

Using Patient Handling Equipment to Manage Immobility in and Around a Bed

Introduction:

The need to assist people with limited capacity and reduced movement is well recognised in health care. There are few tasks in routine care that do not require some form of physical assistance, such as bathing, dressing, toileting, feeding, mobility support etc. The level of exposure to these very frequent tasks has consistently been associated with the high prevalence of musculoskeletal disorders (MSD) in care workers (Smedley et al., 1995, Garg and Owen, 1992, Warming et al 2009, Stobbe et al., 1988, Alamgir et al., 2007, Marras et al 1999). Several systematic reviews reported evidence to support the introduction of the range of Safe Patient Handling (SPH) intervention strategies (Hignett 2003, Hignett et al., 2003, Dawson et al 2007, Tuller et al., 2010, Martimo et al., 2008. Thomas and Thomas, 2014).

The concerns about the cost of injuries to care workers and the loss of staff to the service are key drivers for the continuing development of specialised equipment to move and handle people safely in addition to maintaining the patient's comfort and dignity. Significant reductions in injuries, and other benefits, following the introduction of SPH programmes, have been reported in several papers (Collins et al., 2004, Elnitsky et al., 2014, Garg and Kappellusch, 2012, Li Wolf and Evanoff 2004, Nelson et al 2006, Theis and Finkelstein 2014). Chhokar et al (2005) showed the cost benefit improvements after a three year follow up study primarily focussed on provision of hoist equipment. Lim et al., (2011) specifically showed the reduction in repeat injury potential when following a suitable multi-factorial intervention including training, equipment and organisational changes. Repestro et al., (2013) and Fray and Hignett (2013) developed complex methods to evaluate the multifactorial patient handling interventions.

Supporting mobility in and around a bed

The focus of this paper is patient handling activities that involve movement in the bed and their relationship with the prevention of pressure damage to the tissue of a patient with limited mobility. SPH activities to support movement across a bed surface, i.e.

lateral movement across a bed, moving a person up the bed ('Boosting'), moving from one surface to another surface ('Lateral Transfers'), turning and rolling, are all common manoeuvres which could contribute to pressure ulcer risk factors with raised interface pressure, friction and shear (NPUAP/EPUAP). The assistance of activity for patients in bed is necessary to support their own mechanisms to reduce pressure ulcer risks by the alleviation and redistribution of pressure, changes to the circulation and the local microclimate at the point of contact with the bed.

Slide sheets can be used for SPH by reducing friction during horizontal transfer activities. The slide sheet system consists of two layers of low friction material; as the patient is moved, one layer stays in contact with the supporting surface whilst the other stays in contact with the patient, allowing the friction interface to occur between the two layers and not at the skin surface. Most slide sheets in use at the time of publication are low friction on all surfaces which allows for some movement at all interfaces and aims to avoid points of fixation, which may add to the shear component of the horizontal patient movement (e.g. hammocking). The provision of friction reducing slide sheets supports more frequent repositioning movements for dependent patients without higher risks of MSD for the carers or increasing pressure ulcer risks.

The MSD risks to carers from horizontal (lateral transfer) movements have been evaluated biomechanically. Several studies have measured the forces and postures demonstrated when moving a dependent patient without the use of SPH equipment (Jordan et al., 2011, Theilmeier et al., 2010, Skotte et al., 2002 Schibye et al., 2003). These have shown that carers are at significant risk of hazardous postures and high forces and that improvements can be seen by the correct use of slide sheets (Baptiste et al., 2004, McGill and Kavcic, 2007, Fray and Hignett 2009, Fray and LARF 2012); though there is little published evidence of any improvements in pressure care management (Kotowski et al 2013, Enos, 2013). An alternative consideration for in-bed movement is the use of a hoist which, in some situations, may be the preferred solution. Some patients may find the use of a hoist challenging and the successful selection, insertion and transfer with slide sheets may allow better engagement from the patient, with respect to dignity and comfort, rather than with a hoist transfer.

An important secondary consideration for the use of slide sheets is that the insertion and removal of the device is also a SPH activity which may include further rolling, pulling or pushing of the patient. Methods have been developed for the insertion/removal of slide sheets to minimise patient movement (Smith et al 2011, DIAG, 2011). Two studies (Fray and Hignett 2009, Fray and LARF 2012) evaluated carer actions for inserting/removing slide sheets based on a comprehensive task analysis and reported benefits from leaving the slide sheet underneath the patient. Benefits were also suggested for comfort and security of the patient when the device was left in situ.

Safe Systems of Work

Many years of evaluation of SPH techniques has developed detailed information and international consensus on best practice (ISO TR12296). Clear guidance is available for using slide sheets in line with current best practice for rolling, turning, lateral transfers and horizontal movements in bed (Smith et al 2011, DIAG 2011). The key issues for consideration are in table 1.

- Use a high quality product with proven friction reduction properties
- Ensure the slide sheet remains flat underneath the patient, without creases
- Avoid leaving the thicker edges/handles of the slide sheet under the patient
- Follow single patient use equipment (slide sheet) protocols to avoid cross-infection issues
- Use the correct size of slide sheet to facilitate a successful SPH transfer
- Ensure no part of the patient is in contact with the bed surface
- Conduct the sliding manoeuvre in a smooth co-ordinated manner
- Regularly check the slide sheet as laundering may reduce effectiveness (friction properties)
- Use slide sheets in conjunction with electric profiling beds to minimise repositioning activities.

Table 1 Important factors for selection and use of a slide sheet

The evidence for improvements in care is mostly supported by the implementation of comprehensive multifactorial SPH programmes. These programmes suggest that

solutions must include organisational commitment, management procedures and systems, a comprehensive risk assessment process, the provision of suitable physical environments with the correct level of equipment and training in both methods and equipment use (ANA, ISO 12296. Collins, Nelson, Sublet 2006, Nelson et al 2007, ANA 2013, Gallagher 2013, Smith (ed) 2011, DIAG 2011, ISO TR12296 Hignett et al., 2014).

As with all complex systems, staff and carers may not follow the processes as defined in best practice (Swain et al., 2003, Cornish and Jones 2010), so training, instruction and supervision in the workplace are required to improve compliance. The many barriers to 'best practice' have been investigated (Koppelaar et al., 2009 and 2013) and possible solutions (Schoenfisch et al., 2011) have been suggested. Some of the key barriers to best practice are linked to the resource issues, e.g. in complex cases with larger (plus size) patients there is a requirement for higher numbers of carers; equipment to assist the transfer needs to be available in the proximity of the transfer; and slide sheets should be provided for individual patients and laundered between patients.

Though there may have been some previous conflicts between the SPH and pressure care management, both are component parts in the drive towards high quality care in hospital and community care provision. Both have a clear focus on the individual patient, ensuring that they come to no harm and have the best opportunity for improvement. The delivery of safe and effective care can only be supported if the staff are comfortable, safe and confident when they are caring for their patients.

Collaborative Approach

The opportunities for collaborative solutions to manage both patient mobility and longer term maintenance of pressure ulcer management are indicated by: the growing requirement for pressure ulcer patients to be managed in the community (Eurostat, 2013) due to the ageing population, the additional requirements to protect informal carers (Hiel et al., 2015) and the trend for retaining older nurses (Fitzgerald 2007).

The recent changes to the pressure care guidance (NPUAP/EPUAP/PPPIA, 2014) has reinforced the need for even more collaboration between SPH practitioners and tissue viability nurses. There is a balance between selecting the correct pressure relieving

surface, and the management of a person on that surface (SPH). Additional improvements can be offered by the correct use of equipment for the assistance for everyday care tasks to give a further opportunity to improve care delivery. The development of a combined solution with pressure care and SPH is seen every day in hospital and community care. The alignment of the guidance should develop a clear signpost for research to evaluate the combination of these alternative approaches to better understand the collaborative effects.

None of the individual issues reported in this paper remove the requirement for a comprehensive risk assessment which includes: the physical condition, health status, associated risk factors, the environmental considerations and the mobility level of the patient. The professional judgement of both the SPH practitioner and the pressure care nurse can enhance the co-delivery of a single suitable care package that allows best return on investment for pressure relief management and treatment, comfort and dignity by safe and comfortable carers.

Summary:

- A more co-ordinated collaborative approach between safe patient handling and pressure care management is required
- If there is easy access to slide sheets carers are more likely to use them and less likely to take unnecessary risks
- If carers understand the risks and benefits of using slide sheets they are more likely to seek a safe solution
- Using slide sheet devices for in bed movements has benefits not only for safety, but also for the patients' comfort, security and dignity
- The recognised benefits of improved patient movement have to be compatible with pressure reducing therapies and treatment goals

Table 1: Considerations for effective slide sheet use

**Diagram 1: Illustration of correct manual handling technique using slide sheets
DIAG, HOP6.**

Summary box: Key relevant guidance from safe patient handling perspective

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