ERGONOMICS DEMONSTRATION PROJECT

Skilled Nursing Facility

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Department of LABOR AND INDUSTRIES

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SKILLED NURSING FACILITY

EXECUTIVE SUMMARY

This demonstration project took place in a 139-bed skilled nursing facility. The primary objective of the project was to show how a nursing home could comply with the Ergonomics Rule; specifically, that the facility could:

- Identify jobs in the facility that fell into the "caution zone" job category and would therefore be covered by the ergonomics rule.
- Determine which jobs had risk factors that would reach a hazard level under the rule, and therefore would require controls to reduce risk factor exposure.
- Implement modifications to decrease exposure to below hazard levels.

The project found that, while there were a number of risk factors for work-related musculoskeletal disorders (WMSDs) present in this nursing home facility, only manual handling of residents would reach the hazard level under the ergonomics rule. The staff at the facility had already implemented controls to address this hazard, and had implemented voluntary improvements to address other risk factors not covered by the rule.

Objectives:

To demonstrate that a team of employees at a long-term care facility can:

- Understand the relationship between work activities and potential exposure to the physical risk factors associated with work-related musculoskeletal disorders.

- Recognize and identify specific job tasks and activities in the facility that involve potential exposure to the same physical risk factors.

- Identify jobs in the facility that may fall into the category of "caution zone" jobs and would therefore be covered by the ergonomics rule.

- Determine which jobs had risk factors that would reach a hazard level under the rule, and therefore would require controls to reduce risk factor exposure.

- Appreciate that the science of ergonomics holds utility for suggesting ways to decrease exposure to physical risk factors, and to make jobs safer for both employees and residents.

- Understand basic principles of ergonomics as they might affect the industry.

- Apply the principles of ergonomics to suggest changes in jobs.
    - Utilizing feedback from all employees, brainstorm to create a list of possible changes and modifications that may decrease exposure to as many of these risk factors as possible.

- Create an action plan for implementation of changes and modifications.

- Implement elements of the plan.

- Evaluate the implementation, both in terms of process and outcomes.
    - Did the process itself work?
    - Was exposure decreased where changes were implemented?
    - Was there any effect on the longer-term outcomes of the number and severity of work-related musculoskeletal disorders?

- Utilize the tenets of continuous quality improvement to maintain or modify the changes and modifications made.

Project Description

The facility that served as the subject of this demonstration project was also a participant in the ***"Getting to Zero"*** intervention study conducted by SHARP, partly funded by NIOSH, and sponsored by the Department of Labor & Industries. As part of that study, the facility was a comparison group home and did not receive an intervention. A team of researchers, including at least one ergonomist, visited the facility twice. During these visits, interviews were conducted with a variety of personnel and observations were made of typical work practices. The researchers were thus very familiar with the operations of this nursing home, including safety and ergonomics practices.

It became apparent that the administrator of the facility had good knowledge of the physical risk factors for musculoskeletal disorders and of ergonomics. She was very supportive of efforts within the facility to make improvements in jobs and related processes.

It also became apparent that the facility had a well-functioning and active health & safety committee. The chairperson of the committee had been a physical therapist assistant at the facility for a number of years. He was active in training, especially of nursing assistants. He also had good knowledge of the physical risk factors for musculoskeletal disorders and of ergonomics, and was creative with suggesting solutions.

The next step was to familiarize key personnel of the intent and requirements of the ergonomics rule. The administrator of the facility, and three representatives from L&I/SHARP, held an initial meeting. The purpose of this meeting was to introduce the administrator to the ergonomics rule, to discuss the role of demonstration projects, and to request the participation of the facility in such a project. The administrator was open to participation, and another meeting was scheduled, between the administrator and an ergonomist who had been involved with the ***"Getting to Zero"*** site visits.

At this next meeting, the ergonomist went over the requirements of the rule in more detail, shared materials produced by L&I that explained the rule in more details, and had a lengthy discussion with the administrator. Decisions were made about the next step in the process. The administrator felt she should share the detailed information with department heads representing key functions at the facility: nursing, therapy, dietary, laundry, housekeeping, maintenance, and office. A meeting of these individuals would follow, where they would describe and discuss jobs and activities they felt might present with physical risk factors, as well as brainstorm about possible modifications that might alter these factors. In addition, the chair of the safety committee agreed to present the same information at the next meeting of the committee, and to hold a similar discussion with members of the committee. The ergonomist agreed with this plan, and offered to be present as a facilitator at this next meeting; unfortunately, due to time and scheduling constraints, this was not possible. The administrator and ergonomist agreed to meet again to discuss the results of that meeting.

Next, the administrator and ergonomist discussed the results of the meetings of the department heads and safety committee. The team did an excellent job of identifying jobs with potential hazards, and proposed a good number of feasible solutions, many of which had already been implemented. This was followed by a visit where two ergonomists were shown both jobs and solutions. Photos and video were taken, and discussions were held with a good number of employees. The ergonomists were in agreement that physical risk factors had been, or would be, reduced by implementation of the changes.

Caution Zone Jobs

The job of the NAC (certified nursing assistant) appears to involve activities that fall into the "caution zone" category. This job involves a great deal of direct care and contact with the residents, and of necessity, includes handling and moving them. This work involves exposure to the risk factors of heavy and awkward lifting that fall under caution zone criteria.

WMSD Hazards

Manual handling of residents in nursing homes often involves lifting part or all of their body weight while moving them from bed to chair, chair to toilet, chair to bath, etc. Based on the weight of the resident, the lifting posture, and the frequency and duration of lifting, manually transferring residents often exceeds the acceptable limit as determined using the lifting assessment in Appendix B of the ergonomics rule. Therefore, most manual transfers of residents would be considered hazards under the ergonomics rule and would require controls to reduce the risk factor exposure below the hazard level or to the degree technologically and economically feasible.

Due to the number and severity of back and shoulder injuries occurring among NACs, many nursing homes have recognized this hazard, even before the ergonomics rule was implemented. This facility is one of those homes that had taken steps to reduce the hazard prior to the ergonomics rule, and therefore did not have lifting hazards present.

NURSING ACTIVITIES

Handling Residents

The facility is guided by a "zero-lift" philosophy, which strives to minimize the actual lifting of residents by caregivers. (It should be noted that the residents are still "handled" by their caregivers – the "human touch" is still important, particularly in this population!) But the facility is trying to minimize the number of times the human body is required to function as a derrick in the moving of another person – because even if done "correctly," each encounter represents further exposure to forces on the human spine of a magnitude that may eventually lead to discomfort and injury.

To this end, the facility has invested in several types of mechanical lifts that do the bulk of the actual lifting of the resident. There are so-called "total lifts" which are used with individuals who are completely dependent on others, while "sit-to-stand" lifts are used with residents who have some partial or momentary capacity to bear weight.

A total lift for dependent residents

A sit-to-stand lift for partially weight bearing residents

- A variety of lifts are available from a number of different vendors. Facilities interested in obtaining equipment should be wise consumers and "shop around" for the lifts that best suit the needs of the facility. As part of an earlier project, Labor and Industries produced two booklets on lifts: *Frequently Asked Questions about Portable Total Body Patient/Resident Lifts*, and *Frequently Asked Questions about Sit-to-Stand Patient/Resident Lifts*. Copies of these reports can be found at the L&I web site at: http://www.lni.wa.gov/wisha/ergo/ergoed.htm#publications, or by contacting a local L&I office.

It should be emphasized that equipment alone does not create a zero-lift environment!

- Residents must be carefully evaluated with the possible use of equipment kept in mind, and re-evaluated as changes in condition occur. Information about the transfer status of residents must be easily accessible to those who are providing care.

- Training on the use of the equipment is critical. Training should include opportunities for practice and feedback. Refresher training should also be provided at appropriate intervals, usually at least annually.

- Written policies and procedures should document the presence of a zero-lift environment. There should be strategies for dealing with circumstances where procedures are not followed.

- Medical case management of employees who have sustained injuries related to resident handling should recognize the opportunities presented by a zero-lift environment. Physicians and third-party administrators should be made aware of the availability of the equipment.

Risk Factors not covered by the ergonomics rule

A number of other jobs in the facility were identified as involving potential exposure to physical risk factors, but not at a level to make them "caution zone" jobs; however, the facility implemented voluntary improvements to decrease the exposure and make the jobs easier and safer.

NURSING ACTIVITIES

Dispensing Medication

An essential part of the LPNs job is the timely and accurate distribution of medications to the residents. Frequently, medications need to be dispensed several times per day for each resident. Facilities have adopted a variety of systems and methods to facilitate this task. Medications are often distributed in foil packaging, requiring that a person "push" the medication through the foil; most of the time, the thumb is used for this purpose. In and of itself, this is a small activity – but the LPN might perform this action repeatedly over a shift, perhaps resulting in fatigue of the muscles of the thumb, hand, and forearm.

An alternative is the use of a different system that utilizes cartridges with "flip-tops" to store the medications until they need to be dispensed. Each resident is assigned an individual drawer that holds the individual cartridges sorted by day and time. The LPNs feel this arrangement is much less fatiguing. Another very important benefit is an increase in accuracy of dispensing medications to residents.

Pill Dispensing Cabinet

Individual drawers for each resident

Cartridge with sorted pills

OTHER SOLUTIONS FOR NURSING ACTIVITIES:

Based on staff recommendations and resident characteristics, another sit-to-stand lift was purchased.

Bath aids also use the transfer equipment as part of their jobs:

- Safety shoes were purchased for use in the wet environment.
- Bath aids use large, lightweight PVC shower chairs that are easier to move.
- At the request of the bath aides, the facility is looking at purchase of a special shower chair with footrest.

Lightweight shower chair

Built-in scale in chair allows frequent weighing

Each NAC has own linen cart assigned to decrease time spent looking for linens.

Supplier provides small oxygen tanks with handles for easier lifting, carrying, and transport.

DIETARY

Skillet and kettle tilt for pouring food, as well as for cleaning. This eliminates the need for lifting.

Tilting soup pot allows for easy dispensing

Rubber mats and shoes provided for dishwashers.

New carts for delivering food items to floors have a larger wheelbase and are easier to maneuver.

Easier to maneuver food cart

NOTE: Items purchased for use in dietary are often influenced by health requirements regarding handling and service of food items; e.g., food carts are required to maintain food at a certain temperature.

LAUNDRY & HOUSEKEEPING

Use of front-loading washers and dryers with openings between knee and shoulder height so operator can get close to loads.

Easy-to-move carts on wheels for bins of laundry items.

Riser added to bottom of large laundry bin so operator does not have to lean so far over to reach the laundry.

Since laundry is often damp (thus heavy), arrangements were made with nursing to decrease size of loads sent down the chute.

Housekeeping supplies are kept on each floor for easy access.

CONCLUSIONS

At this nursing home facility, the project demonstrated that:

A team of employees was able to identify job tasks and activities that involved potential exposure to physical risk factors, including those that met caution zone and hazard level criteria under the ergonomics rule.

The team was then able to apply principles of ergonomics and safety to suggest ways to decrease exposure and make jobs safer.

Using input from workers, the team was able to create a list of ideas for job improvements, and then to develop a plan for implementation.

A number of improvements were implemented. Some of the improvements reduced hazards and allowed the facility to be in compliance with the ergonomics rule well ahead of time schedule.

The tenets of continuous quality improvement will be used over time to monitor changes and suggest new ones as needed.