The Use of Friction Reducing Devices to Aid Comfort and Reduce the Risk for Injury During Patient Handling Activities

Jane Dean, RN
CHOC Children’s, Orange, CA

Summary of Findings

- The greatest force needed to transfer a patient comes from a pull on a draw sheet (Baptiste et al., 2006, Silve, et al., 2006).
- The mean maximum force required to move a patient while using a draw sheet compression force is 254 lb, significantly lower than the maximum level of safely as determined by National Institute of Occupational Safety and Health (2000, Steen, 2005).
- The least force required to perform transfers is using a friction reducing transfer aid. An air mattress and sliding sheets includes a lift (Baptiste et al., 2006, Baptiste et al., 2008)
- The NIOSH lifting equation allows for the use of a multidisciplinary intervention strategy to include:
  - Equipment purchase/procurement
  - Education/workplace
  - Training/education
  - Reassessment
  - Policy and procedure
  - Patient education
- Changes in work organization/practice

- Fall force and spinal force compression are minimized by the friction reducing aids
- Repositioning and transferring dependent patients can be performed with more ease, comfort and safety when combining ‘no friction’ friction reducing devices and transfer boards for patient handling.

Critique

- Samples sizes of the studies varied greatly using health care personnel of differing weight and stature. Subjects specifics to the transfer involved included nurses, volunteers and patients. Different settings included ICU, rehabilitation unit, Medical/Surgical, emergency room, research laboratories and community settings. The length of time required to perform the studies also varied.
- The studies included both patients and non-recognized controlled trial involving patients in various settings (Baptiste et al., 2006, Pedros, 2004, June, et al., 2001, Ziviani et al., 1994). Numerous maneuvers were performed by many caregivers using various transfer devices. These factors added enough to the evidence. However, the studies did not identify patient characteristics or disability level for each. As for adverse events there were many, sometimes severe, complications during the studies which would alter the outcomes.
- Variables were directly and indirectly effect benefit associated with the implementation of safe handling for a multitude of reasons, for example: devices such as: increased sick time, decreased worker compensation, increased injuries and a more acceptable tool for medical treatment (i.e. risk of falling times out, stressing force during move may lead to promote extra). Therefore, the benefit of the project reflects CHOC Children’s mission and values.

References

From the studies used in this evidence-based review there was little research evaluating actual patient responses to comfort when using different methods and devices. Further research in this area may include:
- Patient feedback (i.e. comfort, ease of use, etc.)
- Ethical considerations

Examples of Assistive Devices

- The Efficacy Based Sheets program at CHOC was supported by a grant from the Mary and Young Shaw Foundation.