:
Problem:		
Who notified:		date:
Signature (servicer):		date:
Signature (receiver):		date:

APPENDIX 4. Dangerous incident notification

Notification date _____

Unit/Department Form filler's unit _____
Unit where the incident happened _____

Notifier's Occupational group _____

Incident time Date _____ time _____
Type of incident near-miss () happened to patient ()
happened to carer ()

Incident type _____

Incident description

What happened and what resulted to the patient, ward, nurse:

Also describe the conditions when the incident took place and other reasons that had an effect on the incident:

Who has been notified:

Date: _____

Incident has been dealt with together, date: _____

NOTICE OF ACCIDENT/OCCUPATIONAL DISEASE

Based on the Employment Accidents Insurance Act effected on August 20, 1948 and on related Acts and Decrees.

1. EMPLOYER DATA	Name of employer (official name of company)							
	Telephone		Fax		E-mail address			Business ID
	Address				Postal code		City	
	Field of operations				Policy code		Code of group of companies	
	Bank data (full bank account No.)				Unit or department or departmental code of the company			
2. DATA ON THE INJURED PERSON	Family name and all given names (first name underlined)			Telephone		Personal identity number		
	Address			Postal code		City		Language <input type="checkbox"/> Fin <input type="checkbox"/> Eng
	Nationality		Occupation		Bank data (full bank account No.)			
	Municipality of taxation			Withholding tax percentage (data in tax card)				
				Basic percentage		Additional percentage		
	Income limit up to which basic withholding tax percentage applies (in a year)							
	Scaled withholding tax percentage (e.g. schoolchildren and students)							
	% up to EUR				% up to EUR of which already paid in salary, EUR			
	Is the injured a shareholder in the company? <input type="checkbox"/> No <input type="checkbox"/> Yes; percentage of shares owned by the injured either alone or together with family members %				Does the injured live permanently in the employer's household? <input type="checkbox"/> No <input type="checkbox"/> Yes; how is the injured related to the employer or his/her spouse?			
	3. DATA ON INJURY OR ILLNESS	Date when injury occurred/occupational disease was detected			Weekday		Time	
Accident occurred in (city, municipality and address)								
Did the accident occur at work premises or in an area related to work premises?								
<input type="checkbox"/> At work		<input type="checkbox"/> Not in working duties, specify where			<input type="checkbox"/> During coffee or lunch break			
Did the accident occur outside work premises?								
<input type="checkbox"/> In working duties		<input type="checkbox"/> On the way home from work		<input type="checkbox"/> On another trip, specify				
<input type="checkbox"/> During coffee or lunch break		<input type="checkbox"/> On the way from home to work		<input type="checkbox"/> In leisure time				
On the date of accident work was due to		Did the injured stop working after the accident occurred?			Notification date			
to begin at _____ end at _____		<input type="checkbox"/> No <input type="checkbox"/> Immediately <input type="checkbox"/> Later, date and time			<input type="checkbox"/> No <input type="checkbox"/> Yes			
Medical treatment began		Date		Name and address of hospital, health care centre or other nursing institution				
<input type="checkbox"/> Immediately		<input type="checkbox"/> Later						
Duration of disability (estimated by the person filling in the form)					Has the injured returned to his/her previous work?		Date of return	
1 <input type="checkbox"/> Date of occurrence		2 <input type="checkbox"/> 1 to 2 days		3 <input type="checkbox"/> 3 days to one month		4 <input type="checkbox"/> Over one month	<input type="checkbox"/> No <input type="checkbox"/> Yes	
Additional information on accident is given by (e.g. superior, supervisor; name, address, telephone No. and e-mail)								
4. TYPE OF INJURY	Type of injury (e.g. fracture, contusion, bum or scald, strain, rash; the view of the person filling in the form is sufficient)							
	Injured part of the body (e.g. eye, back, fingers, legs)							
		<input type="checkbox"/> Right <input type="checkbox"/> Left						
5. HOW DID THE ACCIDENT HAPPEN / OCCUPATIONAL DISEASE OCCUR?	Explanation about the accident and the reasons behind it or about the occurrence of occupational disease and about the working environment. 1. WORKPLACE ACCIDENT: account shall be given of the following matters: the type of work (<i>production, maintenance, seamen's work, etc.</i>) and work duties (<i>drove a forklift truck, lifted a load etc.</i>) the person was performing at the time of accident. Which deviations from normal functioning caused the accident (<i>power failure, losing control of a manual grinding machine, slipping, etc.</i>)? How was the injury sustained (<i>cut by a tool, piece of rubbish flew into the eye, etc.</i>)? What caused the injury (<i>pressing machine, lathe, ladders, racks, etc.</i>)? 2. ACCIDENTS SUSTAINED ON THE WAY TO/FROM WORK: account shall be given of what caused the accident, the way the person travelled, any deviation from the normal route to/from work, and the reason for the deviation. 3. OCCUPATIONAL DISEASE: account shall be given of the suspected reasons for the occupational disease (name of chemical substance etc.).							
Classification codes of workplace accident can be marked in the points below								
Working process (A)	Working activity (B)	Variable (C)		Mode of injury (D)		Cause of injury (E)		

6. ADDITIONAL INFORMATION ON ACCIDENT	Registration number or other code of motor vehicle used by the injured		Motor third party liability insurer	Participation in traffic <input type="checkbox"/> as passenger <input type="checkbox"/> as driver	
	Registration number or other code of vehicle used by the other party		Motor third party liability insurer		
	Was the accident caused by the injured person's intoxication, negligence or act against occupational safety regulations? <input type="checkbox"/> No <input type="checkbox"/> Yes; explain				
	Was accident caused by another person? <input type="checkbox"/> No <input type="checkbox"/> Yes		How was it caused and by whom? Name and address		
	Was police investigation made? <input type="checkbox"/> No <input type="checkbox"/> Yes; name of police department				
Accident eye-witnessed by, name, address and telephone No.					
7. NOTIFICATION IN THE EVENT OF DEATH	Date of death of the injured	Next of kin (how related, name)			
	Manager of the decedent's estate, name, address and telephone No.				
8. EMPLOYMENT DATA	Date employment started		Fixed-term employment		
	<input type="checkbox"/> Date employment started		<input type="checkbox"/> Date when fixed-term employment was supposed to end?		
	Principal occupation	Ancillary employment	Student	Pensioner	
	<input type="checkbox"/> Name of educational establishment		<input type="checkbox"/>		
	Weekly working hours	If part-time employment, daily working hours, number of working days per week and reason for part-time employment			
Additional information on employment and salary given by (e.g. payroll calculation officer, name, telephone No. and e-mail)					
DATA FOR PAYMENT OF DAILY BENEFIT					
9. ILLNESS PAY -Total amount of illness pay for four weeks following the accident. (not for the date of accident)	Illness pay for the period of		EUR		
	Illness pay for the period of		EUR		
	Date illness pay obligation ends		Illness pay is determined on the basis of		
	Was illness pay paid for the whole disability period or for only part of it e.g. because of lay-off or part-time pension? <input type="checkbox"/> For the whole disability period <input type="checkbox"/> Only partially (also fill in the item Salary data, item 10)				
	Was only part of the salary paid as illness pay? (e.g. 50% of salary in case the employment has lasted less than a month)? <input type="checkbox"/> Yes; also fill in the item Salary data, item 10				
10. SALARY DATA To be filled in if no illness pay was paid or if only part of the salary was paid as illness pay or if the illness pay was paid only for part of the time of disability.	Salary for four weeks before the accident (e.g. the last two two-week payroll periods) or for a shorter period which the employment lasted (no salary data on the date of accident). State accrued salary for the period, without benefits in kinds and holiday pay.				
	Period		EUR		
	Period		EUR		
	Basis of salary, EUR per hour		Number of workdays or working hours included in above period		
	Unpaid periods of absence in above period; time and reason				
	Monthly salary	Salary at the time of accident, EUR per month		Any bonuses, type of bonuses and average, EUR per month	
11. OTHER EMPLOYMENT AND ENTREPRENEURIAL ACTIVITY	Are there other employers simultaneously? <input type="checkbox"/> No <input type="checkbox"/> Yes				
	Name and address of other employer				
	Has the injured simultaneously worked as an entrepreneur? <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> As an agricultural entrepreneur <input type="checkbox"/> As some other entrepreneur: Type of entrepreneurial activity				
12. OTHER PAYMENTS OR BENEFITS FROM THE EMPLOYER	Other payments than illness pay, EUR, e.g. medical treatment expenses (enclose receipts)				
13. PAYMENTS BY THE INJURED	Medical treatment expenses (receipts), EUR		Travel expenses (receipts), EUR		Other expenses (receipts), EUR
	14. SICKNESS INSURANCE Was daily benefit under sickness insurance applied for because of the accident? <input type="checkbox"/> No <input type="checkbox"/> Yes			Name of local Social Insurance Institution office	
15. SIGNATURE	Place and date			Signature and name in block letters, telephone No. and e-mail address of employer or representative of the employer	

Päivämäärä

VARO-numero (TUKES täyttää)

1. Lomakkeen täyttäjä	Nimi		Jakeluosoite	
	Postinumero	Postitoimipaikka	Puhelinnumero	Telekopionumero
2. Lisätietojen antaja	Nimi		Jakeluosoite	
	Postinumero	Postitoimipaikka	Puhelinnumero	Telekopionumero
3. Uhrin tiedot	Sukupuoli <input type="checkbox"/> Mies <input type="checkbox"/> Nainen		Ikä	
	Ammatti		vuotta	
	Ammattitaito sähköalalla <input type="checkbox"/> Sähköalan ammattilainen <input type="checkbox"/> Tehtävään opastettu henkilö <input type="checkbox"/> Maalikko			
4. Tapahtuma	Tapahtuma			
	Tapahtuman aika ja paikka			
5. Kuvaus onnettomuudesta	Kuvaus			
(tapahtumien kulku, seuraukset, onnettomuuden syyt, miten vältetään)				

6. Tapaturman tyyppi	<input type="checkbox"/> Työtapaturma <input type="checkbox"/> Vapaa-ajan tapaturma <input type="checkbox"/> Läheltäpiti -tapahtuma
7. Tapaturma- paikka	<input type="checkbox"/> Teollisuusympäristö, sähköyhtiöiden kytkinlaitteistot <input type="checkbox"/> Liike-, toimisto- tai muu julkinen rakennus <input type="checkbox"/> Asuinrakennus <input type="checkbox"/> Ulkoalue <input type="checkbox"/> Muu, mikä:
8. Tapaturman aiheuttaja	Sähkölaitteisto <input type="checkbox"/> Voimalaitos <input type="checkbox"/> Sähkön käyttäjän laitteisto <input type="checkbox"/> Siirto- tai jakeluverkko <input type="checkbox"/> Sisäasennukset <input type="checkbox"/> Sähköradat <input type="checkbox"/> Ulkoalueiden sähköasennukset <input type="checkbox"/> Kytkinlaitteisto <input type="checkbox"/> Muu <input type="checkbox"/> Muu, mikä:
9. Jännitteen laji ja suuruus	Vaihtojännite <input type="checkbox"/> $U \leq 1000$ V <input type="checkbox"/> $1000V < U \leq 24$ kV <input type="checkbox"/> $U > 24$ kV Tasajännite <input type="checkbox"/> $U \leq 1500$ V <input type="checkbox"/> $U > 1500$ V
10. Tapaturman syy	<input type="checkbox"/> Uuden käyttöön otetun laitteen tai laitteiston rakenteellinen vika <input type="checkbox"/> Käytössä (ajan myötä) vaaralliseksi tullut laite tai laitteisto <input type="checkbox"/> Virheellinen toiminta/inhimillinen virhe <input type="checkbox"/> Muu
11. Vamman synty tapa	<input type="checkbox"/> Virran kulku kehon läpi (sähköisku) <input type="checkbox"/> Valokaari <input type="checkbox"/> Sähköiskun aiheuttama putoaminen tms. seuraus <input type="checkbox"/> Valokaaren aiheuttama putoaminen tms. seuraus
12. Lopullinen seuraus	<input type="checkbox"/> Ei hoitokäyntiä / hoitokäynti, ei sairauspäiviä <input type="checkbox"/> Yli 30 sairauspäivää <input type="checkbox"/> Hoitokäynti ja 1-30 sairauspäivää <input type="checkbox"/> Kuolema
13. Lomakkeen täyttäjän allekirjoitus	

Lomakkeen palautusosoite

TURVATEKNIIKAN KESKUS
 PL 123
 00181 HELSINKI

Puhelin 010 6052 000
 Telekopio 010 6052 466

Lomake nro 09200 1/2006

APPENDIX 7. Violence and threatening situation reporting form

VIOLENCE AND THREATENING SITUATION REPORTING FORM

Fill this form as soon as possible after the incident.

Return the completed form to the agreed

Contact person, which at your work is _____

Victim's name _____ Job title _____

Incident date and time _____ Unit/Department _____

Where did the incident occur?

Incident

- | | |
|---|---|
| <input type="checkbox"/> throwing /breaking items/property | <input type="checkbox"/> theft |
| <input type="checkbox"/> insulting/shouting | <input type="checkbox"/> theft of money or similar property |
| <input type="checkbox"/> verbal threat | <input type="checkbox"/> threat with a weaponn |
| <input type="checkbox"/> pushing/lashing out/punching/kicking | <input type="checkbox"/> robbery or attempted robbery |
| <input type="checkbox"/> physical contact/obstruction of movement | <input type="checkbox"/> other, what? |
| <input type="checkbox"/> scratching/biting/spitting | |

Incident description (continue onto second page if necessary)

Incident outcomes (physical, psychological, material)

Witnesses:

- Perpetrator: male angry customer/patient/family member
 female under the influence of alcohol
Age _____ under the influence of drugs
 suffers from mental problems
 other, what?

Has the perpetrator caused
Threatening situations before? yes no

Further information:

Can a similar situation be avoided in some way? yes no, why not? I don't know

Actions to be considered (can be thought about together at work)

Incident has been reported to:

- | | | |
|---|--|--|
| <input type="checkbox"/> Occupational safety representative | <input type="checkbox"/> Occupational health service | <input type="checkbox"/> Occupational safety director |
| <input type="checkbox"/> Security company | <input type="checkbox"/> Police | <input type="checkbox"/> Occupational health and safety representative |
| <input type="checkbox"/> Occupational safety authorities | <input type="checkbox"/> Employer, manager | <input type="checkbox"/> Elsewhere, where? |

Date _____ signature _____

APPENDIX 8. Strain and job satisfaction

JOB STRAIN AND SATISFACTION QUESTIONNAIRE

BACKGROUND

1. Name _____

2. Unit and department _____ 3. Age _____ years

4. Job title _____

WORK-

5. How satisfied are you with your job?

Circle the appropriate number

- 1 Extremely satisfied
- 2 Fairly satisfied
- 3 Neither satisfied or dissatisfied
- 4 Fairly dissatisfied
- 5 Extremely dissatisfied:

6. How satisfied are you with your /work community?

Circle the appropriate number

- 1 Extremely satisfied
- 2 Fairly satisfied
- 3 Neither satisfied or dissatisfied
- 4 Fairly dissatisfied
- 5 Extremely dissatisfied:

7. How strenuous is your work physically?

Circle the appropriate number

- 0
- 1 Very, very light
- 2
- 3 Very light
- 4
- 5 Fairly light
- 6
- 7 Somewhat strenuous
- 8
- 9 strenuous
- 10
- 11 Very strenuous
- 12
- 13 Very, very strenuous
- 14

8. How strenuous is your work psychologically?

Circle the appropriate number

- 0
- 1 Very, very light
- 2
- 3 Very light
- 4
- 5 Fairly light
- 6
- 7 Somewhat strenuous
- 8
- 9 strenuous
- 10
- 11 Very strenuous
- 12
- 13 Very, very strenuous
- 14

HEALTH AND WORK ABILITY

9. Assume that your work ability at its best has a value of 10 points. How many points would you give your current work ability? (0 means that you cannot currently work at all)

0 1 2 3 4 5 6 7 8 9 10

completely
unable to work

work ability
at its best

10. Over the past year, have you had trouble with any of the following body parts?
(Troubles are defined as pain, ache or discomfort.)

Answer every question!

	not at all	A little bit	quite a bit	quite much	a lot	Does it inhibit your work?	
						no	yes
Neck, shoulders	1	2	3	4	5	1	2
Shoulders	1	2	3	4	5	1	2
Elbows	1	2	3	4	5	1	2
Wrists, hands	1	2	3	4	5	1	2
Upper back	1	2	3	4	5	1	2
Lower back	1	2	3	4	5	1	2
Hips	1	2	3	4	5	1	2
Knees	1	2	3	4	5	1	2
Ankles, feet	1	2	3	4	5	1	2

10. Are any of these caused by a previous accident?

If so, then what troubles you and what type of accident caused it?

11. Have you had any troubles radiating from your back to your legs over the past year?

- 1 no
- 2 yes

Lifting and handling of patients, repeated back bending and twisted postures endanger nurses' health. Patient manual handling, constant standing, walking, hurrying and psychosocial factors of the job worsen the load, which forces healthcare staff into early retirement.

This management model for physical risks offers a resolution to the problems caused by physical strain of care work. The model promotes the workplace safety climate, which lightens care workers' strenuous work. So the model also helps employers to take care of the legal safety obligations.

The practical management model for physical risks includes among others:

- instructions to make the management model for physical risks
- information about safe patient handling methods
- examples how to improve information flow
- needed forms
- illustrative photos

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