References about ceiling hoists

Reference one

Abstract from
Evidence based research - The effectiveness of ceiling hoists in transferring people with disabilities

Author
Jung YM, Bridge C., Evidence-based research: June 2009.

Objectives
This systematic review aimed to investigate the effectiveness of ceiling hoists and the benefits over other handling methods in lifting and transferring people with physical disabilities. This research will assist with the decision-making by potential users in selecting a safe and effective transfer method.

Design
The Home Modification Information Clearinghouse Systematic Review Protocol guided the entire process of this research. Its data search strategy was developed to ensure that all the important and relevant sources of information are covered.

This systematic literature review incorporates searches of conventional data sources such as electronic databases and journals as well as data from legislation, regulatory documents and manufacturers’ specifications.

Specific inclusion and exclusion criteria were developed to ensure irrelevant studies were eliminated, maximising the reliability and validity of the review.

Outcomes of search
Twenty-three articles were examined in this systematic review. The majority of studies reviewed were from Canada, the United States of America (USA) and the United Kingdom (UK), with no previous Australian research found in the database searches.

The majority of resources reviewed focused on the use of ceiling hoists to reduce the injuries and physical stress of care-givers, with less concerns being given to care-recipients.

This review largely addresses the use of ceiling hoists within formal health care settings such as hospitals as they accounted for the majority of facilities reviewed in the research.

Results
This review identified strong evidence that ceiling hoists significantly decreased musculoskeletal injuries and physical stress for care-givers.

Despite a few contrary outcomes, when compared to mobile hoists and manual handling, ceiling hoists were the preferred option for both care-givers and the care-recipients. Ceiling hoists required less set-up time to fulfil the transfer task than mobile hoists. Improved manoeuvrability and reduced susceptibility to spatial restriction are well documented advantages of ceiling hoists.

However, disadvantages were noted in that ceiling hoists have coverage limitations and
still require some manual handling to prepare for a transfer. In spite of the relatively expensive instalment cost, ceiling hoist systems were found to be more cost-effective in the long-run.

Reference two

Abstract from

Author
Ronald LA, Yassi A, Spiegel J, Tate RB, Mozel MR

The effectiveness of replacing floor lifts with mechanical ceiling lifts was evaluated in the extended care unit of a British Columbia hospital. Sixty-five ceiling lifts were installed between April and August 1998.

Injury data were abstracted from injury reports for all staff musculoskeletal injuries (MSI) occurring in the unit during a 3 year period prior to installation and a 1.5 year follow up period. Descriptive statistics were calculated for injuries pre- versus post-installation. Rates were calculated as number of injuries per 100,000 worked hours. Rates for three pre- and three post-installation intervals were compared using Poisson regression.

The rate of MSI caused by lifting/transferring patients was significantly reduced (58% reduction, p = .011) after installation, but rates of all MSI and MSI caused by repositioning did not statistically decline (p > .05).

Further follow up is necessary to determine whether or not ceiling lifts also can be effective for decreasing injuries related to repositioning patients on this unit.

Reference three

Abstract from
Musculoskeletal injuries resulting from patient handling tasks among hospital workers: Ind Med; 2009. 52:571–578: Division of Environmental and Occupational Health Sciences, School of Public Health, The University of Texas, Houston, Texas 77030, USA

Author
Pompeii LA, Lipscomb HJ, Schoenfisch AL, Dement JM. lisa.pompeii@uth.tmc.edu

Background
The purpose of this study was to evaluate musculoskeletal injuries and disorders resulting from patient handling prior to the implementation of a "minimal manual lift" policy at a large tertiary care medical center. We sought to define the circumstances surrounding patient handling injuries and to identify potential preventive measures.

Methods
Human resources data were used to define the cohort and their time at work. Workers' compensation records (1997-2003) were utilized to identify work-related musculoskeletal claims, while the workers' description of injury was used to identify those that resulted from patient handling. Adjusted rate ratios were generated using Poisson regression.

Results
One-third (n = 876) of all musculoskeletal injuries resulted from patient handling activities. Most (83%) of the injury burden was incurred by inpatient nurses, nurses' aides and radiology technicians, while injury rates were highest for nurses' aides (8.8/100 full-time equivalent, FTEs) and smaller workgroups including emergency medical technicians (10.3/100 FTEs), patient transporters (4.3/100 FTEs), operating room technicians (3.1/100 FTEs), and morgue technicians (2.2/100 FTEs). Forty percent of injuries due to lifting/transferring patients may have been prevented through the use of mechanical lift equipment, while 32% of injuries resulting from repositioning/turning patients, pulling patients up in bed, or catching falling patients may not have been prevented by the use of lift equipment.

Conclusion
The use of mechanical lift equipment could significantly reduce the risk of some patient handling injuries but additional interventions need to be considered that address other patient handling tasks. Smaller high-risk workgroups should not be neglected in prevention efforts.
Reference four

Abstract from

Author
Park R, Bushnell T, Bailer AJ, Collins JW, Stayner LT. Education and Information Division, National Institute for Occupational Safety and Health, Cincinnati, Ohio 45226, USA.

rhp9@cdc.gov

Background
The rate of lost-time sprains and strains in private nursing homes is over three times the national average, and for back injuries, almost four times the national average. The Ohio Bureau of Workers’ Compensation (BWC) has sponsored interventions that were preferentially promoted to nursing homes in 2000-2001, including training, consultation, and grants up to $40,000 for equipment purchases.

Methods
This study evaluated the impact of BWC interventions on back injury claim rates using BWC data on claims, interventions, and employer payroll for all Ohio nursing homes during 1995-2004 using Poisson regression. A subset of nursing homes was analyzed with more detailed data that allowed estimation of the impact of staffing levels and resident acuity on claim rates. Costs of interventions were compared to the associated savings in claim costs.

Results
A $500 equipment purchase per nursing home worker was associated with a 21% reduction in back injury rate. Assuming an equipment life of 10 years, this translates to an estimated $768 reduction in claim costs per worker, a present value of $495 with a 5% discount rate applied. Results for training courses were equivocal. Only those receiving below-median hours had a significant 19% reduction in injury rates.

Injury rates did not generally decline with consultation independent of equipment purchases, although possible confounding, misclassification, and bias due to non-random management participation clouds interpretation. In nursing homes with available data, resident acuity was modestly associated with back injury risk, and the injury rate increased with resident-to-staff ratio (acting through three terms: RR = 1.50 for each additional resident per staff member; for the ratio alone, RR = 1.32, 95% CI = 1.18-1.48). In these NHs, an expenditure of $908 per resident care worker (equivalent to $500 per employee in the other model) was also associated with a 21% reduction in injury rate.

However, with a resident-to-staff ratio greater than 2.0, the same expenditure was associated with a $1,643 reduction in back claim costs over 10 years per employee, a present value of $1,062 with 5% discount rate.

Conclusions
Expenditures for ergonomic equipment in nursing homes by the Ohio BWC were associated with fewer worker injuries and reductions in claim costs that were similar in magnitude to expenditures. Un-estimated benefits and costs also need to be considered in assessing full health and financial impacts. (c) 2009 Wiley-Liss, Inc.

Reference 5

Abstract from

Author
Chhokar R, Engst C, Miller A, Robinson D, Tate RB, Yassi A

Ceiling lifts are frequently advocated to mitigate risk of injury to healthcare workers when lifting, transferring, or repositioning patients. A longitudinal case-study was conducted in an extended care facility to evaluate the efficacy of overhead lifts in reducing the risk of injury beyond that previously reported for the first year post-intervention (Am. Assoc. Occup. 50 (3) (2002) 120–127, 128–134).

Analysis of injury trends spanning 3 years pre-intervention and 3 years post-intervention, found a significant and sustained decrease in days lost, workers’ compensation claims, and direct costs associated with patient handling injuries. The payback period was estimated assuming that pre-intervention injury costs would either
continue to increase (0.82 years) or plateau (2.50 years) in the year immediately preceding intervention.

The rapid economic gains and sustained reduction in the frequency and cost of patient handling injuries beyond the first year strongly advocate for ceiling lift programs as an intervention strategy.