Ergonomics in Health Care

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O ccupational therapists have historically provided consultation to industry in promoting healthy work habits and decreasing the incidence of musculoskeletal injuries (MSIs) (Allen, 1986; Williams & Westmorland, 1994). Proper body mechanics, work-simplification techniques, and recommendations for ergonomic equipment have commonly been used to educate persons on how to work more safely and productively within their environment (Furth, Holm, & James, 1994). The workers trained in ergonomic principles by occupational therapists have been groundskeepers and custodians (McCauley, 1990), industrial workers (Aja, 1991; Dortch & Trombly, 1990), and food service workers (Carlton, 1987).

The health care industry consists of many jobs requiring the performance of tasks such as patient handling and transfers, heavy materials handling, and rapid computer keyboarding, which are high risk features for developing MSIs. The purpose of this article is to describe the development of an ergonomics intervention program in an acute care hospital setting, with occupational therapists playing a central role.

Program Description

The current ergonomics program at Shands Hospital in Gainesville, Florida, had its antecedents in 1991 when the employee health nurse director, who was responsible for the administration of workers' compensation, including case management, noted that work-related repetitive motion injuries were beginning to occur in the hospital environment. After identifying the types and causes of these repetitive injuries, which primarily involved the hands and wrists (e.g., carpal tunnel syndrome), she contacted the occupational therapist, who was a hand therapy specialist, to conduct work-site analyses for these injured workers and to recommend improvements for the work environment. Approximately 8 to 10 analyses and ergonomic consultations were performed in 1991. According to the employee health nurse director, these consultations helped to reduce worker time lost through absenteeism, contributed to worker productivity, and reduced the likelihood of incurring additional medical expenses.

After 1991, work-site analyses were continued for several years by another occupational therapist (who was more of a generalist). Her intervention included suggestions for improving the physical environment of injured workers, who had primarily repetitive motion or back injuries, by training them in proper body mechanics, posture, and good worker biomechanics (such as appropriate tool use). She also suggested equipment modification tai-
lored to the individual worker to avoid reinjury. More recently, a formalized ergonomics program was developed to increase employees' ergonomic awareness throughout the hospital and to have a greater impact on decreasing work-related injuries. The proposal for the program, which received approval from the hospital board of directors, used past worker MSI statistics and information from the ergonomics literature regarding health care environments.

Known as the Ergonomics Advisory Committee (EAC), the program was funded with a part-time occupational therapy position (0.75 full-time equivalent [FTE]) through the employee health department for a 1-year trial period. Volunteers were solicited from various hospital departments to form the EAC, with representatives from dietary, maintenance, finance, rehabilitation services, information services, nursing, safety, and employee health.

Committee members were asked to attend a half-day training session with an outside consultant to learn how ergonomic principles could be applied to their departments. Subsequently, weekly meetings were convened to develop goals, objectives, and a milestones timeline; define how ergonomics would benefit certain departments; select those departments with the greatest need and interest; analyze the data on work-related MSIs within the hospital by cost center; and publicize the committee's actions in order to reach out to all employees. Throughout the trial year, these meetings were constructively used to also report on current activities, form working subgroups, solicit group input and support, and provide a forum for parties interested in work injury prevention principles.

While developing goals and objectives for the program, EAC members were informed by the employee health nurse director that patient handling was the highest risk factor for sustaining a work-related injury. Therefore, an EAC representative asked vendors to demonstrate at one of the weekly meetings their patient lifting and transfer equipment. The vendors subsequently made available three different devices for a 1-month trial period. Surveys were issued to professionals and patients for feedback regarding these devices. The feedback supported purchase of three types of devices for particular patient floors. Because several nursing managers were active participants on the EAC, they were able to cogently express to the vice-president of nursing and the nursing purchasing committee the reasons for acquiring these devices during a time of financial constraint. The occupational therapist was involved in training nurses on all shifts in the use of the equipment and in evaluating their response to the new devices during the trial period.

During the trial year of the ergonomics program, many departments requested proactive and reactive ergonomic intervention, but not all could be accommodated. Group consensus of the EAC was to focus on those departments with high injury rates and high risk factors and with strong support from departmental administrators to modify or change the environment. Strong administrative support implied acceptance of ergonomic intervention and, thus, follow-through with recommendations for work-site modification.

The occupational therapist conducted 51 comprehensive work-site analyses of targeted departments, with 36 involving the upper extremities, and 15 involving the back and the lower extremities. Intervention consisted of teaching proper positioning in performing work tasks as well as recommending or modifying equipment. In general, adjustable chairs that met a worker's ergonomic needs were most often recommended for purchase because, previously, purchases of departmental equipment had been based on fabric pattern and color rather than ergonomic design. Other equipment commonly recommended were palmar rests for persons who continuously used computers. An example of a less common solution was an inexpensive modification to the portable machine carts used in the electroencephalography lab that several workers had difficulty pushing. Handles from a food service cart were attached to the portable machine cart along with a different set of casters, thereby decreasing the required pushing force by 5 lb (which equated to 30% of the total force).

A brief example of one targeted department for intensive intervention was central sterile supply and linen, which had six injured employees over a 3-year period and an average cost per injury per year of $64,286. Risk factors for the linen technicians included excessive repetitive movements of the wrists, elbows, shoulders, and neck; awkward body postures, such as prolonged sitting without adequate back support; and prolonged stationary standing. The ergonomic equipment cost approximately $1,500 and consisted of custom tables at the right height for inspecting linen; rubber floor mats to combat standing fatigue; folding tables designed for folding linen; sit-stand devices, which were swivel and tilt chairs that allowed for upright positioning and foot rests for elevation of the legs while standing or sitting. Use of this equipment will be followed until a safe and productive environment is achieved.

The goal of realizing workers' compensation savings within 1 year of the ergonomics program was not achieved. This result was similar to that reported by Deneen (1984), who did not see savings until 3 to 5 years after an ergonomics program was implemented. This fact was acknowledged to the board of directors at the 1-year review along with a synopsis of the activities of the EAC. The board was sufficiently impressed with the committee's
activities and the widespread interest it generated throughout the hospital and approved funding of a 1.5-FTE position to continue the program for another year. This funding will allow the program to hire an ergonomist to develop guidelines for worker safety and monitor rate of injuries as well as an occupational therapist to conduct work-site analyses and become more involved in proactive measures to decrease MSIs in the hospital environment. In addition, plans are being made to consult with other hospitals about developing similar ergonomic programs. Opportunities for the future include marketing this program to other industries in an effort to produce a revenue-generating service for the hospital.

Conclusion

I believe that occupational therapists are well suited to provide ergonomic consultation to the health care industry. Teaming up with other professionals, such as employee health nurses, to increase ergonomic awareness in the hospital setting can be beneficial for all parties because the end goals are the same—worker safety and productivity. Establishing an ergonomics program in the health care arena is one way of reaching a large audience within the hospital environment for initiating prevention training and receiving the support needed to carry out workable solutions. Hospital employees have access to a wide variety of health services on a daily basis, and resources can be provided when ergonomic intervention is considered a priority. For example, a small room near the purchasing department at Shands has recently been dedicated for trial use of equipment, such as chairs. The program described in this article illustrates how occupational therapists can play an important role in educating health care workers about applying ergonomic principles to their work environment.

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References


