

# Do Lift Slings Significantly Change the Efficacy of Therapeutic Support Surfaces? A National Pressure Ulcer Advisory Panel White Paper



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The intention of this paper is to increase critical thinking when lift slings are used in combination with therapeutic support surfaces.

**Introduction:** Recent legislation in many states mandates the use of Safe Patient Handling and Mobility (SPHM) devices however the impact of lift slings on the efficacy of pressure redistribution mattress when left in place is unclear. SPHM is the term referring to policies and programs that delineate devices and techniques that allow patients to be moved without strain or injury to the healthcare worker or the patient. The Occupational Safety and Health Administration (OSHA) recommends that manual lifting of patients be minimized in all cases and eliminated when feasible. Employers should put an effective ergonomic process in place that provides management support, involves employees, identifies problems, implements solutions, addresses injury reports, provides training, and evaluates ergonomics efforts. (OSHA 2003) The success of these SPHM programs greatly depends on ease and accessibility of equipment, specifically leaving lift slings under patients in bed, ready for immediate use.<sup>1</sup>

The beds that healthcare facilities utilize are specialized support surfaces for pressure redistribution designed to manage tissue loads, micro-climate, and/or other therapeutic functions. Even a small number of layers of bed linens have been shown to negatively impact the therapeutic value of these support surfaces.<sup>2</sup> Therefore, a clinical conundrum has been brought to the attention of the National Pressure Ulcer Advisory Panel (NPUAP): whether or not to leave a SPHM sling beneath patients between uses. Does this practice have an impact on the performance of the support surface? And perhaps the bigger question: What impact does leaving a SPHM sling under patients have on the clinical care and pressure ulcer development for patients?

## **Background/History/Overview:**

The 2014 International Pressure Ulcer Guidelines General Repositioning for all Individuals states “Reposition all individuals at risk of, or with existing pressure ulcers, unless contra-indicated.”

A leading cause of injury to health care workers is musculoskeletal disorders such as strains and sprains. In 2012, healthcare providers suffered more musculoskeletal injuries than construction, mining, and manufacturing workers (OSHA 2013). The majority of these injuries are attributed to overexertion related to repeated manual transfer, repositioning and lifting of patients (OSHA, 2011). Research and technology are changing the way healthcare facilities approach various aspects of workplace safety. Health care workers require a safe work environment, which includes moving patients without the risk of injuries. These injuries may lead to days away from work, burnout, turnover and permanent disability.

Research also indicates that when patient care tasks take too much time to complete, and labor and material resources are limited that some care tasks are not completed or are delayed by patient care providers. The patient care tasks most frequently identified as being ‘missed’ are repositioning and ambulation of patients.<sup>14-17</sup> Thus, the use of SPHM devices to reposition patients may facilitate regular turning and repositioning of patients.

In order to establish a safe environment for nurses and patients, the ANA supports actions and policies that result in the elimination of manual patient handling. In agreement, the 2014 International Pressure Ulcer Guidelines Repositioning Techniques 3.1 states “Use manual handling aids to reduce friction and shear. Lift — don’t drag — the individual while repositioning.”<sup>4</sup> Further guidelines state “Use a split leg sling mechanical lift when available to transfer an individual into a wheelchair or bedside chair when the individual needs total assistance to transfer. Remove the sling immediately after transfer” and “Do not leave moving and handling equipment under the individual after use, unless the equipment is specifically designed for this purpose.”<sup>4</sup>

Many healthcare facilities have encountered challenges with sustaining these SPHM programs due to the difficulty of managing lift slings and equipment. Successful implementations have been seen when slings are left in place under the patient at all times so that staff can utilize them immediately whenever necessary to facilitate turning and repositioning.<sup>1</sup> The concern is these devices are an extra layer between the patient and the support surface. Does this extra layer have an adverse effect on the therapeutic properties of the support surface and how does that impact patient outcomes?

## **Literature Review**

A study by Edupuganti and Price<sup>5</sup> looked at the effect slings have on skin pressure, pH, and temperature using 180 healthy adults, a standard hospital mattress, and polyester repositioning slings. They found no statistically significant difference in pressure, sacral temperature and sacral pH between 4 groups (2 without slings and 2 with slings; 2 with head of bed elevated 30 degrees and 2 without head of bed elevated).

Melleson and Richardson<sup>6</sup> looked at the effect of 3 common sling fabrics on gluteal interface pressure in sitting with healthy individuals. They found that even with prolonged sitting, the pressures over the ischial tuberosities did not increase with a sling in place.

A poster presented at the Wounds Ostomy Continence Nurses Society Annual Conference in 2013 by McDonald, et al<sup>7</sup> looked at temperature and pressure with and without slings on various support surfaces. They concluded that various fabrics of slings, on various hospital bed surfaces did not yield statistically significant increases in temperature or pressure compared to baseline measurements without a sling.

The fabric or composition of the device is important, as some may have less impact than others on the therapeutic functions of the support surface. A study of various incontinence pads and draw sheets, for example, found significant reductions in evaporative capacity for plastic-backed pads with little or no permeability to air or vapor.<sup>2</sup> A broad laboratory study of the effects of different fabrics used in sling construction may be necessary.

## **Clinical Outcomes**

Enos reports that in two states where she practices, leaving lift slings under patients has not increased skin damage or pressure ulcers.<sup>1</sup> The lack of high level research regarding keeping lift slings beneath patients and pressure ulcer development, leaves clinicians to utilize critical thinking to decide what is best for each of their individual patients. Further clinical trials are needed to examine the relationship, if any, between leaving repositioning slings beneath patients on therapeutic support surfaces and the development of pressure ulcers.

## **Discussion:**

A lack of high-level evidence exists to explain how allowing slings to remain under patients would impact pressure ulcer development. Clinicians are therefore tasked with using this limited evidence and their clinical assessment to make this determination. Systematically each clinician must review their patient care assessment against the physical features of the sling to be utilized.

To ensure the best clinical outcome, it is important that the combination of support surface and sling meets the individual patient's needs. Support surfaces are selected based primarily upon pressure redistribution capabilities, moisture management, and patient weight. A sling's impact on the characteristics that are essential to the safety and management of the patient must be well understood and monitored by healthcare providers. Healthcare providers must also understand the impact of not utilizing the sling. Healthcare clinicians for each individual patient must critically review the impact, both the risk and the benefit, of leaving a sling beneath a patient.

### **Summary/Conclusion:**

The decision regarding placement/removal of SPHM equipment between uses must balance the putative risk (decreased efficacy of a therapeutic support surface) and potential benefit (easier repositioning increasing frequency and/or efficacy) on pressure ulcer prevention. Without evidence regarding the effect of slings upon support surface performance, the clinical recommendation is based on expert opinion to be found within the Guidelines combined with clinical assessment and an individualized plan of care by the team of health care professionals at the bedside.

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