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Identification of physically demanding patient-handling tasks in an acute care hospital

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ABSTRACT

Work-related musculoskeletal disorders are prevalent among nurses and other healthcare workers worldwide, and patient-handling tasks are a common precipitating event. Existing research has focused on patient-handling within long-term care facilities and has identified physically demanding patient-handling tasks within this context. It is not known, however, whether nurses in acute care facilities have similar exposures. Using on-site work sampling procedures and a subsequent survey, the primary aim of the present study was to identify, describe, and rank the physically demanding patient-handling tasks performed by nursing staff in an acute care facility. The 10 most physically demanding patient-handling tasks were identified and contrasted with earlier results. Compared to long-term care facilities, in which the majority of tasks have been shown to be associated with performance of activities of daily living, the most frequently observed tasks in the acute care faci
lity were repositioning tasks. Differences in the types of transfers being performed across types of healthcare facilities, as well as across units within acute care facilities, highlight the importance of determining the patient-handling demands and needs that are unique to each type of healthcare facility. Generalizing across facilities or units may lead to incorrect assumptions and conclusions about physical demands being placed on nurses.

Relevance to industry: Knowledge of the most physically demanding tasks can facilitate future intervention efforts to control exposures and injury risks. Differences in physically demanding tasks likely exist between types of healthcare facilities and suggest distinct approaches are needed.

1. Introduction

Work-related musculoskeletal disorders (WMSDs) remain prevalent among healthcare workers, and nursing is among those occupations with the highest rates of nonfatal injuries and illnesses involving days away from work (BLS, 2010). Brown (2005) reported that injured nurses used a median of 4 sick days per injury and 20% of cases involved more than 20 days away from work. An estimated 12%–18% of nursing personnel leave the profession annually due to chronic back pain, and another 12% consider a job transfer to reduce their risk of back injury (Nelson and Baptiste, 2004).

Injury underreporting among nurses may mask the true impact of nursing injuries, especially back injuries. Within the Veterans Health Administration, evidence suggests that up to 25% of nurses experience at least one such injury per year that leads to changes in work assignments but that approximately 50% of these are not reported (Siddharthan et al., 2006). According to Hart (2006), 34% of nurses and 41% of radiology technicians who have experienced on-the-job injuries did not report those injuries to their employer in at least one instance. The most common reasons for underreporting injuries among healthcare providers include the following: (1) there would be a feeling of letting their patients down if they reported their injuries (Bulaitis, 1992), (2) injuries are considered part of the job and that making a report is of little value because nothing will happen, and (3) nurses believe that back pain is an inevitable part of their work (Malone, 2000).

A majority of existing studies on patient-handling have been conducted in long-term care facilities. Patients in these types of facilities possess increased dependence levels, and require assistance from nursing staff for mobilization and performance of activities of daily living (McAtamney and Corlett, 1993; Garg et al., 1992). Physically demanding tasks have been identified in

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long-term facilities in order to understand which tasks expose nurses to ergonomic stresses (Nelson et al., 2003; OSHA, 2003). In contrast, the primary focus in an acute care hospital is to stabilize the patient, treat the illness or condition, and discharge the patient home or to another type of facility, such as long-term care. During a patient's stay in an acute care hospital, various medical procedures are performed and the patient's medical condition may be the limiting factor in their mobilization activities. Unlike a long-term care facility where the population is relatively stable and workers can plan movements, the population in an acute care hospital may be unpredictable.

Therefore, it was considered important to identify patient-handling tasks taking place in acute care to support future efforts to develop interventions that decrease worker exposures in such facilities. Both work sampling and survey methods were used to describe conditions within an acute care facility. These methods were used to gather demographic information about the nursing population, and to further determine which tasks nurses perceive to be the most physically demanding in an acute care setting. Results of this study were also used to compare exposures between long-term and acute care facilities.

2. Methods and materials

2.1. Overview

Two phases of study were conducted: (I) an on-site sampling of work activities performed by nurses, and (II) a survey to identify the characteristics of the study population and allow nurses to rank order the physically demanding patient-handling tasks identified in the first phase. Work sampling was conducted on inpatient units in an acute care hospital, wherein nurse participants were observed performing patient-handling tasks. A list of patient-handling tasks, rank ordered by frequency, were compiled from the on-site observations and served as the basis for the survey of nursing staff in Phase II. Several aspects of the tasks were captured, including patient dependency and cooperation level, number of nurses involved, etc. In the second phase, a questionnaire was used to obtain information on nurse demographics, body part discomfort, and a ranking of the 10 most physically demanding patient-handling tasks from Phase I. In addition, there was interest in whether associations existed between self-reported symptoms and nurse demographics.

2.2. Facility

Both phases of the study were conducted at a non-federal, Joint Commission on Accreditation of Healthcare Organizations accredited, acute care community hospital that is representative of hospitals located in Southwest Virginia. This facility has a capacity of 565 beds, and as of June 2005 employed 4083 personnel, including 1016 full-time Registered Nurses (RNs) and 139 full-time LPNs/LVNs. Services provided to the community by this facility include a 24-h emergency department, rehabilitation, imaging, behavioral health, ambulatory care, home healthcare, and inpatient units (cardiac care, medical/surgical services, pediatrics, cardiac care, oncology, neurology, obstetrics and orthopedics). Information received from the hospital demonstrated that the patient census remained stable during the past several years. Observations were conducted on two intensive care units (ICUs), two progressive care units (PCUs) and two medical/surgical units. According to the nursing administration in this facility, the patient-to-nurse ratio in the ICU is 1:1, 2:1 on the PCU, and 5–8:1 on the medical/surgical unit.

2.3. Participants

All RNs, LPNs/LVNs, and Nursing Aides (NAs) providing direct inpatient care were invited to participate in both phases of this study. Participants included both male and female nursing staff. Nurses not involved in patient-handling activities were excluded.

2.4. Procedures

2.4.1. Phase I: work sampling

Seven undergraduate students formed teams to assist with data collection. Team members received verbal and written instruction regarding the experiment, were informed about data collection and documentation procedures, and practiced and received feedback on the data collection methods in a laboratory setting. Two, three-person observation teams were formed, since existing evidence suggests that three people are sufficient to observe patient-handling activities on a nursing unit (McCoskey, 2007; Nelson, 2002). Observations were conducted for a total of six days (Monday through Friday plus the next Monday), and each unit was observed on two separate days for three, two-hour intervals each day. A random number generator provided the start and stop times (e.g., 3:00 to 5:00 p.m.) for the observations and ensured that a representative work sample was collected. Data from a pilot study conducted by the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) showed that patient-handling movements are primarily performed during the morning and evening shifts (McCoskey, 2007; Nelson, 2002). All units were scheduled randomly for observations, and each unit was observed for two non-repeating days.

Potential nurse participants on the assigned units received verbal and written information concerning the purpose, methods, and intent of the experimental procedures using a standardized set of instructions. All who agreed to continue completed an informed consent process approved by the Virginia Tech Institutional Review Board (IRB). Data collection teams were assigned to a specific unit for a day and conducted observations during the three two-hour blocks of time. Nursing staff informed the observation team when a patient transfer or movement was conducted. One member of the team observed the transfer while the other members were available to conduct another observation in the event that multiple patient-handling activities occurred simultaneously. The observation team attempted to capture all patient-handling movements on each unit. When additional or emergency activity made the observation impossible, unit nurses provided as much information as possible about any missed transfers.

Information collected from the nurses included transfer type, patient dependency and cooperation level, number of staff involved in the transfer, assistive device used, and start and end times. Transfers were divided into lateral and non-lateral movements. Lateral transfers included repositioning in bed (side-to-side), moving the patient to the head of the bed, and transferring patients from bed to bed or from the bed to a gurney. Non-lateral transfers included all other transfers such as: bed to chair, bed to wheelchair, wheelchair to commode, or shower to wheelchair.

Dependency and cooperation levels were categorized by using definitions from the Patient Safety Center of Inquiry (2001). For example, categories of dependency ranged from "total assistance" (the patient requires 100% assistance by one or more persons to perform all physical activities) to "independent" (the patient requires no physical or cognitive assistance to perform functional activities). Patients were categorized as cooperative (may need prompting and able to follow simple commands) or unpredictable or variable (behavior may change frequently, is considered unpredictable, not cooperative, or unable to follow simple commands).