

Ergonomic patient handling card® -scheme

a concrete tool for improving nurses' competence in ergonomics

Tamminen-Peter, L. revision 2016
e-mail: letampe@gmail.com

The Finnish Institute of Occupational Health introduced the *Ergonomic patient handling card*® -scheme in 2009. The aim of the scheme is to define the competencies, skill, and knowledge levels needed to be able to perform patient transfers safely; to ensure compliance with legislative requirements; and to improve both patient safety and the quality of care. Furthermore, through the scheme's exam, nurses can prove their competence. Good Patient Handling improves nurses' ability to assess and avoid risks and thus enhances both nurse and patient safety, in turn lowering the physical load of patient-handling, so that work-related musculoskeletal injuries decrease.

Keywords: patient handling, card, nurse, competence

1 Introduction

In 1990, The Manual Handling Directive was issued on the minimum health and safety requirements for the manual handling of loads that pose a risk of back injury, in particular, to ensure that workers are protected against the risks involved in the handling of heavy loads (Council Directive 90/269/EEC). The directive states: "Employers must ensure that workers receive proper training and information on how to handle loads correctly and the risks they might be exposed to, particularly if these tasks are not performed correctly". In social and health care work involves many tasks that pose the risk of back injury. Professional competencies in polytechnics require that nurses have a good basic knowledge of rehabilitative nursing and that they can work in an ergonomic way (The Finnish Ministry of Education 2006). The curriculum of nurses' vocational colleges emphasises the need to observe occupational health and safety (The Finnish National Board of Education 2009). A survey on the patient handling training of nurses revealed wide variations in instruction among schools. The amount of instruction given in patient handling competencies was usually insufficient (Rantsi 2005). The legal requirement to ensure that qualified students are competent to perform their tasks safely was not fulfilled. Nationwide guidelines of quantity and quality instruction in patient handling would help schools and teachers design suitable curriculums. Extended instruction time and the implementation of training in different studying cycles would help students to master the required skills. To improve the quality of education, teachers need to update their knowledge of patient handling ergonomics. Better co-operation between schools and trainee placements is also needed. However, these are difficult goals to achieve. Thus the *Ergonomic safe patient handling card*® -scheme has been introduced in Finland to respond to these challenges. The scheme is based on evidence-based practice (Hignett 2003, Nelson & Babtiste 2004, Iakovou 2008) in which mechanical assistive equipment such as hoists significantly reduced work-related risk, as a result ensuring a safer and more dignified approach to handling patients. Other

technologically advanced aids, such gait belts with handles, and friction-reducing sliding sheets or boards are also included in the scheme. Good patient handling knowledge and skill improves nurses' ability to assess and avoid risks, in turn enhancing nurse and patient safety and lowering the physical load of patient handling (Tamminen-Peter 2005, Jäger et. al 2010). Nevertheless, permanent change in working practices is hard to achieve.

2 Objectives

The aim of the *Ergonomic patient handling card*® -scheme is to define the competencies, skills and knowledge levels needed to be able to perform patient transfers safely; to ensure compliance with legislative requirements; to improve both patient safety and the quality of care. Furthermore, through the scheme's exam, nurses can prove their competence.

3 Methods

In 2007-2009, the Finnish Institute of Occupational Health (FIOH), supported by the Ministry of Social Affairs and Health developed the *Ergonomic patient handling card*® scheme. During these two years, 200 specialists of an interactive communication network of ergonomics participated in the development work and pilot phases.

3.1 Planning the content of the card

The former project "Development of evidence-based ergonomic teaching in patient handling at health care polytechnics and colleges" (Tamminen-Peter 2007) constituted a good base and provided material (Tamminen-Peter et al. 2007) to start with. A questionnaire was then sent to all 200 members of the network to help make the content of the card appropriate and relevant. Theoretical matters, laws and exercises were published for online study. FIOH then decided on the content of the essential practical training, the exam criteria, and how to perform the exam.

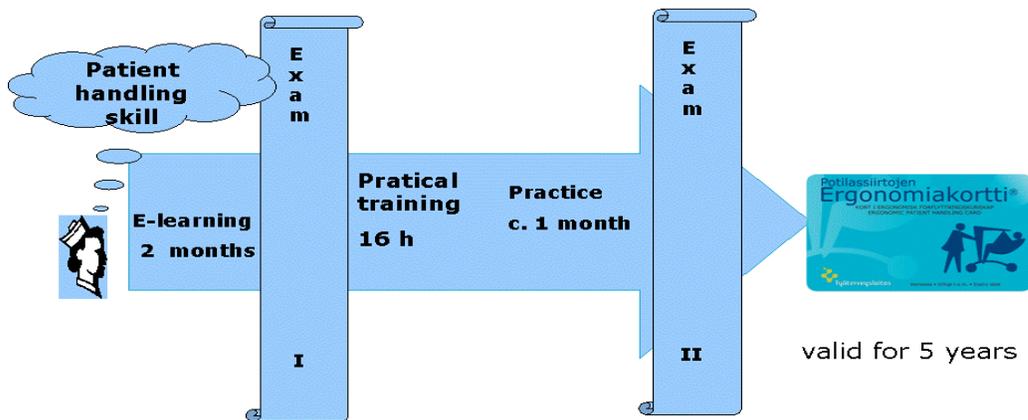
3.2 Piloting

The content was tested in two phases, first by three pilot courses, in an old people's home, in a university hospital and in a nursing college. Teachers, occupational physiotherapists, nurses and administrative persons were invited to join a focus group to discuss the evaluation results. According to their suggestions, a new improved scheme with an e-learning frame was created with the help of a pedagogical e-learning advisor. The new scheme was piloted through three courses for the experienced teachers and physiotherapists – altogether over 60 participants – in order to receive their comments on the content. Two pilot courses for the card trainers were also held.

4 Results

After the first pilot phase, the focus group improved the aim of the scheme and assessment criteria. Furthermore, theoretical knowledge was increased with e-learning. The second pilot phase resulted in minor content changes and the assessment criteria were made looser. Presently, the *Ergonomic patient handling card*® -scheme consists of the following four parts: 1) E-learning 2) Practical training of evidence-based principals

3) Application of evidence-based practice at the workplace and 4) Repetition and exam (Figure 1).



2

Figure 1. *Ergonomic patient handling card®* -learning scheme

4.1 E-learning

The online platform comprises the theoretical fundamentals needed for online study: exercises, tests and a discussion forum. Four tasks must be completed in two months, involving:

- reading about the epidemiology of nurses' back problems and studying different lifting techniques to understand potential risk factors in patient-handling activities and the causes of musculoskeletal disorders. The further study involves the ergonomics of the work environment, the basics of biomechanics, and the analysis of some pictures.
- exercises for three weeks to improve body awareness and keeping a diary about one's own body experiences.
- becoming acquainted with assistive devices and hoists and analysing the biomechanical principles to apply them in patient-handling.
- reading the acts related to patient-handling and discussing cases with the fellow students in order to become familiar with occupational safety responsibilities and obligations.

4.2 Practical training

The practical training lasts 16 hours, and can be organised as follows: 2 x 8 hours, 3 x 5.3 hours, or 4 x 4 hours. It consists of the following: 1) Assessment of patient's condition, patient's dependency level, weight, weight bearing ability, cognitive status, and willingness to co-operate. 2) Principles of normal human movement in order to move optimally when involved in patient-handling and to promote the favourable movement patterns and optimal independence of the patient. 3) Assessment and activation of the patient's own resources and moving ability. The students practice verbal and tactile interaction to optimise the patient's own resources and to encourage their independence. 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: getting up from a lying or sitting position, turning and moving in bed, in hygiene care, getting up from the floor. 5) The use of assistive products and patient lifts is practised in different assistive situations. 6) Documentation of patient's condition, chosen method to assist a patient and required aids. 7) Learning to deal with unpredictable occurrences such as patient falls. The training concentrates on developing problem-solving skills.

4.3 Application phase

After practical training, students return to their workplace to deepen their skills by applying the learned methods to their own patients. Teachers and occupational physiotherapists also practice their skills in some care institution for at least a few days. It is recommended that the application phase lasts for one month.

4.4 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 card trainers evaluate the transfers.

5 Discussion

The *Ergonomic patient handling card*® -training has been standardised and registered. FIOH provides the card trainers with training. The card is valid for five years and is intended for all social and health care professionals, students in the social and health care sectors, and all who assist others in moving. To date, over 5000 students have now passed the *Ergonomic patient handling card*® -exam and 300 have undergone the instructor training, of whom one-third are teachers from different levels of vocational education.

Some teachers have integrated the content of the card into the compulsory studies of physiotherapists and nursing students, and all the teachers organise updating courses. It is important that ergonomic and safe working practices are acquired already in vocational training, as e.g. Videman et al (1989; 2005) have shown that back symptoms are a common problem among student nurses. If a person has already acquired non-ergonomic practices it is very hard to 'unlearn' them. Employers spend a great deal of money on teaching workers safe manual handling practices, thus it is economically wise to learn good practices from the start.

Occupational physiotherapists organise training at their workplaces. This does not necessarily lead to successful changes in the workplace if it is not part of the risk management system of the organisation. A systematic review of patient handling found that interventions based solely on technique training had a poor effect on working practices and injury rates (Hignett et al.2003). Health and safety management research, in turn, shows that a clear line of responsibility and accountability needs to be identified to create a positive environment for change. Thus patient handling training and Ergonomic Card training should be part of the risk management system of an organisation (Tamminen-Peter et al. 2010). Time will show if with this approach achieves working practice changes in manual handling and decreases musculoskeletal symptoms. Nevertheless, the first results of Henriksson's (2011) evaluation study are promising.

6 References

- EC Manual Handling Directive 1990. The manual handling directive (90/269/EEC).
- Henriksson, A. 2011. *Potilassiirtojen Ergonomiakortti®* -koulutuksen vaikutukset potilaan siirtymisen avustamiseen hoitajien kokemana. ([in English :The effects of the Ergonomic patient handling card Training on assisting a patient transfer – experiences of nurses.]. Masters` graduate thesis, University of Eastern Finland.
- Hignett, S. Crumpton, E. Ruzala, S. Alexander, P. Fray, M. & Fletcher, B. 2003. Evidence-Based Patient Handling. Task, equipment and interventions. London: Routledge.
- Iakovou, G.T. 2008. Implementation of an evidence-based safe patients handling and movement mobility curriculum in an associate degree nursing program. *Teaching and Learning in Nursing* 3, 48-52.
- Jäger, M. Jordan, C. Theilmeier, A. Luttmann, A. & the DOLLY Group. 2010. Lumbar-load quantification and overload-risk prevention for manual patient handling - The Dortmund Approach. In: R. Mondelo, P., Karwowski, W., Saarela, K., Hale, A.; Occhipinti, E. (eds) Proc 8th Int Conf Occup Risk Prevention ORP2010, CD-Rom (9 pp.), Valencia 2010.
- Nelson, A. & Baptiste, A. 2004. Evidence-based practices for safe patient handling and movement. *Online Journal of Issues in Nursing*.
www.nursingworld.org/ojin/topic25/tpc25_3.htm
- Rantsi, H. 2005. Potilaan liikkumisen avustus- ja siirtomenetelmien opetus sosiaali- ja terveystieteiden oppilaitoksissa. *Sosiaali- ja terveystieteiden tutkimuksia* 2005:26. Helsinki: sosiaali- ja terveystieteiden tutkimuskeskus.
- Tamminen-Peter, L. Moilanen, A. & Fagerström V. 2011. A Management Model for Physical Risks in the Care Work. Finnish Institute of Occupational Health, Tampere: Juvenes Print.
- Tamminen-Peter, L. 2007. Ergonomiaopetuksen kehittäminen sosiaali- ja terveydenhuollon oppilaitoksissa. Loppuraportti. Sosiaali- ja terveystieteiden tutkimuksia 2007:22.
- Tamminen-Peter, L. Eloranta, M.-B. Kivivirta, M.-L. Mämmelä, E. Salokoski, I. & Ylikangas, A. 2007. Potilaan siirtymisen ergonominen avustaminen. [in English: How ergonomically assist a patient to move.] A teacher's manual and DVD Sosiaali- ja terveystieteiden tutkimuskeskus, Helsinki.
<http://www.stm.fi/Resource.phx/publishing/store/2007/04/el1175681436176/passthru.pdf>
- Tamminen-Peter, L. 2005. Hoitajan fyysinen kuormittuminen potilaan siirtymisen avustamisessa – kolmen siirtomenetelmän vertailu. Turku: Turun Yliopisto.
- Videman T, Rauhala H, Asp S, Lindström K, Cedercreutz G, Kamppi M, Tola, S & Troup, J.D.G.. Patient handling skill, back injuries and back pain: an intervention study in nursing. *Spine*. 1989;14(2):148-56.
- Videman T, Ojajarvi A, Riihimäki H. & Troup J.D.G. 2005. Low Back Pain Among Nurses. A Follow-up Beginning at entry to the Nursing School. *Spine* 30 (20), 2334-2341.