Background

Fraser Health Fast Facts:
- Serves approximately 1.5 million people residing in the geographical area east-southeast of Vancouver, British Columbia
- Has a workforce of about 22 000 staff, 2 000 physicians, and an additional 10 000 staff working in contracted health agencies

Ergonomics Team, Workplace Health, Fraser Health

Introduction

Patient-handling devices have been in use for many years in the healthcare industry with benefits realized in both acute and extended care settings (Yassi et al., 1995; Evanoff et al., 2003). There were many reports that indicated reduced risk of musculoskeletal injury to the caregivers by reducing the mechanical load while performing patient-handling tasks such as transfer from bed to chair or from chair to toilet (Laffee and Agp, 1995). This technology, however, has some challenges, namely, accessibility, and the physical effort required to move the device once the patient was supported by the lift. In recent years, newer lift technology has been developed and used extensively in care settings.

The use of ceiling lifts have been the intervention of choice for many injury-prevention efforts in care environments (Mughal 2002, Ronald et al. 2002) due to their greater accessibility in comprehensive installations, and reduction in physical effort due to the track and roller design. Their introduction is relatively straightforward in units where floor-based lifts have been in use previously, and given the ubiquitous use of lifts in extended care, ceiling lifts have enjoyed substantial successes in these types of settings. While there have been a number of previous evaluations of the effectiveness of ceiling lifts on a project-by-project basis, there has been a large-scale evaluation of injury data for both extended and acute care concurrently.

Methods

Data were extracted from a healthcare employer’s injury database providing 12-24 months of pre- and post-ceiling lift installation data for intervention units in an extended care (n=11) and acute care (n=9) levels. Control units were identified that represented units that had not received an installation of ceiling lifts within the time frame of the data extracted. Analysis was performed using descriptive statistics and repeated measures Multivariate Analyses of Variance (MANOVAs) using SPSS v12.0 for Windows (SPSS Inc., Chicago, IL, USA, 2000). Analysis was performed to examine for differences between the control and intervention units matched as closely as possible between the intervention and control groups for both levels of care. Measures collected included the number of reported musculoskeletal injuries associated with patient handling, the total costs of these injuries and the total days lost. Number of beds in each unit was also collected. Each variable was annualized and normalized to a “per bed” basis to allow for effective comparisons between units with large and small populations.

Analysis of the data was performed using descriptive statistics and repeated measures Multivariate Analyses of Variance (MANOVAs) using SPSS v12.0 for Windows (SPSS Inc., Chicago, IL, USA, 2000). Analysis was performed to examine for differences between groups for each of the measures examined. Comparisons were made between interventions and controls within each level of care separately.

Results

Extended care units that received ceiling lifts observed a reduction in the number of musculoskeletal-injury claims (45%), claims cost (39%), and in days lost (38%), where as the control units also saw new reductions, but to lesser extent (18%, 17%, 19%, respectively). Within the acute care units receiving ceiling lift, number of claims were reduced (48%), as were claims costs (30%) and days lost (30%). These changes were not seen in the acute care control units, where the measures only slightly increased from relatively low values in the pre-intervention period.

Goal

Comparison of Ceiling Lift Effectiveness Across Acute and Extended Care Settings

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Discussion

Although there were no statistically significant differences in the number of injuries occurring related to patient handling in the acute care settings, there was a noticeable drop in the costs associated with these injuries. There was also a smaller reduction in days lost. These results indicated that while the ceiling lift did not affect the frequency of musculoskeletal injuries in the acute care environment, they did affect an intervention on the burden associated with the injuries. The precise manner in which this effect is seen, however, cannot be determined from these data. The response itself could have been less traumatic, thus requiring less time to recover from, or the ceiling lift could have provided an environment in which an injured worker may be able to return to work sooner after experiencing an injury, resulting in both reduced time away from work (days lost) and associated costs of the claim.

Further research is required to determine the contribution of ceiling lifts to the post-injury recovery process.

The absence of significance in this analysis may be attributed to the small sample sizes that were available. In addition, the variance among the values from each unit was large, reducing the overall power of the analysis. In an ideal situation, a comparison of the type described above would occur between units of similar size type of work environment. The results of the statistical analysis raises questions regarding the appropriateness of these types of indicators as the sole measures of effectiveness of injury reduction initiatives.

Conclusions

These findings suggest that there is considerable positive effect on the severity of musculoskeletal injuries that occur in units where ceiling lifts are installed in extended care. Reducing the severity of these types of injuries is an important injury-prevention strategy as it is often more difficult to return to work after a more traumatic injury. Ceiling lifts were floor-based models that reduced risk of musculoskeletal injury to the caregiver by reducing the mechanical load while performing patient-handling tasks such as transfer from bed to chair or from chair to toilet (Laffee and Agp, 1995). This technology, however, has some challenges, namely, accessibility, and the physical effort required to move the device once the patient was supported by the lift. In recent years, newer lift technology has been developed and used extensively in care settings.

The use of ceiling lifts have been the intervention of choice for many injury-prevention efforts in care environments (Mughal 2002, Ronald et al. 2002) due to their greater accessibility in comprehensive installations, and reduction in physical effort due to the track and roller design. Their introduction is relatively straightforward in units where floor-based lifts have been in use previously, and given the ubiquitous use of lifts in extended care, ceiling lifts have enjoyed substantial successes in these types of settings. While there have been a number of previous evaluations of the effectiveness of ceiling lifts on a project-by-project basis, there has been a large-scale evaluation of injury data for both extended and acute care concurrently.

References


