

## Justifying an Investment in an Overhead Harness System



In order to improve walking-related outcomes for patients with chronic stroke, incomplete spinal cord injury, and brain injury, the 2020 clinical practice guideline for locomotor training<sup>1</sup> recommends the prioritization of walking practice at high aerobic intensities, commonly referred to as High Intensity Gait Training (HIGT).

While implementing HIGT, therapists may need to provide as-needed physical assistance in order to allow successful stepping practice. Such assistance may include advancing a limb, preventing limb collapse, or preventing a fall after a loss of balance. As progress is made, assistance is removed and the patient is challenged to, and sometimes beyond, their capacity,<sup>2</sup> which can result in patients needing physical assistance to recover balance.

Potential barriers to therapists implementing HIGT include lack of equipment, therapist and administrator beliefs, and knowledge gaps regarding potential benefits of safe patient handling equipment in their practice. Below are answers to some common questions therapists and administrators may have about the role of overhead harness systems.

### **Do I need a harness to provide best care?**

Physical therapists working in clinical environments without adequate equipment for this population, such as an overhead harness, are faced with difficult safety decisions. Therapists may decide upon the following: 1) avoid ambulation practice altogether, 2) underdose and insufficiently challenge patients' walking, or 3) attempt to provide gait training interventions while guarding patients with minimal equipment such as a gait belt. None of these options are optimal.

Limiting therapeutic interventions due to concern for patient and/or staff safety does not allow patients to benefit from the repetitive, intense, and task-specific practice that is strongly recommended for maximizing locomotor outcomes.<sup>1</sup> Overhead harness systems can allow improved safety and capacity to participate in stepping practice. Such equipment is endorsed by the American Physical Therapy Association's position statement on Safe Patient Handling.<sup>3</sup>

### **Aren't gait belts enough?**

While it's true that data suggests holding a gait belt during a patient fall may decrease the risk of patient injury,<sup>4</sup> gait belts are not recommended for catching falling patients.<sup>5</sup> It is also not recommended to lift a patient's weight with one.<sup>6</sup> This is especially true when working with patients of size for gait belts can be difficult to use and may not be suitable during ambulation practice.<sup>6</sup>



## **Does a lack of equipment pose a risk to therapists?**

Physical therapists involved with patient handling such as gait training are at a high risk for work-related musculoskeletal disorders (WMSD). The National Institute of Occupational Safety and Health (NIOSH) recommends restricting lifting activities to 35 pounds in an ideal patient environment.<sup>7</sup> However, therapist positions and the weights therapists lift during mobility activities typically exceed these recommendations and are often unpredictable.<sup>8</sup> Despite physical therapists' substantial education regarding body mechanics and ergonomics, WMSD rates among PT's are not significantly less than other healthcare professionals involved in patient handling.<sup>9</sup>

Research investigating WMSD in physical therapists reveals a serious concern. For example, between 53 and 91% of physical therapists experience a WMSD at some point in their career, with lower back injuries being the most common body part affected.<sup>9</sup> The one-year incidence rate of WMSD was 20.7% in an 882 APTA member survey, with patient handling activities increasing the risk of lower back injury. This risk was independent of hours worked, age, sex, and other risk factors.<sup>10</sup>

Providing physical assistance during gait training is an inherent risk factor for WMSD,<sup>11</sup> and is among the most common risk factors for experiencing a lower back WMSD.<sup>9</sup> Neurologic physical therapists more commonly experience lower back, upper back, and knee WMSD compared to other practice specialty areas. Additionally, up to 39% of PT's who experience a WMSD change practice settings as a result of their injury.<sup>9</sup> Unfortunately, an estimated one in six physical therapists leaves the profession due to WMSD.<sup>11</sup>



## **What other costs are there for not having appropriate patient handling equipment?**

In addition to staff injuries, there is potential for patient injury. Due to fear of falling and not trusting the strength of a therapist many patients choose to avoid fully participating in therapy, which again limits a therapist's ability to implement high quality evidence.

Another cost that healthcare facilities can experience is the substantial financial burden from WMSD. In 2011, patient handling injuries accounted for 25% of all workers' compensation claims in healthcare, and the average workers' compensation claim related to patient handling cost \$15,600. This figure does not account for other indirect costs such as employee turnover, additional training, incident investigation time, productivity, staff morale, patient safety, patient satisfaction, and patient recovery times - which estimates show may actually result in costs up to four times the cost of the original claim.<sup>12</sup>

## What is the potential return on investment of an overhead harness system?

The use of safe patient handling equipment, such as an overhead harness system, is an effective strategy to provide best care while protecting patients and staff. Research in Safe Patient Handling and Mobility (SPH) program implementation consistently demonstrates reductions in incidence and severity of WMSD in hospital staff who are involved in patient handling, along with significant cost savings to hospitals.<sup>12</sup> Other benefits of utilizing SPH equipment include improved patient safety, along with patients being more willing to try challenging activities.<sup>8,13</sup> Therapists who previously avoided risky activities may be more willing to gait train larger or more dependent individuals within the safety of a harness. Overhead harness systems may also increase the overall amount and intensity of practice,<sup>11</sup> which are both critical training parameters for improving walking function.<sup>1</sup> Clinics that show interest in patient outcomes and staff safety can use this as a useful marketing opportunity for not only attracting future patients, but also attracting and retaining staff.

### Examples of Safe Patient Handling Cost Savings

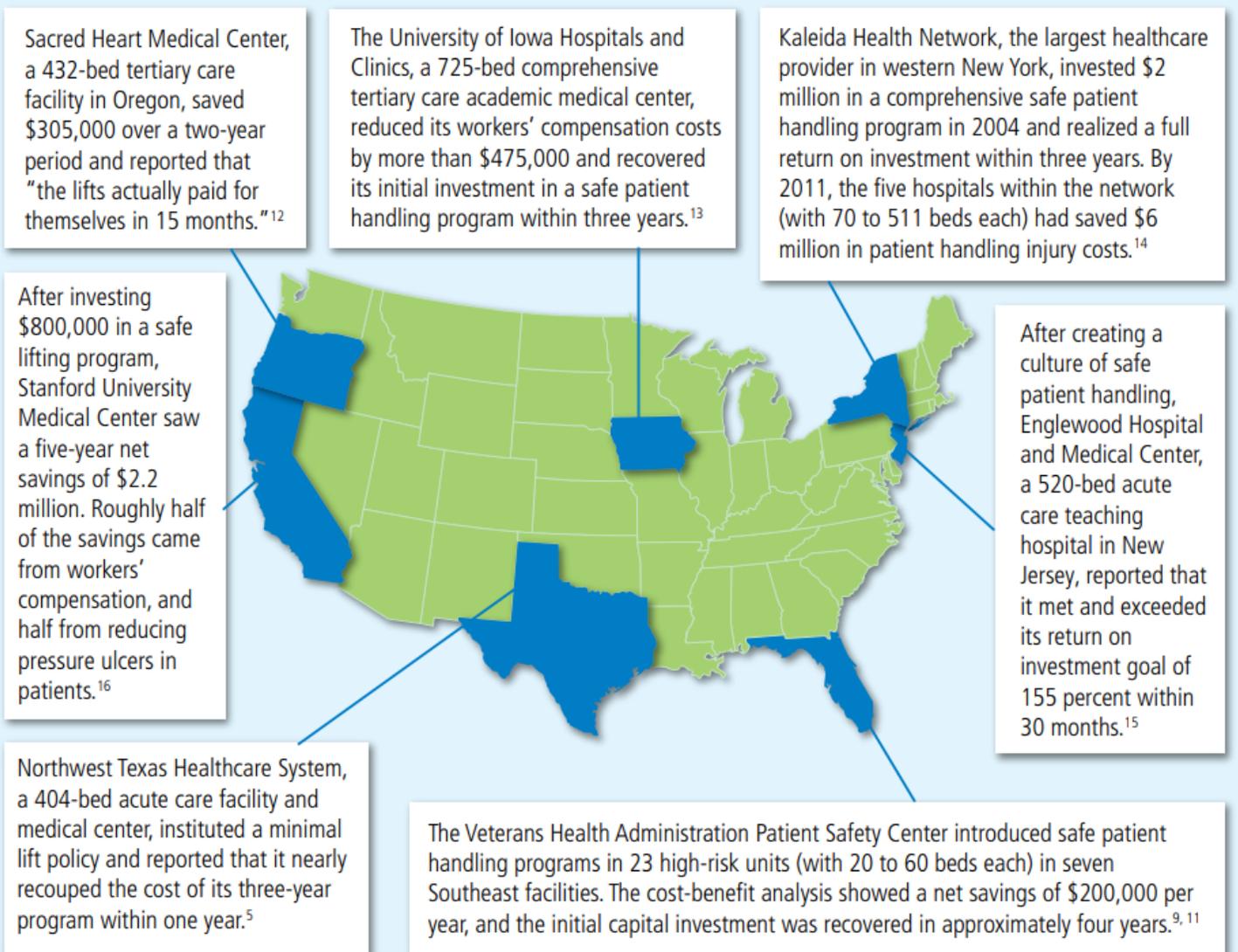


Figure from Occupational Safety & Health Administration<sup>12</sup>

## **Will using equipment prevent patients from getting better?**

Despite the above-mentioned benefits, some may be reluctant to implement SPH equipment use due to the misconception that it impedes functional recovery and decreases active patient participation. However, evidence does not support this claim. In fact, SPH equipment can allow staff to mobilize patients earlier, more frequently, and for longer durations by decreasing therapist strain and fatigue as limiting factors. And using SPH equipment may allow patients to achieve higher functional gains compared to when SPH equipment is not used.<sup>8</sup> Allowing patients increased repetition and intensity of walking practice is consistent with the recommendations in the locomotor clinical practice guideline.<sup>1</sup>



## **Are there uses for an overhead harness system other than for gait training?**

While harness systems can be invaluable tools for optimally implementing High Intensity Gait Training, there are several other applications. Overhead lifts can be used for dependently transferring patients onto other exercise equipment, or to safely help them reposition in a wheelchair or bed. For patients with more function, harness systems can provide a safer way to practice squat pivot or slide board transfers. Floor based therapeutic activities including practicing floor transfers are also made safer with an overhead lift system. They can also help with supporting heavy limbs during wound and lymphedema therapies, freeing up the therapist's hands to be more precise and efficient.

## **What's the take home message?**

In summary, physical therapy clinics looking to provide evidence-based care for improving walking function for patients with neurologic injury should strongly consider the benefits of safe patient handling equipment such as overhead harness systems. Such equipment not only allows patients to receive best care, but also allows clinics to maximize safety of patients and staff, and potentially limit the financial burden of work-related injuries.

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