Safe Handling of People in the Health care

ISO/TR 12296:2012
- Do we understand the real risks to healthcare staff?
- What are available instruments to assess and evaluate risks?
- How to establish effective staff training?
- The Finnish Ergonomic Patient Handling Passport®
- Evaluation of patient handling intervention

Leena Tamminen-Peter Ph.D. TPT
Oy Ergosolutions BC Ab, Turku, Finland
www.ergosolutions.fi
email: leena@ergosolutions.fi
ISO - the International Organization for Standardization

- A worldwide federation of national standards bodies
- The world’s largest developer and publisher of International Standards
- A network of the national standards institutes from 163 countries
- ISO is a non-governmental organization which has member institutes from both the public and private sectors
Background

ISO/TR 12296:2012
- a technical report on safe patient handling

*In the years 2003–2007, ISO has produced specific ergonomics standards (ISO 11228 series) addressing manual handling in general – However, not covering aspects of manual handling when applied to living persons.*

- **European Panel on Patient Handling Ergonomics (EPPHE)** provided expert support for the Technical Committee ISO/TC 159, Ergonomics, Subcommittee SC 3, Anthropometry and Biomechanics in the development of an (ISO) Technical Report
- **EPPHE was formed in 2004** as a collaboration of experts from the International Ergonomics Association (IEA) Technical Committees on Healthcare Ergonomics (HETC9) and Musculoskeletal Disorders (TC13) with representation from 13 EU countries
- *prof. E. Occhipinti and Reader S. Hignett are leading the group*
- **The objectives** of EPPHE are to share information about research on patient handling, create research ideas for European collaboration and plan for future conferences.
- In 2012 EPPHE extended worldwide and it is now **International Panel on Patient Handling Ergonomics = IPPHE**
- IPPHE has now about 100 members
What is the ISO TR about?

The ISO TR gives an overview of evidence based methods to assess problems and risks associated with manual patient handling, and details how to identify and apply strategies and solutions to reduce these risks. It reviews hazard identification and risk assessment, not just in relation to health risks, but also in identifying and solving problems.

Content of the ISO TR

– Risk estimation and evaluation
– Organizational aspects
– Aids & equipment
– Buildings & environment
– Staff education & training
– Evaluation of intervention effectiveness

More info

• A scientific article by S. Hignett, Fray et al. International consensus on manual handling of people in the healthcare sector: Technical report ISO/TR 12296 is in the International Journal of Industrial Ergonomics Volume 44, Issue 1
• ArjoHuntleigh has published An edited Summary of the ISO Technical Report 12296

An easy-to-read edited summary is available for download here
Two major objectives

• To improve caregivers’ working conditions by decreasing the risk of biomechanical overload, limiting work-related illness and injury, and the consequent absenteeism and costs;

• To ensure patients’ quality of care, safety, dignity and privacy while continuing to meet their needs, including personal care and hygiene.
Content

Risk Assessment

Risk Management

Based on:

- Organisational aspects
- Buildings & environment
- Adequate aids and equipment
- Training & education
- Check effectiveness
Risk assessment should consider the presence of several factors and how they are related

- Type of patient
- Induced “care load”
- Available caregiver staff
- Available and adequate equipment
- Building, environment and spaces
- Training and skill of nursing staff

There are a number of evidence based methods for risk assessment in Safe Patient Handling. The following 4 practical methods are presented, when they are applied to a common scenario:

- Dortmund Approach
- MAPO-Index
- PTAI Patient (Patient Transfer Assessment Instrument)
- Care Thermometer

The ISO TR gives guidance on analysing and identifying deficiencies in the various different spaces in which patients may be handled. The following environments are included:

- Adult bed space – *general medical/surgical ward*
- Hygiene facilities
- Intensive care units
- Operating rooms
- Ambulatory procedure unit
- Elderly care facility
- Other – *Bariatric facilities, Obstetric, Emergency department*
- Diagnostic department
- Primary care
- Circulation spaces, clearance – *corridors, access/egress, tur*
- Flooring surfaces, elevators, stairs
- Doors, grab handles, hand rails
Staff education & training

What is effective?

- A systematic review on patient handling in 2003 found that interventions predominantly based on technique training had no impact on back pain and injury rates. (Hignett, S. et al. 2003. Evidence-Based Patient Handling: Tasks, Equipment and Interventions.)

- Training caregivers in how to use proper body mechanics to lift residents is not an effective prevention measure because lifting the weight of an adult patient is intrinsically unsafe. (Nelson et al. 2003, Nelson & Baptiste 2004;)

- Multifactor interventions, based on a risk assessment programme, are most likely to be successful in reducing risk factors related to patient handling activities (Hignett 2003; Bos 2006).
Aim of training

Essential to promote:

• The right behavioural and attitudinal changes
• Safer working practices, less physical exertion when handling patients.
• Improvement in the quality of care.
To be able to create behavioural and attitudinal changes several other things in the organisation must be taken into consideration

Environment, aids and equipment (ICT)

Management

Behavioural change

Care and service practices

Learning-innovations

…all these are influencing on each other
What is effective?

- Multifactor interventions, based on a risk assessment programme, are most likely to be successful in reducing risk factors related to patient handling activities (*Hignett 2003; Bos 2006*).

- Safe patient lifting programs that incorporate mechanical lifting devices can protect workers from injury, reduce worker's compensation costs, and improve the quality of care delivered to residents (*Waters et al. 2006*).

- Research and experience from Holland show that implementation of full policy is cost-effective but it takes time from two to four years (*Knibbe et al. 1999*).
Training should be part of risk management system of the organisation

• In the organisation should have a **safe handling policy**, where the organisation commits itself to actions to reduce risks for the staff e.g. the responsibilities of line managers and staff. The use of policies and procedures help the organisation to direct its resources and staff behaviour to render optimal results.

• The establishment of a **role of key worker, ergo-coach/ peer leader** to support trainees to implement good practice has proved to be beneficial in several organisations. It is recommended that each unit has one to three key-workers.

• Training programme should also ensure **the training of link persons** e.g. clinical educators who provide a link between the clinical setting and any affiliated university or college.
Planning and organizing of the training programme

Training ought to:

- incorporate **the management and include all levels of staff** who take part in patient handling activities.

- provide appropriate **equipment**.

- define **the competencies of trainer, key and health care worker**.

- Few countries have defined the competencies of trainer, key and health care worker.
  
  - 2003 in the UK the Royal College of Nursing has published *Safer staff, better care. RCN manual handling training guidance and competencies*.
  
  - 2008 in Wales there is the *All Wales NHS Manual Handling Training and Passport Information Scheme*
  
  - 2011 in Ireland Guidance on the Management of Manual Handling in Healthcare
  
  - 2009 in Finland-the competencies and training guidance are introduced by the *Ergonomic Patient Handling Passport®*-training scheme
Ergonomic Patient Handling Passport® learning scheme

Product is registered and standardized.
Ergonomic Patient Handling Passport® scheme

The aim
- to define the competencies, skills and knowledge levels needed to be able to perform the patient transfers safely
- to ensure compliance with legislative requirements
- to improve patient's safety and the quality of care
- Through the exam, nurses can prove their competence

For whom
- social and health care professionals
- students in the social and health care sectors
- all who assist others in moving.

Trainer – education for 3 days
- teachers of social and health care sector
- ergo-couches
- occupational physiotherapists
- health care workers

Ergosolutions/ tamminen-peter 2014
Content of E-Learning 1

The online platform comprises the theoretical fundamentals needed for online study.

Four tasks are to be completed in 2 months:

1) **Ergonomics of patient handling** Reading and analyzing pictures
   - Epidemiology of nurses’ back problems and studying the physical load of different lifting techniques to understand both, potential risks factors in patient-handling activities and the causes of musculoskeletal disorders.
   - Risk assessment and management
   - Ergonomics of work environment
   - Work Ability

Following core competencies are covered at least partly

- **Acquired basic knowledge of ergonomics, anatomy and biomechanics of the musculoskeletal system, causes of injury and musculoskeletal disorders.**
- **Understanding potential risks factors in patient handling activities.** Compliance with procedures for identifying and assessing manual handling risks in the work unit. Willingness to improve safe work performance in the unit.
- **Ability to carry out risk assessment of patient's condition:** dependency level, size, weight, weight-bearing ability, cognitive status and willingness to cooperate.
compressive force on L5-S1 in kN

1: raising the patient from lying to sitting in bed *
2: elevating the lying/sitting pat. in bed to sitting at bed’s edge *
3: moving the pat. towards the bed’s head (CG at long side)
4: moving the pat. towards the bed’s head (CG at bed’s head)
5: moving the patient sideward
6: lifting a patient’s leg (CG at bed’s long side) *
7: lifting a patient’s leg (CG at bed’s foot) *
8: lifting a patient’s legs *
9: inclining the bed’s head *
10: shoving the bed-pan *
11: placing small aids
12: transferring the patient from bed to bed
13: placing the patient from bed’s edge in a chair *
14: raising the pat. from sitting to upright standing *
15: raising the lying/sitting patient from floor

CG: caregiver

Dortmund Study Group 2010

Dortmund Recommendations
female
20 yrs.
30 yrs.
40 yrs.
50 yrs.
≥60 yrs.

n =

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Dortmund Study Group 2010
Content of E-Learning 2

2) Natural movement patterns and the control of one’s own body

*Reading about body control and keeping a diary of one’s own body control exercises for 4 weeks.*

- Willingness to maintain individual physical capability and to practice body awareness to demonstrate good work working practices

3) Get acquainted with assistive devices and hoists and understand the usage logic of them

*Reading basic biomechanical principals and apply them in patient handling situations and assistive devices by replying questions.*

- Ability to select and use appropriate equipment safely; minimization and when feasible, elimination of manual lifting of patients, knowledge of available aids and lifters.

4) Reading Finnish laws and discussing with fellow students about two scenarios.

- Knowledge of legal responsibilities, local policies and procedures
Rest of core competencies of HCW are applied in the practical training

1. **Knowledge and skill to apply principles of normal human movement** in order to achieve safer patient handling and maximise patient independence as part of the quality of patient care.

2. **Knowledge and skills to apply safe, ergonomic handling principles** i.e. stable base, spine in line and loads close to the body. Ability to know how these principles can be applied in various handling situations.

3. Ability to use **verbal and tactile interaction to optimise the patient's own resources and encourage their independence**.

4. Capability to deal with unpredictable occurrences such as fallen person.

5. **Will have the ability to problem-solve** and willingness to enhance this skill.

6. **Ability to document** the patient's condition, chosen method to assist a patient and needed aids in the care plan.
Pratical training (16 hours)

1. Assessment of patient's condition and own risk: the dependency level, the size, the weight, weight bearing ability, cognitive status and willingness to cooperate.

2. Principles of normal human movement in order to move optimally when involved in patient handling and to promote favorable movement patterns and optimal independence for the patient.

3. Assessment and activation of the patient’s own resources and moving ability.

4. Knowledge and skills to apply safe ergonomic handling principles i.e. stable base, spine in line, and loads close to the body. Students practice how these assisting principles can be applied in various handling situations, such as:
   1. getting up from a lying and sitting position,
   2. turning and moving in bed,
   3. assistance in the hygiene care,
   4. getting up from the floor

5. Assistive products and patient lifts

6. Documentation of patient's condition, chosen method to assist a patient and needed aids.

7. Capability to deal with unpredictable occurrences.

Training concentrates on developing problem solving skills.
Application phase and Exam

Application time for one month

• After practical training, students return to their workplace to deepen their skills by applying the learned methods to their own patients for one month.

Exam

• Before the exam, students have the opportunity to rehearse for a few hours. During the exam, two transfers are performed, one manually and one by a hoist. The activities are filmed and two qualified passport trainers evaluate the transfers according to the agreed criteria.
Instructors for the Patient Handling Passport®

- To date **200 instructors**.
  - 40% are teachers from the different levels of professional training
  - 40% occupational physiotherapists
  - The rest are nurses, physios from the municipal or privat sectors.
  - Now the passport is 5 years old and **the training has started well throughout the country**.
  - In June 2014 over 3,400 passports
Organizing of training programme

- Patient handling requires **knowledge, skills and attitude** hence the training programme must include theoretical and hands-on practice.

- **The content of training** ought to be tailored to the needs of staff and patients. It should be based on **risk assessment** and on the required competencies.

- **The time** allocated to skills training must take into consideration **the learning needs of staff**. Sufficient time must be allocated to staff to take part in training.

- **All new staff require comprehensive training**. Thereafter, training is an on-going process, and **review or refresher training** is required at least every three years for staff remaining in the same workplace under the same working conditions. Greater frequency of training will be required if staff change workplace or if the working environment, protocols, policies or equipment in the workplace change.

- Key workers have to have possibility to annual training and support e.g. networking.

- Records and supervision of training must be maintained.
Effectiveness of the Ergonomic Passport Training®

Master thesis by Anne Henriksson 2011: **Qualitative study of the effectiveness**

The 6 nurses who had mastered EPHP® stated during the interview that:
- Transfer skill and ability to assess risks have improved
- Work and patient safety have improved
- Usage of assistive devices and hoist have increased
- Their units implemented safer work techniques
- They used their body in a more ergonomic way, encouraged patients to move more, adapted their assistance to patient’s functional capacity

**The long term care unit in the Rovaniemi** with 36 patients needing physically demanding assistance
- Started the EPHP® training in 2009, training 2 nurses
- Now in 2014 the unit has 10 EPHP® trained nurses and 1 EPHP® instructor.

**Assistive devices in use:** 3 hoist plus from 2009 to 2014 purchased sliding gloves, walking belts, different sliding material and 2 standing aids, for which they invested 6 000 euros.

Their four-year statistics, 2009 – 2012, revealed a 600 days’ sick-leave reduction. This resulted in the unit being awarded the Wellbeing Prize in 2012.

In 2009 they had over 900 sick leave days and in 2012 300 days. **Economically it means: 600 \times 300 euros = 180 000 euros. Investment for training and acquisition amount to approx. 20 000 euros.**
Other Benefits of EPHP® Training

The head nurse of the unit mentions:

- “Quality of the care has improved because nurses work in a more patent activating way.
- Patients react less aggressively towards nurses
- The work is better planned than before
- We do not need so many replacement nurses/recruiting and teaching time is saved
- The working atmosphere is better when people are in less pain when working.”
Effectiveness check of training

- Compliance with patient handling policies and procedures.

- Patient handling risk assessments are both, in place and implemented.

- Managers audit and monitor practice in the workplace and correct staff if they do not practice safely.

- Managers check whether lifting equipment is being stored, serviced and used correctly (eg. MAPO, Policy Mirror).

- Measuring Performance: performance is measured against agreed upon standards - assess competencies (e.g. SOPMAS) or - the work technique (e.g. DINO).

- Accidents/incidents which result from patient handling activities must be reported, the circumstances of the accident/incident, must be reviewed and appropriate steps must be taken to prevent a subsequent occurrence of a similar accident/incident.
### SOPMAS TAXONOMY

<table>
<thead>
<tr>
<th>INTERACTION</th>
<th>PATIENT'S MOVEMENTS</th>
<th>NURSE'S WORKING POSTURE ET MOVEMENTS</th>
<th>ENVIRONMENT AND HELPING DEVICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>- Patient is prepared for movement by stroking muscles or moving limbs, if necessary. - Patient is given the time and space needed to perform the movements. - Patient’s remaining functional capacity is used to the full, providing only the help and assistance he really needs. - Everything is done in good agreement with the patient.</td>
<td>- Nurse supports patient’s body from back or pelvic area, allowing for the free movements of joints. - P’s weight is transferred via bones to several surfaces outside the body. - P’s movement is 3-dimen., i.e. weight shifts from upper body parts to lower and from one side to the other. - P. takes part actively in moving.</td>
<td>Nurse uses space optimally considering the patient and herself: corrects the bed height - places the chair appropriately - creates space herself if needed. Transferring aids are used correctly and creatively. Patient's clothing is appropriate.</td>
</tr>
<tr>
<td>IV</td>
<td>....</td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>....</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>- Patient is given neither time nor space. - Patient’s remaining resources, e.g. Sense and functional capacity, are not Used, everything is done on the patient’s behalf. - Non-stimulating handling. - Nurse and patient do not know exactly what is happening in the situation.</td>
<td>- Nurse takes hold of points of movement such as armpits, neck or waist. - Patient is totally passive and his/her weight is lifted, not supported to surfaces.</td>
<td>- Nurse doesn't create enough space - Patient's clothing is not appropriate - The bed height is not correct. - The wheelchair is not at right place - The transferring aid is not used though it would be needed.</td>
</tr>
</tbody>
</table>
# Evaluation of intervention effectiveness

<table>
<thead>
<tr>
<th>Theme</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Safety culture</td>
<td>A measure of organisational behaviour, measures the support both financially and organisationally</td>
</tr>
<tr>
<td>2  Musculoskeletal health measures</td>
<td>The measurement of the level of MSD in the working population etc.</td>
</tr>
<tr>
<td>3  Compliance, competence</td>
<td>Measures of the staff’s individual behaviour; compliance with safe methods and equipment use.</td>
</tr>
<tr>
<td>4  Absence or staff health</td>
<td>Measures the time away from work or lost productivity due to MSD.</td>
</tr>
<tr>
<td>5  Quality of care</td>
<td>Patient requirements for dignity, respect, safety, empathy.</td>
</tr>
<tr>
<td>6  Incidents and accidents</td>
<td>The recording of incidents, accidents or near misses from patient handling where staff could have been injured.</td>
</tr>
<tr>
<td>7  Psychological well-being</td>
<td>Measurement of the staff’s mental health status, measures of psychological stress, strain, job satisfaction etc.</td>
</tr>
<tr>
<td>8  Patient condition</td>
<td>Does the patient handling method affect the length of stay, treatment progression, level of independence?</td>
</tr>
<tr>
<td>9  Patient perception</td>
<td>The subjective assessment of a patient when being moved in transfers or mobility situations, fear, comfort etc.</td>
</tr>
<tr>
<td>10 MSD exposure measures</td>
<td>Physical workload factors that place the staff under strain, forces, postures, frequency of tasks, workload measures.</td>
</tr>
<tr>
<td>11 Patient injuries</td>
<td>Records of incidents, accidents or injuries to patients when being assisted to move, bruises, lacerations, tissue damage etc.</td>
</tr>
<tr>
<td>12 Financial</td>
<td>The financial impact of MSD, lost staff time, lost productivity costs etc; all direct and indirect costs against the costs of any prevention.</td>
</tr>
</tbody>
</table>
Thank you for your attention!