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PATIENT HANDLING FOR CAREGIVERS, THE EULIFT PROJECT

Chronic low back pain is a common, long-lasting, and disabling condition with high societal costs. Caregivers are frequently exposed to elevated physical risk factors. Unfortunately, low back pain in caregivers is closely tied to patient handling techniques. Educating students with tools to implement in practice can be beneficial. eUlift provides full teaching material in patient handling for the future caregiver. All theoretical backgrounds and a detailed description in how to perform patient handling, supported with 3D animations. A train-the-trainer tool is developed for the responsible person of a ward that provides training to the caregivers. Development of the tool included different steps: (1) design a manual with all necessary background, (2) define learning outcomes, (3) integrate innovative didactics, (4) develop an innovative IT tool, (5) compose a train-the-trainer manual. The tool has been tested for usability in education and in practice over different European countries. Pilottesting in practice was a continuous approach to gain feedback and improve the content. Pilottesting of the train-the-trainer was evaluated cross country and revealed good results. The eUlift tool is finished, accessible online (for free) and ready to be implemented in practice. eUlift aims for a long-term solution from a self-regulated perspective and integrates an innovative approach, with a particular attention to detailed descriptions of the specific patient handling techniques, postures, and movements. We also explicitly focused on an academic approach with regard to training the caregivers (see the Train the trainer manual).

Key words: patient handling, the eUlift project, disability, assessment Level

Хронічний біль у попереку є поширеним, довготривалим захворюванням, що пов'язаний з високими соціальним витратами. Зменшення болю залежить від техніки роботи з пацієнтом.Для покращення навичок фізичної терапії та ерготерапії для студентів є розробленим та впроваджениим навчальний посібник, щ підготовлений завдяки проекту eUlift. У ньому подані усі теоретичні основи та докладний опис того, як здійснювати роботу з пацієнтами, важливою

його складовою є 3D-анімація. Розробка інструменту включала в себе різні етапи: (1) розробка посібника з усіма необхідними передумовами, (2) визначення результатів навчання, (3) інтеграція інноваційних методів, (4) розробка інноваційного інструменту IT, (5) складання тренувального інструменту. Зазначена система була перевірена на зручність використання в освіті та у практиці різних європейських країн.

Ключові слова:робота з пацієнтами, проект eUlift, інвалідність, рівень оцінки

Introduction. Low back pain causes more years lived with disability than any other health condition (Vos et al., 2012). Chronic low back pain is a common, long-lasting, and disabling condition with high societal costs (e.g. healthcare expenditure, disability insurance, and work absenteeism) (Dagenais, Caro & Haldeman, 2008; Lambeek et al., 2011; Luo, Pietrobon, Sun, Liu & Hey, 2004; Maniadakis & Gray, 2000). Healthcare workers are frequently exposed to elevated physical risk factors (e.g. repetitive motions, lifting or lowering), awkward postures and moving or lifting patients. All of these can cause work-related injuries (BLS, 2002, 2006, 2009 & 2010).

Not only nurses experience these problems (Lee & Lee, 2017; Lipscomb, Trinkoff, Brady & Geiger-Brown, 2004). Occupational therapists and physiotherapists are also at higher risk of work-related musculoskeletal injuries (Darragh, Huddleston & King, 2009).

Unfortunately, low back pain in caregivers is closely tied to patient handling techniques (Daynard et al., 2001; Lagerstrom, Hansson & Hagberg, 1998).

The ISO/TR 12296:2012 report defines patient handling as: "...any activity requiring a force to push, pull, lift, lower, transfer or in some way move or support a person or body part."

Patient handling activities can be divided into many small subcategories. One of these is patient lifting, which caregivers often have to perform. Examples of patient handling activities are positioning patients on the bed, transferring them to a wheelchair, assisting them while ambulating, or moving them between different locations (ISO, 2012).

A study regarding lifting at work identified that both the weight of the load (OR 1·11 [95 % CI 1·05–1·18] per 10 kg lifted) and the number of lifts (OR 1·09 [1·03-1·15] per ten lifts per day) increased risk (Coenen et al., 2014). Although educational and exercising programs intended to avoid back pain in caregivers have proven effective (Black, Shah, Busch, Metcalfe & Lim, 2011; Daynard et al., 2001; Jaromi et al., 2018), these programs do not offer a long term solution (Theis & Finkelstein, 2014).

Many initiatives are undertaken in practice, from educating and training caregivers to well established patient handling policies, encouraged by an ergocoach, prevention advisor or lifting expert. The European Agency for Safety at Work contributes a considerable amount with e-fact 28: Patient handling techniques to prevent musculoskeletal disorders (MSD) in health care, which is available in all European languages. However, a detailed description of how to perform patient handling activities, or how to teach these to caregivers does not exist.

A critical appraisal of reviews by Thomas & Thomas (2014) suggests that a multi-component, risk-assessment based program with staff involvement can reduce low back pain (LBP). It also mentions the need for a detailed description of the different components of interventions and of the specific lifting techniques, basic postures and movements.

Therefore, our project aims for a long-term solution from a self-regulated perspective and integrates an innovative approach, i.e. an app that can be consulted at every step. We paid particular attention to detailed descriptions of the specific patient handling techniques, postures, and movements. We also explicitly focused on an academic approach with regard to training the caregivers (see the Train the trainer manual).

About the eUlift project

The eUlift project is externally financed by EPOS, the national agency of Erasmus+. The idea for the project had been growing for a couple of years from a practical need. The book "Ruggensteun voor zorgverleners" (Goderis, Vandewalle & Maes, 2017) was in need of a revision, and patient handling techniques required a more elaborate description. Stemming from a practical need, we combined all of the best evidence with innovative strategies and started looking for partners with complementary expertise.

How did we create eUlift?

We defined 5 outputs:

E-book

This e-book came about in close cooperation with all partners, based on best practices and best evidence. It is available in the language of each participating country.

To collect the current best practices concerning lifting techniques for caregivers, we created a survey for patient handling trainers. As the focus was on the trainer and not the trainee, we did not expect many answers. Together with all the project partners, and based on our own best practices, we defined what we thought were the current best practices. The survey focused on basic patient handling principles, and addressed the naming of the techniques, whether the trainers knew them, whether they taught them and whether they agreed on key points for the nine following postures or movements:

- Standing
- Sitting
- Bank posture
- Forward/backward weight shift
- Lateral transfer
- Golfer's movement
- Kneeling
- Pivot
- Rappel

The survey also covered general ergonomic principles.

All partners spread the survey in their network, accompanied by a motivation and an explanation of our project. In total, we collected 57 answers. All scores below 75 % were discussed and best practices were changed where necessary. Of all the basic postures and movements, 82,78 % used them as described and 80,84 % of participants taught them in the way we described to the caregiver.

Of all the basic postures and movements, 83,94 % agreed with the named key points. Participants were questioned about general ergonomic principles, and 93,50 % agreed with the importance of these principles.

Best evidence

Although not proven effective in patient handling, OSHA guidelines and ISO/TR 12296:2012 were the most described methods.

Detailed descriptions of best evidence, how to perform patient handling and teaching methods are still lacking.

An essential part of the project is the teaching and training of the caregivers. For that reason, we defined learning outcomes. Learning outcomes are statements that describe the knowledge or skills caregivers

should have acquired by the end of a particular assignment, class, course, or program, and help caregivers understand why that knowledge and those skills will be useful to them. They focus on the context and potential applications of knowledge and skills, help caregivers learn in various contexts, and help guide assessments and evaluations.

How did we define learning outcomes?

All learning outcomes were defined by the team and reviewed by an educational expert. Learning outcomes can be examined in the Train the trainer manual.

How did we choose the didactics?

A specific didactical approach is used when teaching patient handling. We gathered all the best practices regarding the organization of the patient handling training from our partners.

To obtain an overview of the best evidence, we systematically reviewed the didactics caregivers applied to patient handling.

Much research has been done on the topic of patient handling, but none of that research has focused on the effectiveness of the applied didactics when teaching caregivers about patient handling. Should we use individual or group training, home-based learning, simulations? All didactics can be found in the Train the trainer manual.

Our app is an innovative and technological method to deliver our content. We developed it in close cooperation with our IT partner in Finland and with a 3D animations expert. All scenarios were drawn and reviewed several times with the team. The images and 3D videos used for patient handling education are our own.

Pilot test

Fifteen caregivers evaluated the usability of the first version of the app at a University Hospital. We asked different chiefs of staff to provide feedback on the goal and use of the app. All feedback was included in the app.

Our app is freely available for Android and IOS.

We created a Train the trainer manual and set up a strategy. This manual is based on theory and practice regarding training methods for caregivers, with the intention of creating a long-term learning solution.

The project's goal is to develop a self-regulated tool for ergocoaches, prevention advisors, and other people who teach patient handling techniques to caregivers. Practice. The eUlift tool exists of an app with following choices (see picture 1) and a

website with the train-the-trainer manual. Everything is accessible in English, Spanish, Hungarian and Dutch.

Figure 1: Main menu of the eUlift app

The eUlift handbook is the theoretical basis of the project. Following aspects are included:

- General ergonomics
- Anatomy and function
- Biomechanics
- General causes of back pain
- Pathology and dysfunction
- Pain education
- Postures
- Natural movements
- Basis postures and movements
- Care tasks

To choose a valid technique for patient handling, the BMAT: Banner Mobility Assessment Tool was integrated, see menu (figure 1) for "Assess Patient Mobility".

The BMAT is a tool created to assess mobility in hospitalized patients. A patient's mobility status can influence treatment, patient handling and transfer decisions, and outcomes, including fall risk. Utilizing a mobility assessment can provide reliable information to improve patient safety and prevent complications of immobility.

Banner Mobility Assessment Tool

Assessment Level 1: Sit and Shake

From a semi-reclined position, ask the patient to sit upright and rotate to a sitting position at the side of the bed; the patient may use the bed rail. Note the patient's ability to maintain a bedside position. Ask the patient to reach out and grab your hand and shake it, making sure the patient reaches across their midline. Pass = complete Assessment Level 2. Fail = patient is Mobility Level 1; use total lift with a sling, positioning sheet or straps, or use lateral transfer devices such as a roll board, friction-reducing (e.g. slide sheet, tube) or air-assisted devices. If the patient has "strict bed rest" or "bilateral non-weight-bearing" restrictions, do not proceed with the assessment; the patient is Mobility Level 1.

Assessment level 2: Stretch and Point

Task: with the patient in a sitting position at the side of the bed, have them place both feet on the floor (or stool) with the patient's knees no higher than their hips. Ask the patient to stretch one leg and straighten the knee, then bend the ankle, and flex and point the toes. If this succeeds, do the same with the other leg. Pass = complete Assessment Level 3. Fail = patient is Mobility Level 2; use total lift for patients unable to weight-bear on at least one leg; use sit-to-stand lift for patients who can bear weight on at least one leg.

Assessment Level 3: Stand

Task: ask the patient to get up off the bed or chair (sit-to-stand) using an assistive device (cane, bed rail). The patient should be able to raise their buttocks off the bed and hold for a count of five. Repeat once if necessary. Pass = complete Assessment Level 4. Fail = patient is Mobility Level 3; use a non-powered raising or standing aid (default to a powered sit-to-stand lift if no standing aid is available) or use total lift with ambulation accessories or an assistive device (cane, walker, crutches). If the patient

passes Assessment Level 3 but requires an assistive device to ambulate or cognitive assessment indicates poor safety awareness, the patient is Mobility Level 3.

Assessment Level 4: Walk (march in place and advance step)

Task: ask the patient to march in place at the bedside, then ask the patient to advance step and return each foot. The patient should display stability while performing these tasks. Assess for stability and safety awareness. Pass = patient is Mobility Level 4 with modified independence = no assistance is needed to ambulate; use your best clinical judgment to determine the need for supervision during ambulation. Fail = Patient is Mobility Level 3.

Care Tasks

Following care tasks are included in the app, supported with 3D animations:

Move higher in wheelchair

Sit-to-stand transfer

Stand-to-sit transfer

Sit-to-sit transfer

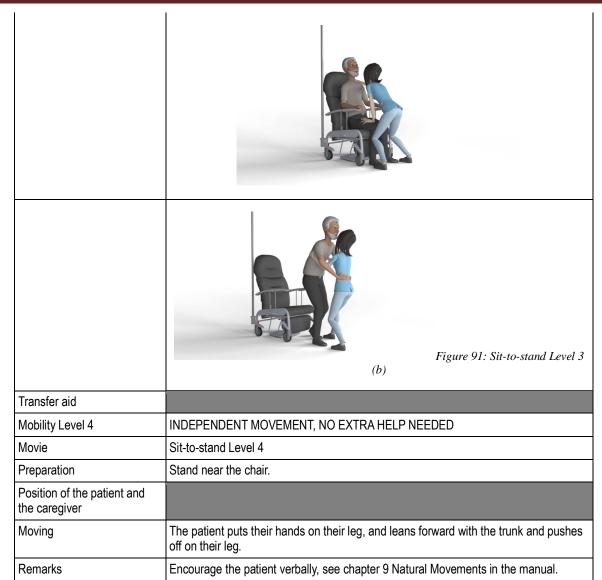Sit-to-lie transfer

Lie-to-sit transfer

Back-to-side transfer

Move higher in bed

As an example: a demonstration of one technique: the sit-to-stand transfer.

Sit-to-stand transfer

Mobility Level 1	PATIENT HAS NO CORE STABILITY, IS NOT ABLE TO BEAR WEIGHT ON THEIR LEGS AT ALL (BED REST, SPECIAL CHAIR)
Preparation	
Position of the patient and the caregiver	
Moving	
Remarks	

Mobility Level 2	PATIENT IS NOT ABLE TO BEAR WEIGHT ON THEIR LEGS AT ALL OR ONLY PARTIALLY BUT HAS CORE STABILITY
Preparation	
Position of the patient and the caregiver	
Moving	
Remarks	
Mobility Level 3	PATIENT CAN BEAR WEIGHT ON THEIR LEGS, BUT REQUIRES SOME ASSISTANCE (E.G. CANE, WALKER, EXTRA CAREGIVER). SOME UPPER EXTREMITY STRENGTH REQUIRED.
Movie	Sit-to-stand Level 2-3
Preparation	Lock the wheelchair, then slide the patient's feet backwards.
Position of the patient and the caregiver	Assume bank posture in front of the patient. Stabilize the patient's knees with your own. With one hand, reach over the patient's opposing shoulder and place your hand on their back.
Moving	Use one hand to bring the trunk of the patient forward. Move your hands underneath the shoulders and place them on the scapula. Allow the patient to support their self with both hands on your pelvis. Perform a rappel movement to help the patient up. Move one foot backwards if needed (e.g. when the patient is taller than you).
Remarks	Do not carry the weight of the patient.

Figure 91: Sit-to-stand Level 3

(b)

Transfer aid	
Mobility Level 4	INDEPENDENT MOVEMENT, NO EXTRA HELP NEEDED
Movie	Sit-to-stand Level 4
Preparation	Stand near the chair.
Position of the patient and the caregiver	
Moving	The patient puts their hands on their leg, and leans forward with the trunk and pushes off on their leg.
Remarks	Encourage the patient verbally, see chapter 9 Natural Movements in the manual.

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FALL PREVENTION FOR AN ELDERLY PERSON LIVING AT HOME

Elderly persons have a bigger risk to fall. There are different factors on the basic of al fall. As caregiver must we work preventative, must make the patient and family aware that the risk of a fall can reduce when they change their habit, life style and make some changes in there home. The Flemish center of expertise of fall made guidelines for assist preventative working. From the Cochrane review shows that the numbers of a fall are reduced by using the guidelines.

Keywords: Elderly at home/ fall risk, Flemish center of expertise of fall, guidelines for caregivers

Сабіна Ванхолебеке. Профілактика падіння осіб похилого віку, що проживають у сім'ях.

Літні люди мають більший ризик виникнення падіння. Існують різні чинники падіння. Доглядачі повинні здійснювати профілактичні заходи, формувати у пацієнта і його родини усвідомлення того, що ризик виникнення падіння може бути зменшений за умови зміни звичок, способу життя, внесення певних модифікацій вдома. Фламанським центром експертизи розроблені спеціальні директиви з профілактики. Звіт Кохрана (Cochrane) доводить, що за умови дотримання зазначених рекомендацій ризик виникнення падіння зменшується.

Ключові слова: особи похилого віку вдома / ризик падіння, Фламандський центр експертизи падіння, рекомендації для доглядачів.

Introduction. One in three persons older than 65 years old undergo a fall at least once a year. A fall can have a lot of effects. Not just the physical consequences but also mental and financially consequences. The most common minor injuries are tissue damage and sprain. Worse effects are head trauma and fractures, especially hip fractures. The elderly get scared, their children became worried and they prefer that their parents stay at home and sit still. They have a decline in self – confidence and less social interactions with less quality off live.The financially consequences are bigger than you expect. After a fall is it unavoidable to visit a doctor and even perhaps a stay at the hospital. (Valpreventie, 2019; Beteroud, 2019)

Etiology. A fall can be the consequence from different factors. There are the organic, behavior, area and socio – economic factors. The organic factors are the age of a person, the more elder, the more there is a risk. A person with a chronic disease has also a bigger risk to fall. The physical and mental decline is also an extra change to fall. The behavior factors include few physical exercise, being inactive, having low power and wearing inappropriate shoes. Area factors are example a wet floor, insufficient lighting. Also important are the socio – economic factors as low education, low social contacts. (Valpreventie,2019; Who.int,2019)

Goals. The elderly and their family are not consciously that a fall is a problem and prevention is possible.   As   Caregiver is it very necessary to make the elderly and their family consciously that a fall often happens and that a fall have a negative effect. As caregiver it is important to motivate the elderly and family to start as soon as possible with prevention.

The Flemish guidelines fall prevention. The center of expertise fall and fracture prevention made some guidelines and recommendations for the caregiver and his patient to help reduce a fall of elderly persons.

The guidelines are based on 8 clinical and fall related questions. A workgroup made the question and a systematical search looked for evidence based answers.

The guideline contends fall prevention for elderly living at home, who are older than 65. Professionals primary care is also a focus.An efficient screening followed by a multi factorial evaluation based on the factors of fall risks and effective interventions can reduced a fall. As caregiver is it an interesting guide in the therapy with your client.   (Valpreventie, 2019)

The 8 clinical and fall related questions . The center of expertise fall and fracture prevention work together with people from the workgroup development first line care and they created 8 clinical and fall related questions. Those questions will help to