

THE HAZARDS OF HEALING:
MUSCULOSKELETAL INJURIES AND THEIR IMPACT ON NURSING
AND NURSING CARE

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ABSTRACT

MARGARITA DAVID DE PANO: The Hazards Of Healing:

Musculoskeletal Injuries And Their Impact On Nursing And Nursing Care

(Under the direction of Thomas Linden, MD)

This thesis gives an overview, in a series of three articles, of the extent of musculoskeletal injuries suffered by nurses in the United States and the implications of these injuries for the nursing profession and patient care. The thesis uses nationwide data while focusing on the individual experiences of nurses in North Carolina. The first article focuses on job-related risk factors that contribute to musculoskeletal injuries and the costs of these injuries to employers, nurses and patients. The second article looks at actions by legislators, health administrators, nursing organizations and nursing educators to safeguard nurses in the workplace and to reduce the incidence of musculoskeletal injuries. The third article is a profile of a nurse who became addicted to prescription pain medication after injuring her back.

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CHAPTER I

INTRODUCTION

In September 2000, the *Chicago Tribune* published a series of investigative reports showing that nurses were responsible for the deaths of at least 1,700 patients and the injuries of 9,548 patients since 1995 (Berens, 2000). The *Tribune* analyzed three million state and federal computer records and found several cases where medical errors took place or vital care was delayed either because registered nurses were working longer hours or under-trained nurses were working more often in hospitals. The Institute of Medicine in 2000 published a book that attributed 44,000 to 98,000 patient deaths to mistakes made by medical professionals (Kohn, Donaldson, & Corrigan, 2000).

The American Nurses Association, in an interview with CNN, put much of the blame for nursing errors reported by the *Tribune* on the nursing shortage that has plagued the U.S. healthcare industry since 1998 (CNN staff and wire reports, 2000). A report conducted by the Robert Wood Johnson Foundation (2002) cited several reasons for this shortage, including a decreasing, aging nursing population and an increasing, aging patient population. However, some scholars have noted that workplace injuries also contribute to the nursing shortage by driving nurses away from the profession. Owen (2000) found that 20 percent of nurses changed jobs, 12 percent requested employment transfers and 12 percent left nursing because they injured themselves on the job and could no longer work. The New York State Nurses Association (2001) noted that nurses were very concerned about unsafe working conditions and the possibility of sustaining a back injury while performing patient care.

While many might overlook the physical nature of the nursing profession, nursing aides, attendants and orderlies ranked second overall in a list of at-risk occupations for musculoskeletal disorders, while registered nurses ranked sixth, according to the U.S. Department of Labor's Bureau of Labor Statistics (2002). Other at-risk occupations included laborers and construction workers.

Musculoskeletal disorders refer to any damage or injury to any part of the musculoskeletal system, which is comprised of the bones, muscles, joints, ligaments, tendons and bursae (Jacewicz, 2006). Common symptoms of musculoskeletal disorders include pain, weakness, stiffness, joint noises and decreased range of motion (Jacewicz, 2006). The most common type of disorder among nurses is chronic back pain, with more than 52 percent of nurses saying that they have it or have had it (Nelson, 2003). Nurses also suffer from injuries to the neck, shoulders, wrists and knees (Lagerstrom, Wenemark, Hagberg, & Hjelm, 1995; Engels, van der Gulden, Senden, & van't Hof, 1996).

Nurses' injuries stem from repeated manual lifting, transferring and repositioning of patients, said Mary Tonges, chief nursing officer at UNC Hospitals (personal communication, 2006). In addition, nurses often use outstretched arms or bend forward in awkward postures and positions that increase the risk for injury (Nelson, Fragala, & Menzel, 2003). A study published in the 1997 issue of *Geriaction Journal* estimated that a nurse lifts an average of 1.8 tons per shift, nine tons per week or 450 tons per year. Tonges added that these estimates are conservative because nurses in hospitals now care for more bariatric (obese) patients. The weight of a bariatric patient can range from 200 pounds to more than 1,200 pounds (Harrell & Miller, 2004). In 2004 (as cited in Burling, 2007), Jean Lucas, a 60-year-old staff nurse at Cooper University Hospital, was forced to retire after ending up in the emergency room with

a herniated disc. Lucas had tried to lift the leg of a 600-pound patient.

LITERATURE REVIEW

Few journalists have written stories that discuss the prevalence of musculoskeletal disorders suffered by the nursing profession. Fewer journalists have published stories that look into its implications on the nursing shortage and the overall delivery of nursing care. A LexisNexis database search using the terms “nurse” or “nurses” and “musculoskeletal” in the headlines and lead paragraphs of all U.S. newspapers and wire services within the past 10 years yielded only 34 results. Of these 34 stories, only about half referred to musculoskeletal disorders suffered by nurses; the rest referred to disorders suffered by patients who depended on at least one nurse to care for them. Nursing scholars, however, have published several studies, journal articles and book chapters on the issue. This literature review will discuss a number of scholarly articles that have examined the extent of musculoskeletal disorders among nursing personnel, factors that put nurses at risk, implications of musculoskeletal disorders on safe and effective health care delivery, and interventions to improve the situation.

Risk factors

Many scholars have contended that patient care involves several complex variables that place nurses at high risk for injuries (De Castro, 2006). The literature generally considers the implications of four major variables on musculoskeletal disorders. These include the 1) individual characteristics of nurses and patients, such as age, gender and weight; 2) organizational factors, such as having a work schedule that requires little overtime or a proactive climate where nurses are willing to help their colleagues perform tasks; 3) physical workloads, such as the frequency of patient handling, type of lifting required and weights

involved; and 4) psychological factors, such as perceived job demands and degree of control over tasks (Burdorf, Rossignol, Fathallah, Snook, & Herrick, 1997; Trinkoff, Lipscomb, Geiger-Brown, Storr, & Brady, 2003; Gershon et al., 2007). Since these variables may all interact, scholars believe that an intervention strategy that focuses on only one element may not be effective (Byrns, Reeder, Jin, & Pachis, 2004).

Individual characteristics

De Castro (2006) wrote that patient height, weight, body shape and condition (e.g., spinal injuries, orthopedic conditions, post-surgical periods, and drains or intravenous line placements) become significant factors in patient handling. Patients are often dependent and can offer nurses little, if any, help in moving themselves. With people living longer, patients are older and sicker and have more complex medical problems. In addition, nurses care for increasing numbers of clinically obese patients (De Castro, 2006).

Nurse characteristics matter as well. Byrns et al. (2004) analyzed the individual characteristics of a sample of 128 nurses from two hospitals in central Illinois and noted that nurses' age and Body Mass Index (BMI) were not significantly associated with work-related lower back pain. Nurses who worked more years in nursing, however, were more likely to report work-related lower back pain. Nearly half of individuals with 16 or more years of service (17 of 35) reported having suffered from lower back pain. In addition, nurses who reported that they exercised at least 20 minutes or more each week reported significantly less pain.

Organizational factors

Several researchers reported an association between nurses' collective perception of organizational attributes such as decision making, leadership and culture, and the incidence

of musculoskeletal disorders. Some researchers also found a correlation between nurses' collective perception of their organization's commitment to safety and the incidence of musculoskeletal injury.

Hofmann & Mark (2006) looked at archival records of musculoskeletal disorders at 81 units in 42 acute care hospitals. Based on a sample of 1,127 cases, they noted that nurses' collective perception of their organizations' commitment to safety was significantly and inversely associated with the incidence of musculoskeletal disorders. This relationship, however, was moderated by the complexity of patient conditions (i.e., the incidence of musculoskeletal disorders increased among nurses who took care of sicker patients). Stone & Gershon (2006) examined administrative data on musculoskeletal injury using a sample of 837 nurses from 39 intensive care units (ICUs) in 23 hospitals. They noted that nurses' perception of organizational attributes, such as competence in leadership, favorable hospital status and high staffing ratios, was inversely related to the incidence of musculoskeletal injury. Stone, Du, & Gershon (2007) also studied administrative data on musculoskeletal injuries, sampling 2,047 nurses from 13 hospitals in New York City. The researchers noted that low scores on nurses' perceptions of professional practice, nursing management and opportunities for advancement all correlated with musculoskeletal injury. Gershon et al. (2007) conducted a systematic review of 14 studies that looked at relationships between nurses' perception of organizational attributes and the incidence of musculoskeletal disorders and concluded that leadership characteristics (i.e., favorable or unfavorable opinion of supervisors), staffing ratios (more or fewer patients per nurse) and work schedules (mandatory overtime, longer shifts, flexible schedules, etc.) play important roles in predisposing nurses to musculoskeletal disorders.

Physical workload

Some studies showed that physical work becomes unsafe when done manually. Byrns et al. (2004) suggested that risk factors that appear most significantly associated with lower back pain include frequent lifting without the aid of equipment, a finding that is consistent with existing research (National Institute for Occupational Safety and Health, 1997; Engkvist, Hjelm, Hagberg, Menckel, & Ekenvall, 2000). Historically, nursing schools have taught their students to use proper body mechanics when manually lifting and transferring patients to prevent injury, but nurses have long questioned the true value and application of this practice (Nelson et al., 2003). Recommendations by the National Institute for Occupational Safety and Health that the average worker should not lift more than 51 pounds only apply in controlled and limited circumstances, such as when lifting a box with handles, whereas nurses lift human beings who may be in awkward positions and at times attached to medical devices or equipment. Furthermore, lifting even the smallest adult patient can exceed the safe lifting criteria as defined by NIOSH (Waters, Putz-Anderson, Garg, & Fine, 1993). Studies that recommend proper body mechanics have also focused primarily on men, while 95 percent of nurses are women (Tonges, 2006). Recently, the NIOSH recommended a new lifting limit of 35 pounds (Waters, 2007).

Psychological factors

Published studies indicate that psychological factors don't seem to have significant effects on the incidence of musculoskeletal disorders among nurses. Although Byrns et al. (2004) found that two psychological measures were significantly associated with work-related lower back pain, they noted that those measures might be indicators of other risk factors as well. These psychological measures were perceived physical demand, or nurses'

perception of how much work they are required to do, and co-worker social support, or a working climate conducive to cooperation. The researchers noted that the first measure also appeared to be an indicator of physical demand because nurses' perception of physical demand correlated with the actual number of times they had to lift patients. The researchers likewise noted that the second measure may also be considered an organizational factor because nurses who work in units with high social support may be more likely to ask colleagues for help when manually lifting or repositioning patients.

Another study by Trinkoff et al. (2003) suggested that nurses' perceptions of moderate or high physical demands were significantly associated with reported neck, shoulder and back pain and injury, even after demographic variables such as age were adjusted. The researchers obtained the results by analyzing 1,163 respondents who reported working as nurses during the past year. The researchers noted that as the perceived level of demands increased, so did the odds of self-reported musculoskeletal disorders. The association was stronger among staff nurses, perhaps because they are more directly involved in direct patient care, according to Trinkoff et al.

Musculoskeletal disorders and the nursing shortage

None of the published articles and studies surveyed in this literature review directly examined the relationship between musculoskeletal disorders (MSD) among nursing personnel and the nursing shortage. However, a number of papers have implied that frequent absenteeism, early retirement and sick leaves associated with muscle and bone injuries contribute significantly to the nursing shortage. De Castro (2006) wrote that "the extent of musculoskeletal disorders among the U.S. nursing workforce is particularly distressing when contemplated in the context of the current nursing shortage" (p. 356). In a letter to the editor

of the *Journal of the American Medical Association*, nurses from the James A. Haley Veterans' Hospital in Tampa, Fla., wrote that the increased risk of musculoskeletal injuries is a significant reason for people not wanting to enter the profession, for nurses not wanting to work in nursing homes and hospitals, and for injured nurses to leave the profession (Powell-Cope, Nelson, Tiesman, & Matz, 2003).

Demographics are driving today's shortage, according to a report conducted by the Robert Wood Johnson Foundation (2002). Patients who were too sick to survive in the past do so now because of new cures and better treatments. People are living longer, and more old people mean more medical care. Nurses are also getting older. The average age of nurses today is 47, according to a survey conducted by the U.S Department of Health and Human Services' Health Resources and Services Administration (2004). Between 1983 and 1998, the average age of working registered nurses increased five years, from 37 to 42 (Buerhaus, Staiger, & Auerbach, 2000). At the same time, the proportion of the registered nurse workforce younger than 30 years decreased from 30 percent to 12 percent, and the number of working nurses younger than 30 years decreased by 41 percent. If present trends continue, the U.S. can expect to have 340,000 nursing vacancies by 2020 (Auerbach, Buerhaus, & Staiger, 2007).

However, the aging workforce is not the only reason why U.S. hospitals report hundreds of thousands of vacancies in their nursing staff. A few healthcare journalists have explored the issue of job dissatisfaction as well. Suzanne Gordon (2005) in her book, *Nursing Against The Odds*, contended that nurses, whether young or old, are leaving the workforce because they are disillusioned with employers who do not understand the taxing and sometimes dangerous nature of their work and subsequently do not implement systems that

safeguard their health. Gordon wrote that the combination of sick patients, taxing schedules and arduous physical work means that nurses need a set of complex rewards. Not only must they feel that they make enough money and benefits, they must also feel that they are working within a system that cares for their well-being and the well-being of their patients. But with hospitals cutting costs and lowering nurse staffing ratios every year, nurses become physically and emotionally exhausted, fall more and get sick more. In the process, they feel that they are compromising their patients' health and eventually become disillusioned with their jobs, wrote Daniel Chambliss (1996) in his book, *Beyond Caring: Hospitals, Nurses And The Social Organization Of Ethics*.

A healthcare system that offers fewer rewards to nurses creates a three-tiered nursing shortage. Gordon (2006) wrote, "There is, first, a lack of bodies willing to work at the bedside under current conditions and for current wages, which in turn sows the seeds for a future scarcity of nurses as the population ages and deals with more chronic illness. Both shortages are evident in quantifiable data: x number of bodies that an employer or society can count" (p.235).

From 1998 to 2002, many attempts to correct the shortage, especially in hospitals, were focused on recruitment. Nurses were offered, among other things, huge sign-on bonuses and car giveaways (Ulrich, Buerhaus, Donelan, Norman, & Dittus, 2005). But with more than 80 percent of people with nursing degrees already practicing nursing at the time, the focus began to shift to retention. In 2005 Ulrich et al. conducted a survey of 1,783 registered nurses out of 3,500 whose names were randomly drawn from a national database of RNs licensed to practice in the U.S. The researchers wanted to know how nurses viewed their work environment so retention efforts could be modified accordingly. They found that the

most important change nurses sought in their work environment was safety. Almost one-third (31 percent) of those surveyed reported experiencing musculoskeletal injuries in the past year, with a higher rate among nurses with two-year associate degrees (as compared to nurses with four-year bachelor's or higher degrees) and nurses dissatisfied with their current positions. Partially because of the survey, retention efforts today are aimed at obtaining a better understanding of the environment in which nurses work and in modifying those environments (Ulrich et al., 2005).

Impact on patient care

The connection between nursing injury rates and patient outcomes has not been fully explored in scholarly literature. None of the scholarly articles examined for this review shows a direct association between musculoskeletal injuries and patient care. However, an indirect but important association may still be derived from existing research.

The available literature is comprised of a combination of studies that examine the relationship between *more* nursing care and negative patient outcomes and studies that examine the relationship between *less* nursing care and negative patient outcomes. In summary, scholars agree that the more hours of nursing care patients get, the lower the likelihood of negative patient outcomes. In contrast, the fewer nursing hours patients get, the higher the likelihood of negative patient outcomes.

One study reported a statistically significant inverse relationship between required nursing hours per patient day and length of stay in nine clinical specialty areas, namely intensive care units, medical surgical units, neurology, oncology, orthopaedics, obstetrics, pediatrics, psychiatry and rehabilitation. Researchers found that an average increase of 0.422 hours of care per day in these specialty areas is associated with a decrease in length of stay

by one day (Shamian, Hagen, Hu, & Fogarty, 1994). The study used the ordinary least squares method of multiple regression to analyze data from 1,733 nursing units covering 11 clinical specialty areas from 58 U.S. hospitals. Another study also reported an inverse relationship between more nursing hours per patient day and negative patient outcomes, such that increasing nursing hours per patient day from the 25th to the 75th percentile (using a mean of 11.4 hours) decreased length of stay by 5.2 percent in medical patients (Needleman, Buerhaus, Mattke, Stewart, & Zelevinski, 2002). It also lowered rates of urinary tract infection by 3.6 percent, upper gastrointestinal bleeding by 5.2 percent, hospital-acquired pneumonia by 2.7 percent, shock or cardiac arrest by 4.1 percent, and cases of failure-to-rescue (defined as death from shock, cardiac arrest or pneumonia) by 0.1 percent in the same patient group. Among surgical patients, increasing nursing hours from the 25th to the 75th percentile lowered the rate of cases of failure-to-rescue by 5.9 percent. The study applied regression analyses using 1997 data from 799 hospitals in 11 states, covering approximately 5.1 million discharges of medical patients and approximately 1.1 million discharges of surgical patients.

Other researchers looked at the effects of less nursing care on negative patient outcomes. One study found that each additional patient assigned per nurse was associated with a 7 percent increase in the likelihood of patients dying within 30 days of admission as well as with a 7 percent increase in the odds of failure-to-rescue (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002). The study applied a cross-sectional analysis of linked data from 10,184 staff nurses; 234,342 general, orthopedic and vascular surgery patients discharged from hospitals between April 1, 1998 and November 30, 1999; and administrative data from 168 non-federal adult general hospitals in Pennsylvania. A 2003 report by the Joint

Commission on Accreditation of Healthcare Organizations also found that low nursing staff levels was a contributing factor in 24 percent of patient deaths and injuries from 1996 to 2002 in 1,609 U.S. hospitals.

Overall, a meta-analysis of 94 observational studies conducted from 1990 to 2006 shows that increased nursing staffing in hospitals was associated with lower hospital-related mortality, failure to rescue and other negative patient outcomes, although this association is not necessarily causal (Kane, Shamliyan, Mueller, Duval, & Wilt, 2007).

Based on available literature, one can derive an association between nursing injuries and negative patient outcomes. In summary, studies indicate that fewer nursing hours per patient mean more negative patient outcomes. More injured nurses mean fewer nursing hours per patient. Using algebra's transitive law, one can conclude that because more nursing injuries mean fewer nursing hours per patient, and fewer nursing hours per patient mean more negative patient outcomes, that nursing injuries adversely affect patient outcomes.

Interventions

In 2007 Dawson et al. conducted a systematic review of interventions that have been used to prevent back pain and back injury in nurses and found no strong evidence that any of these interventions were effective. The researchers examined eight randomized control trials and eight non-randomized control trials which tested at least one of the following interventions: 1) exercise (three trials); 2) manual handling interventions, such as the provision of manual handling training in the workplace (eight trials); 3) lumbar supports, such as a back belt that may be attached to the patient to aid in transferring or repositioning (one trial); 4) stress management (one trial); and 5) multidimensional interventions, which combined at least two of the previous four interventions.

The review identified moderate evidence from multiple trials that manual handling training in isolation is not effective and moderate evidence that multidimensional interventions are effective in preventing back pain and injury in nurses. Meanwhile, single trials provided moderate evidence that stress management programs do not prevent back pain and limited evidence that lumbar supports are effective in preventing back injury. There was conflicting evidence regarding the efficacy of exercise interventions and the provision of manual handling equipment and training.

Dawson et al. (2007) did not address the efficacy of assistive devices or equipment in preventing musculoskeletal injury. However, a majority of nursing groups advocate for the widespread use of such devices, suggesting even the total elimination of manual handling to prevent work-related musculoskeletal disorders (Tonges, 2006). The American Nurses Association, for instance, launched a Handle With Care Campaign in 2004 with the principal argument that manual patient handling is unsafe and directly responsible for musculoskeletal disorders in nurses, and that patient handling can be performed safely with the use of assistive equipment and devices, which reduces risk for injury among nursing staff and improves quality of care for patients (De Castro, 2006). The American Nurses Association is advocating for the widespread use of assistive devices to protect nurses and patients. (*See Appendix A for types of devices and equipment used for safe patient handling*).

Cost-benefit analyses have shown that hospitals that purchase assistive equipment and train their nurses to use them take only three years to get returns on their investments. A project funded by the National Institute for Occupational Safety and Health involved the study of the long-term effectiveness of a zero-lift policy in seven nursing homes and one hospital. The primary objective of the study was to reduce injuries to healthcare workers

resulting from manual lifting and transferring patients. The program involved replacing manual lifting and transferring with modern, battery-operated portable hoists and other patient transfer assistive devices (Garg, 1999). Overall, the number of injuries from patient transfers decreased by 62 percent, lost workdays by 86 percent, restricted workdays by 64 percent and workers compensation costs by 84 percent. Nursing researchers estimated that the cost of workers' compensation, diagnostic tests and physician services for nurses can range anywhere from \$50,000 to \$100,000 per musculoskeletal injury (Nelson et al., 2003). The NIOSH program also produced many intangible benefits including improvements in patient comfort and safety during transfers (Waters, Collins, Galinsky, & Caruso, 2006).

The incidence of musculoskeletal disorders is also associated with increased absenteeism (Trinkoff, Storr, & Lipscomb, 2008). This costs hospitals and nursing facilities money. The U.S. Department of Labor's Bureau of Labor Statistics (2000) estimated the incidence rate for back injuries involving lost work days at 181.6 per 10,000 full-time workers per calendar year in nursing homes and 90.1 per 10,000 full-time workers per calendar year in hospitals. Comparative incidence rates include 98.4 for truck drivers, 70.0 for construction workers and 47.1 for agriculture workers. For this estimate, the bureau assumed that one calendar year is 50 weeks and that all employees worked 40 hours a week.

Hiring costs to replace nurses lost to injury are significant as well. Owen (2000) found that 12 percent of nurses left their profession because they injured themselves on the job and could no longer work. As of May 2006, the U.S. had approximately 2.5 million registered nurses (U.S. Department of Labor Bureau of Labor Statistics, 2006). If present trends continue such that 12 percent of these nurses leave the workforce due to injury, 300,000 nurses will leave the profession each year. Cheryl Jones, a nurse researcher,

calculated that the cost to replace a staff nurse is 1.2 times that of the nurse's average annual salary (Jones, 2004). Registered nurses receive an annual mean wage of \$59,730 (U.S. Department of Labor Bureau of Labor Statistics, 2006). At these rates, it would cost the healthcare services industry an additional \$3.6 billion a year to replace nurses leaving the profession due to musculoskeletal injuries ($\$59,730 \times 300,000 \times 0.2$). And as the population lives longer, the need for nurses increases, not diminishes, requiring vacancies to be filled.

With the U.S. experiencing a prolonged nursing shortage, nurses, nursing leaders and hospital administrators agree that nurses should limit or eliminate manual patient handling to avoid musculoskeletal disorders (Tonges, 2006). Tonges said that each time an injured nurse leaves the profession, the weight of responsibility is redistributed within a smaller pool of nurses, and each becomes more vulnerable to suffering an injury and leaving the profession as well.

Roadblocks to change

However, nurses have had limited success implementing the widespread use of assistive equipment in hospital settings. One study found that nurses' knowledge of the risks associated with manual lifting and the advantages of using assistive equipment to alleviate such risks did not translate into increased use of lifts (Byrns et al., 2004). While most registered nurses had patients who required lifting, the reported use of lifts was very low at 11 percent. The primary reason given for failure to use the equipment was the unavailability of equipment (Byrns et al., 2004), but another reason is that some nurses tended to fall back to methods they were already familiar with, such as manual patient lifting (Tonges, 2006).

On July 31, 1991, the American Nurses Association, along with other labor organizations, began petitioning the U.S. Department of Labor's Occupational Safety and

Health Administration for an emergency temporary standard designed to protect workers from work-related musculoskeletal disorders. In response to ongoing appeals, OSHA issued the proposed ergonomics standard, *Ergonomic hazards to protect workers from work-related musculoskeletal disorders* (29 CFR Part 1910 Ergonomics Program; Proposed Rule), on November 23, 1999, then finalized and promulgated it on November 14, 2000. However, opponents of the rule claimed that ergonomics – defined by the International Ergonomics Association in 2000 as “the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance” – did not have a scientific basis and that employers would incur overwhelming financial costs to ensure compliance with the OSHA standard. Garnering Congressional support, opponents successfully moved forward a resolution (S.J. Res. 6) to repeal the standard. The Senate voted 56-44 and the House voted 223-206 to repeal the regulation. Congressional leaders invoked the Congressional Review of 1966, which gives Congress the power to repeal major rules issued by executive branch agencies with the approval of the president (Boehner, 2001a). On March 20, 2001, President George W. Bush signed the resolution (Boehner, 2001b). Bush explained that he signed the order to repeal a costly and overly burdensome regulation that would have cost employers billions while yielding uncertain benefits (*Bush signs*, 2001). As part of this repeal, OSHA was barred from pursuing the development of another ergonomics standard unless ordered so by Congress with the agreement of the Executive Branch.

Absent regulatory activity related to ergonomics, OSHA has published industry-specific ergonomics guidelines (OSHA, 2004). These guidelines, in contrast to standards, are

not enforceable, and employers are not required to comply with them. Also, OSHA cannot issue a citation based on guidelines. With the lack of a federal regulation that addresses workplace ergonomic hazards, an alternative approach has been to pursue state-based regulation or legislation (*See Appendix B for Washington State's safe patient handling legislation*).

In January 2008, New Jersey became the latest state to enact legislation that limits manual patient lifting among registered nurses, nursing aides and orderlies. Similar policies are also in effect in Maryland, Minnesota, New York, Ohio, Rhode Island, Texas and Washington (American Nurses Association, 2008). Stipulations vary in these states, but each basically requires general acute care hospitals and nursing homes to implement a program that provides nurses with proper equipment to lift patients, as well as the necessary maintenance and training needed to handle such equipment. As of March 2008, seven other states have introduced legislation seeking health care worker protections through programs limiting or eliminating manual patient handling. These states are California, Connecticut, Florida, Hawaii, Illinois, Kansas and Missouri (American Nurses Association, 2008).

JUSTIFICATION OF STUDY

The purpose of this thesis is to give an overview, in a series of three articles, of the extent of musculoskeletal disorders suffered by nurses and the implications of this situation for the nursing profession and patient care. In the first article I will write about risk factors in the workplace that contribute to musculoskeletal injuries, the cost of those injuries to the health services industry, and the financial impact of those injuries to patient care delivery. In the second article I will write about actions by legislators, health administrators, nursing organizations and nursing educators to safeguard nurses in the workplace and reduce the

incidence of musculoskeletal injuries. In the third article I will profile a nurse who became addicted to prescription pain medication after she suffered a musculoskeletal injury and show the consequences of such injuries on nurses' professional lives and on safe healthcare delivery.

This series is important because it will provide insight into how the health care system's largest service sector – the nursing sector – is handling a widespread health crisis. The public can benefit from taking a look at the complex environment that puts their nurses, and in turn their own health, at risk.

RESEARCH QUESTIONS AND METHODOLOGY

The series of articles included in this thesis addresses the following research questions:

- a. What are the implications of musculoskeletal injuries suffered by nurses on the healthcare industry's capacity to provide patient care? On hospitals' and nursing facilities' ability to remain viable as businesses? How much do musculoskeletal injuries cost employers? Nurses? Patients? What are the direct and indirect costs and how are those costs allocated?
- b. What legislative changes have occurred since Congress repealed the Department of Labor's Occupational Health and Safety Administration's ergonomics rules? What are nurses, nursing groups, hospital administrators and nursing educators doing to influence a change in nursing practice and implement safer ways of handling patients despite the absence of federal legislation?
- c. How can a musculoskeletal injury affect the professional life of a nurse and the dynamics of the hospital in which he or she works or used to work? What types of

recourse or compensation does he or she have? How can he or she go about getting them?

- d. Can a severe musculoskeletal injury drive a nurse to use prescription pain medication excessively? What could be the outcomes, including addiction, and how could addiction affect patient care? What interventions are available to help such nurses?

This project used extensive interviews with nurses, hospital administrators, nursing leaders and nursing educators. I also tapped into information provided by professional nursing associations, nursing schools and the North Carolina Board of Nursing.

I have written a number of articles on nursing during the past two years, primarily for two of my classes: Medical Journalism for Print Media and Seminar on Agenda Setting. I have also taken a Contemporary Issues in Nursing class in the School of Nursing at UNC-Chapel Hill. As a result, I have had contact with faculty members in the Schools of Nursing at UNC-Chapel Hill and Duke University, as well as clinicians at UNC Hospitals and Duke University Medical Center. I also have contacts at the North Carolina Center for Nursing and the North Carolina Board of Nursing. Furthermore, in January 2008, I attended a lecture by Suzanne Gordon, an award-winning healthcare journalist who covers nursing extensively, and I talked with her about my thesis topic afterward. She expressed her willingness to refer me to key sources outside North Carolina and to share her contacts with me.

Initially I conducted interviews with my contacts to get background information on my thesis topic. I then asked my sources to refer me to nurses who had experienced musculoskeletal injuries and/or pain medication addiction and who might be willing to be profiled or at least interviewed. I also asked my sources to refer me to nursing leaders within

and outside of North Carolina who could provide a national perspective on the issue. This led me to attend the 8th annual Safe Patient Handling & Movement Conference in Lake Buena Vista, Fla., from March 10-14, 2008, where I talked with sources from across the U.S., attended presentations and saw the various types of assistive equipment nurses can use to help them safely lift and move patients.

I also received assistance from one of the members of my thesis committee, Denise Hirst, M.S.N., R.N., a clinical instructor at the School of Nursing at UNC-Chapel Hill. Professor Hirst first told me about the prevalence of pain medication abuse among nurses suffering from musculoskeletal disorders when I took her Contemporary Issues in Nursing class in spring 2007.

In the first article, I wrote about risk factors in the workplace that contribute to musculoskeletal disorders; the prevalence of those disorders; the cost financially and/or physically to nurses, patients and health organizations; and other implications of such injuries on patient care. In the second article, I wrote about actions undertaken by legislators, health administrators, nursing groups and nursing educators to safeguard nurses in the workplace and reduce the incidence of injuries, as well as roadblocks to reform. In the third article, I profiled a nurse who became addicted to prescription pain medication after she suffered a musculoskeletal injury. In this article, I also examined the problem of drug addiction, a rarely discussed yet important and potentially dangerous consequence of injury and chronic pain among nurses.

This series of articles is suitable for publication in a daily regional newspaper distributed primarily in North Carolina such as *The News & Observer* in Raleigh, N.C., or *The Charlotte Observer* in Charlotte, N.C.

CHAPTER II

THE HAZARDS OF HEALING

Marty Adams worked as a nurse for 44 years before a simple maneuver ended her career.

In April 2006, Adams was helping an elderly, confused patient get out of bed when the woman jerked her body backward across the mattress. Adams glanced up, saw the guardrail up on the other side and realized her patient was about to bang her head. Adams hooked her left arm around the woman's back to slow her fall. At that moment, Adams felt her own back pop. Three discs on her lower back had shifted out of place.

The injury made it impossible for Adams to continue working as a charge nurse at UNC Hospitals, where she had lifted, turned and transported patients on a daily basis. Today she orients new nurses before they are assigned to UNC Hospitals' geriatric-psychiatry unit, the same unit she had supervised before she left.

Adams says she misses the bedside. She dislikes her new job because it takes her away from patients and limits her ability to share the depth of her knowledge with new hires. But she has no choice. She can't continue caring for patients since she can't tolerate more than 25 pounds of force without hurting her back.

Every year, as many as one million nurses in the United States suffer from work-related musculoskeletal injuries, some of them debilitating enough to force those nurses to leave the bedside, says Gail Pruett, director of nursing education and practice at the North Carolina Nurses Association. There are approximately 2.5 million nurses in the U.S. today,

according to the U.S. Department of Labor's Bureau of Labor Statistics. Of these, 94.2 percent are women and 5.8 percent are men.

Nurses' injuries stem from repeated manual lifting, transferring and repositioning of patients, says Mary Tonges, chief nursing officer at UNC Hospitals. A study published in the 1997 issue of *Geriatrics Journal* estimates that a nurse lifts an average of 1.8 tons per shift, nine tons per week or 450 tons per year. Four hundred fifty tons is roughly the equivalent of 150 F-350 trucks or an Airbus A380 with half its seats filled, says Anne Hudson, founder of Work Injured Nurses' Group USA, a national organization that provides information, mutual support and advocacy for nurses with back injuries. Tonges adds that these estimates are conservative because nurses in hospitals now care for patients weighing more than 300 pounds.

Manual lifting can lead to sudden debilitating injuries in the musculoskeletal system, but the consequences of lifting can also build up over time, says Dr. Douglas Dirschl, chair of the department of orthopaedics at the UNC School of Medicine. Dirschl says people can develop microfractures in their bones from repeatedly lifting hazardous amounts of weight, defined by the U.S. Department of Labor's Occupational Safety and Health Administration as more than 35 pounds.

Dirschl says that while microfractures in bone typically heal as people's bones regenerate over time, repetitive lifting can hinder the process of regeneration, which takes place during periods of rest. In addition, the spinal disc does not regenerate at all. "Scar formation can make the disc more stable and prevent further loss of material, but it does not reform its original internal architecture like bone," he says.

Older nurses like Adams are especially susceptible to injury because as one ages, the

spinal disc degrades, says Dirschl. Nursing scholars typically define older nurses as nurses who are 50-years-old and over. The average age of nurses in United States is 47, according to a survey conducted by the U.S Department of Health and Human Services' Health Resources and Services Administration in 2004.

Pruett says the forced departure of older nurses strips the healthcare system of more than just manpower. "The new ones learn from the old ones... When hospitals and nursing facilities lose older, more experienced nurses to injuries, they lose the guidance, expertise and resources necessary to pass along a culture of good quality nursing care."

The direct cost of injury

Hospitals and nursing facilities also lose millions of dollars when injured nurses, young and old, file for workers' compensation claims. A nationwide study published in a 2005 issue of the International Journal of Health Services shows that musculoskeletal injuries suffered by registered nurses cost the health care services industry \$33 million a year. This study used 1993 data from the U.S. Department of Labor's Bureau of Labor Statistics' Annual Survey to determine the incidence of musculoskeletal injuries; Detailed Claims Information data sets to estimate medical costs resulting from musculoskeletal injuries; and the Current Population Survey to estimate lost productivity.

Adams filed a claim for workers' compensation in 2006. UNC Hospitals' Occupational Health Department and Environmental Health and Safety Department investigated her claim and decided that she was qualified.

The North Carolina Workers' Compensation Act covers only injuries directly caused by accidents that arise in the course of employment. However, the North Carolina law is more flexible for back injuries, the most common type of musculoskeletal injury among

nurses, according to the U.S. Department of Labor's Bureau of Labor Statistics.

Tracy Van Steen, an ergonomics specialist at the department of occupational health at WakeMed Health & Hospitals, says a nurse who injures her back even if she wasn't doing anything work-related may still qualify for workers' compensation as long as she injures it within her place of employment. Workers' compensation claims for back injuries are difficult to deny because a person's back can take years of abuse before it gets injured, says Van Steen.

A study published in the December 2000 issue of AORN (Association of Perioperative Registered Nurses) Journal shows that as many as 38 percent of nurses experience back pain severe enough to force them to miss work for a few days, although these nurses do not necessarily file a claim for workers' compensation. The North Carolina Workers' Compensation Act allows employees to receive compensation beginning only on the eighth day they are absent from work. Another study published in the May 2008 issue of American Journal of Industrial Medicine estimates that 5.4 percent of female nurses and 4.4 percent of male nurses file a claim for workers' compensation after sustaining a musculoskeletal injury.

Cindy Taylor, director of the Environmental Health and Safety Department at UNC Hospitals, says nurses whose claims are denied may appeal to the North Carolina Industrial Commission. "The commission is very employee oriented," Taylor adds.

If a nurse does qualify for workers' compensation, employers in North Carolina will pay her monetary compensation amounting to two-thirds of her salary up to a maximum of \$730 a week for as long as her injury forces her to miss work, says Taylor. They will also pay for her medical care and rehabilitation. Adams did not miss a day of work, but her paid

medical care included diagnostic tests at the UNC Spine and Pain Center and the Carolina Back Institute, as well as physical therapy sessions.

Recovering injured nurses like Adams may continue working on light duty with full pay, says Brenda Nevidjon, associate clinical professor at Duke University's School of Nursing and former chief operating officer at Duke University Medical Center. Light duty imposes certain restrictions on the amount of weight a nurse can lift or pull based on her doctor's advice. In Adams' case her doctor imposed a 25-pound limit. However, not all hospital units can accommodate nurses working on light duty.

"Let's say somebody with a lifting restriction wants to work on the night shift. Well, the night shift is usually staffed with only two nurses, so the hospital wouldn't want a light duty nurse there because that would compromise patient safety," says Nevidjon. "Light duty nurses may be assigned to do paperwork or work on admissions, but those positions are limited."

Many employers also do not provide permanent light duty and may terminate injured nurses if they are unable to recover fully, says Taylor. "Most of the time we will work with an employee for up to a year in order to get them back to work," she says. "But once their restrictions are determined to be permanent, we have to decide if it's feasible for the nurse to continue working... Some unit managers don't feel they can utilize nurses unless they work at 100 percent capacity."

"There isn't a whole lot of tolerance for a nurse who can't pull around weight," says Adams. "You can get some other nurses to help you, but you better not do it too much and get the reputation that you can't do your own job, because the more of your job you can't do, the more of your job other nurses have to do." Adams performed light duty for nine months

before UNC Hospitals told her that she had to leave the bedside.

Van Steen admits that if a nurse's injury is so severe that she can never do her job again, her employer may ask her to leave. However, that employer has to continue paying her up to \$730 a week until she retires or finds another job.

Sometimes, employers cover the cost of training so injured nurses can acquire new skills and can get off the workers' compensation program, says Taylor. "Most nurses, even those who are severely injured, are not permanently and totally disabled and often years away from retirement age. So we help them learn something they can do within their restrictions. Until they are able to go back to work, whether at the hospital or somewhere else, we pay them workers' comp. If that would take too long or if they are permanently and totally disabled, we normally try to settle with them."

The indirect cost of injury

Hospitals and nursing facilities also need to hire new nurses to replace injured nurses, even as they are paying lost wage compensation and spending on medical care and vocational rehabilitation. Tonges says hospitals in North Carolina sometimes manage vacancies by asking nurses currently on staff to work overtime. This can potentially endanger nurse and patient safety, she says. "Nurses who work longer hours are more likely to work at diminished capacity toward the end of their shifts."

Some hospitals guard against nurse fatigue by not allowing nurses to work more than 60 hours a week, says Tonges. However, she adds that some nurses need money so badly that they hold multiple jobs without telling their supervisors. So some nurses may actually be working more than 60 hours a week if they do overtime.

Hospitals and nursing facilities on occasion also hire traveling nurses to replace

injured nurses. Traveling nurses are expensive, says Nevidjon. Employers hire them through agencies that specialize in providing temporary manpower to organizations that need to fill vacancies as soon as possible. “When you hire travelers, you tend to pay double salaries – half to the nurse and half to the agency for administrative costs, airfare, lodging,” says Nevidjon.

Lastly, hospitals have the option to fill nurse vacancies by hiring locally. Tonges says local nurses are less expensive than travelers, but they are still more expensive than nurses who are already on staff because new nurses need orientation and training before they can go on the floor. In addition, few local nurses are available for hire today because of the nursing shortage.

Overall, a single nursing injury can cost employers hundreds of thousands of dollars because of medical care, drugs, rehabilitation, lost wage compensation, training, recruiting and hiring costs, says Van Steen. “One laminectomy (a surgical procedure to relieve pressure on the spinal cord) alone can cost up to \$90,000,” she says.

The health care system initially bears the cost of caring for injured nurses and hiring new ones, says Nevidjon, but medical centers and nursing facilities can pass on some of these costs to patients. “It can take the form of substandard patient care due to the lack of nurses on the floor or on hospitals’ reliance on nurses with lifting restrictions. It can also take the form of higher insurance premiums as hospitals shift increasing workers’ compensation costs to the cost of medical care they provide,” she says.

In addition, rising costs may force organizations to hire only the minimum number of nurses they need, says Nevidjon. She explains that the Joint Commission on Accreditation of Healthcare Organizations does not require hospitals to hire a minimum number of nurses or

meet a standard minimum nurse-to-patient ratio to be accredited. Except for hospitals in California, which in November 2004 successfully passed legislation requiring no less than one nurse for every five patients regardless of patient load, all other hospitals in the United States are free to set their own staffing ratios. JCAHO accreditation depends only on whether these ratios can adequately serve a hospital's patient population. That allows hospitals to come up with customized staffing models by looking at their average number of patients, average number of beds, average length of patient stay, how sick their patients are and other related factors. Based on these criteria, they determine how much nursing care their patients need and how many nurses they have to hire to meet that need.

“All you have to do is show the commission how you determine your staffing models,” says Nevidjon. “They look at your standards, what has gone into developing those standards, and how you’re applying those standards.”

Tonges says that in hospitals and nursing facilities that operate at maximum capacity, a single nursing injury or absence can compromise patient safety. “If a nurse leaves, the rest of the nurses on staff will have to take on more work. You don’t have resources to hire extras, so for a time, there will be more patients per nurse than what, using your own calculations, your organization needs to provide adequate care,” she says. “You become stretched so thin that your patients suffer.”

CHAPTER III

KEEPING THE WEIGHT OFF

Half a dozen nurses gathered around the technician as he gently rolled a life-sized dummy to the far side of the bed. They watched him spread a flat rubber mattress where the dummy used to lie, then roll the dummy back so it was on the middle of the mat. From under the mattress, the man pulled out a thin rubber tube and pressed a button. In seconds, the mattress filled with air, raising the dummy three inches. The man pulled the mattress toward a gurney that he had parked by the side of the bed. One of the nurses noted that the entire process took less than two minutes.

The technician's demonstration took place March 2008 during a conference on safe patient and handling at Lake Buena Vista, Fla. The dummy represented any one of the patients nurses care for every day. The annual conference, this year jointly sponsored by various organizations including the American Nurses Association, the VA (Veterans Affairs) Sunshine Healthcare Network and the University of South Florida, featured presentations on safe patient handling techniques. Nurses had a chance to watch demonstrations and meet with vendors who market equipment to help in the lifting and transferring of patients.

In response to the high incidence of workplace injuries nurses suffer while handling patients, the American Nursing Association in 2004 officially encouraged its members to advocate the adoption of safe patient handling and movement programs within their workplaces. The ANA partnered with the Patient Safety Center for Inquiry at the James A. Haley Veterans' Hospital in Tampa, Fla., to design and promote the conference as part of that

effort.

Nurses' injuries stem from repeated, manual lifting, transferring and repositioning of patients, says Mary Tonges, chief nursing officer at UNC Hospitals. In 2002, the U.S. Department of Labor ranked registered nurses sixth in a list of at-risk occupations for musculoskeletal injuries, meaning injuries to the bones, muscles, joints or any other part of the musculoskeletal system. A study published in the 1997 issue of *Geriatrics Journal* estimates that a nurse lifts an average of 1.8 tons per shift, nine tons per week or 450 tons per year.

Dr. Douglas Dirschl, chair of the department of orthopaedics at the UNC School of Medicine, says people can develop microfractures in their bones from repeatedly lifting hazardous amounts of weight, defined by the U.S. Department of Labor's Occupational Safety and Health Administration as more than 35 pounds.

Dirschl says that while microfractures in bone typically heal as people's bones regenerate over time, repetitive lifting can hinder the process of regeneration, which takes place during periods of rest. In addition, the spinal disc does not regenerate at all. "Scar formation can make the disc more stable and prevent further loss of material, but it does not reform its original internal architecture like bone," he says.

"Even laborers don't go to a warehouse and lift boxes manually... But nurses are lifting thousands of pounds every day by themselves," says Gail Pruett, director of nursing education and practice at the North Carolina Nurses Association. Pruett says in 2000, 12 percent of nurses left their profession because they injured themselves and can no longer work.

Still no standard

Nurses' working conditions differ in other industrialized countries, where manual patient lifting is minimized, if not prohibited, says Audrey Nelson, director of the Patient Safety Center for Inquiry at the James A. Haley Veterans' Hospital. Hospitals and nursing homes in the United Kingdom, for instance, have prohibited nurses from manually lifting and transporting patients since 1992 when Parliament enacted a national policy mandating the implementation of safe patient handling and movement programs, says Nelson.

Since 1992, Australia, Canada and several countries in Europe have introduced similar legislation. "They may be referred to as No Lift, Zero Lift, Minimal Lift, Lift Free or Safe Patient Handling," says Nelson, "but the main point of these policies is that manual lifting should be eliminated in all but exceptional or life threatening situations."

The concept of a national minimal lift policy has been slow to take root in the United States. In July 1991, the American Nurses Association, along with other labor organizations, petitioned the U.S. Department of Labor's Occupational Safety and Health Administration for an emergency temporary standard to protect workers from work-related musculoskeletal disorders. In November 2000, OSHA required all hospitals in the United States to implement a safe patient handling program. In March 2001, President George W. Bush rescinded the order. Today HR 6182, a federal bill proposed to amend and resurrect the original OSHA standard, is pending in Congress.

Carol Durham, clinical associate professor and director of the Clinical Education & Resource Center at the School of Nursing at UNC-Chapel Hill, says nurses and nursing groups have decided to take matters into their own hands. "Legislation makes things mandatory so people are more willing to sit up and listen," she says, "but even without it, nurses know, hospitals know, I mean the evidence is overwhelming, that nurses get injured

by manual patient handling and moving.”

Since the American Nurses Association officially advocated for safe patient and handling programs, eight states – Maryland, Minnesota, New Jersey, New York, Ohio, Rhode Island, Texas and Washington – have passed legislation setting minimal lift standards in hospitals, nursing homes or both. Similar legislation is pending in seven other states. Pruett says the North Carolina Nursing Association has opted to work with the North Carolina Division of Health Service Regulation, hospital associations and long-term care associations to influence a change in nursing practice first before it considers drafting a legislative proposal for submission to the North Carolina General Assembly.

It’s up to the hospitals

Like the federal government, North Carolina has no law requiring hospitals and nursing homes to implement minimal lift policies. So individual organizations in the state must decide whether to purchase assistive devices to help lift and transport patients.

Tonges says healthcare organizations consider cost first. “Hospitals have competing priorities. There are all sorts of things you need, so you have to make choices,” she says. “Although studies have shown that eliminating manual handling saves you millions of dollars in workers’ compensation over time, you still have to put up money at the beginning to purchase equipment, and that can cost millions of dollars as well.”

Brenda Nevidjon, associate clinical professor at Duke University’s School of Nursing and chief operating officer at Duke University Medical Center, agrees that cost considerations drive purchasing decisions. “They [employers] want to decrease worker’s comp so they can reduce their worker’s comp premiums and save money. If they project that those savings will at least offset the money they have to put up to install [equipment], they’ll

do it,” she says. “If not, they probably won’t.”

UNC Hospitals, Duke Medical Center and WakeMed Health & Hospitals all have safe patient handling and movement programs. Each hospital has purchased assistive equipment, partnered with companies that train staff how to use the equipment; created or assigned an ergonomics department that oversees the proper use of equipment; and issued policies requiring nurses to use assistive devices.

The equipment vendor UNC partnered with guaranteed up to a 60 percent reduction in transfer-related incidents, but only if nurses use the equipment all the time, says Cindy Taylor, director of the Environmental Health and Safety Department at UNC Hospitals. Taylor says the hospital has issued a policy that if a nurse gets injured on the job and was not using assistive equipment at the time of injury and the equipment was available, then she might not be eligible for workers’ compensation.

Smaller hospitals, however, often do not have enough resources to purchase equipment, says Nevidjon. Even UNC, Duke and WakeMed have yet to purchase enough devices so that every nurse on every floor has access to them. Tonges says UNC Hospitals is planning to install in every hospital room powered full-body sling lifts, or ceiling-mounted lift devices that lift and transfer highly dependent patients. “We expect that to cost millions of dollars,” she says.

Tracy Van Steen, an ergonomics specialist at the department of occupational health at WakeMed Health & Hospitals, says hospitals may need to install assistive devices in every room because time is one of the primary roadblocks to the universal use of assistive equipment. “Some nurses think, it might be quicker to move the patient myself because I’m already in the room and it will take more time to get the lift,” she says. “They don’t really

think, ‘Well, in the long run I might injure my back and never do nursing again.’”

“One of the biggest hurdles in this kind of program is getting the buy-in from the staff,” agrees Taylor. She says nursing culture impedes change. “I compare it to when we first started using gloves because of the potential exposure to HIV and other blood-borne pathogens. At first nurses wouldn’t wear gloves because they’re not used to it, but now they do so all the time.”

Starting early

The American Nursing Association and the Patient Safety Center for Inquiry at the James A. Haley Veterans’ Hospital in Tampa, Fla., began working in 2004 with schools of nursing to change nursing culture. Durham says: “[They] basically said, ‘Okay, we’re having a difficult time trying to implement this on the floor. People who have been lifting patients themselves 20, 30 years aren’t going to suddenly change their habits. So why not smooth out the transition by starting early, with students?’”

Gail Powell-Cope, associate director of the Patient Safety Center for Inquiry at the James A. Haley Veterans’ Hospital, says the center tested a new training module in 26 schools of nursing including the School of Nursing at UNC-Chapel Hill. Sixty-five percent of these schools are large public institutions, and 93 percent of them offered bachelor of science degrees in nursing. They have an average of 134 students graduating per year. The center’s module focuses on the need to use assistive equipment in lifting patients. Assistive devices include, among others, friction-reducing sliding boards or mattresses, powered full-body sling lifts, chairs that convert to stretchers and height adjustable stretchers.

“Ninety-seven percent of the faculty who participated in the experiment said they were likely to continue using the module in their curriculums,” Powell-Cope says.

Durham says she tells her students that after they graduate and start applying for jobs, they should ask their potential employer if their organization has a safe patient handling and movement program. “If not, they might want to reconsider going somewhere else,” she says.

Before the American Nurses Association issued an official statement that discouraged manual patient handling in 2004, 83 percent of educators in schools of nursing in the United States had been teaching students the “hook and toss” method or drag-lift manual patient lifting technique, says Durham. “It’s been described as deplorable, inefficient, dangerous to nurses and often painful and brutal to the patient, but several habits are difficult to break.”

But faculty in at least 26 schools of nursing now have the tools to adopt a new nursing curriculum designed to change how nurses handle patients, Durham adds.

Taylor says patients feel more secure when nurses use equipment to move them, and patients suffer fewer injuries. “We had a patient who had been in here several times with problems with her skin grafts, and she just couldn’t heal,” she recalls. “But once we started using the lift and the slides, she healed beautifully and was able to go home. There’s less friction, so there are fewer tears on the skin.”

Karen Johnson, a nursing manager at Duke Life Flight who tore the front lateral cuff on her right shoulder in 1996 while pushing a stretcher into an aircraft, agrees that assistive devices help not only staff, but also patients.

“We’re bruising them, we’re pulling on them, we’re possibly making them insecure, we’re scaring them, and we’re also not honoring a professional boundary by getting in and hugging them so close in a way you wouldn’t do except with your close friends and lovers... That’s all quite inappropriate,” she says. “So I’m glad it’s starting to change.”

CHAPTER IV

INJURED, ADDICTED AND DANGEROUS

Amy Bloome knows that what she did last October could have sent her to jail. Last fall the 40-year-old registered nurse went to a Harris Teeter pharmacy in Charlotte, N.C., to fill prescriptions for Vicodin (hydrocodone) and Percocet (oxycodone), both opioid analgesics. She remembers nervously waiting by the counter as the pharmacist typed her information on his computer. When she saw him glance at her and pick up the phone, she knew that she was in trouble.

Bloome had offered to pay in cash. She says cash purchases for narcotics sometimes make pharmacists suspicious enough to check their computer archives for older insurance information. The pharmacist at Harris Teeter did just that and saw that Bloome had ordered the same prescription 15 minutes earlier at a Wal-Mart down the block. The pharmacist refused to give her the medication and let her go with a warning.

“I was lucky that’s all I got. I needed the meds so bad I got sloppy,” says Bloome, who had forged both prescriptions. Knowing that she had committed a felony, she called the physician whose prescription pads she had used and confessed, hoping for a reprieve. Since the doctor was a friend, he chose not to press charges as long as Bloome promised to undergo treatment.

Data from the 1999 National Household Survey on Drug Abuse show that 13.1 percent of the people employed in the United States are alcohol or substance abusers. Among nurses, 16 percent abuse alcohol, 6.6 percent abuse prescription-type medication, and 3.6

percent abuse street drugs such as marijuana and cocaine, according to a study published in the 1999 issue of the Journal of Addictive Diseases. The study based these estimates on data collected from a sample of 4,438 randomly selected registered nurses.

Bloome says she began taking Vicodin and Percocet intermittently in 2004 to manage her back pain. Two decades of lifting, pushing, pulling and transporting patients had taken a toll on her. She had helped lift patients weighing more than 200 pounds in the ICU. She had turned patients every hour, transferring them from bed to bed, bed to stretcher and chair to bed. She had pushed stretchers, IV poles and other equipment from one hospital floor to another. She had stood in operating rooms assisting surgeons for up to eight hours at a time.

An article published in the October 2005 issue of AORN (Association of Perioperative Registered Nurses) Journal suggests that a history of back problems, serious injuries and migraines puts nurses at risk for alcohol and substance abuse. Another study published in the 1997 issue of Geriatrics Journal estimates that a nurse lifts an average of 1.8 tons per shift, nine tons per week or 450 tons per year.

Dr. Douglas Dirschl, chair of the department of orthopaedics at the UNC School of Medicine, says people can develop microfractures in their bones from repeated manual lifting. He says that while microfractures in bone typically heal as people's bones regenerate over time, repetitive lifting can hinder the process of regeneration, which takes place during periods of rest. In addition, the spinal disc does not regenerate at all. "Scar formation can make the disc more stable and prevent further loss of material, but it does not reform its original internal architecture like bone," he says.

The road to dependency

Broom had lost too much material in her spinal disc. In October 2006, Bloome was

watching her dog from the patio of her home in Charlotte when she felt her back pop. “I wasn’t even doing anything, I was just standing,” she recalls. “But the pain brought me to my knees.”

Bloome says her physician found a ruptured disc in her lower back that was pressing on a nerve root. She went through three surgeries to fix the problem: a microdiscectomy in November 2006, a second microdiscectomy two weeks later, and an L5-S1 fusion four weeks after that. Bloome says none of the surgeries worked. She continued to suffer intense pain on her lower back until January 2008, when a CT scan revealed that the surgeries had failed to fuse the vertebrae in her spine. In spite of the pain, however, Bloome went back to work after her last operation. She took narcotics to keep the pain at bay. Ingestion of Vicodin and Percocet became a daily habit.

“At first all my meds were within the prescribed range,” she says. “It was easy to get refills. I was a stellar employee with zero blitz on my screen. I ended up taking about every four hours four pills of whatever I could get – hydrocodone, oxycodone, all obtained legally.”

Bloome says she intermittently tried to wean herself from the drugs, but she says she could not last more than two hours without medication. She would shake, her heart would palpitate, and she felt nauseated and tired. She also suffered from diarrhea. “I had a 3-year-old and was under a lot of pressure to do my job right so I said, ‘Forget it, I need to stay on this until I figure out something else to do,’” she says.

Dr. Dewayne Book, a licensed clinical addiction specialist and past president of the North Carolina Society of Addiction Medicine, defines drug addiction as the compulsion to use drugs despite awareness of negative consequences to one’s health, mental state or social life. He says a number of factors contribute to addiction, such as the availability of drugs,

societal norms sanctioning drug abuse and poor education about the consequences of addiction. But the most important factor, says Book, is genetics.

“Addiction comes from people, not bottles,” says Book. “A person who’s genetically predisposed to addiction has a very high likelihood of becoming addicted once he’s exposed to a chemical. People who are not genetically predisposed can become physiologically dependent if they take a narcotic long enough, but they don’t become addicted, meaning the awareness of negative consequences is usually sufficient to make them stop.”

In June 2007, Bloome knew that she could no longer get prescriptions for the number of drugs that she was taking. So she started forging prescriptions.

Like many nurses, Bloome had the authority to call in prescriptions. She also kept prescription pads that physicians had signed ahead of time in case they were tied up in surgery and patients needed medication immediately. “I’ve had the pads in my pocket for 15 years,” she says. “One day I looked at them and decided I was going to put my name there. I was desperate.”

Connie Mele, director of provided services for Mecklenburg County Area Mental Health Authority, says almost every addicted nurse with whom she has worked initially got pain medications through legal channels. Mele, a registered nurse, has worked with recovering nurses since 1983. She counseled Bloome during her detoxification process and recovery.

“I can assure you that the first time nurses get the drug, whether it’s Demerol, oxycodone, morphine or whatever, they get it legitimately because they do have the back injury, the car accident or the post-partum pains to justify it,” she says. “But eventually they might get addicted and need more than what their physicians are willing to prescribe them.

So one day they might be administering Demerol to a patient and start thinking, ‘Boy, if I just took a little bit of this my pain would go away.’”

Nurses can divert drugs a variety of ways, says Marci Cates, a formerly addicted nurse who now facilitates Narcotics Anonymous meetings for nurses in recovery in Wilmington, N.C. “She can reduce the amount of drug she gives to a patient and take the rest for herself,” she says. “She’s counting on a situation where the patient doesn’t really know how much medicine he’s supposed to take.”

Cates says hospitals and nursing homes usually keep narcotics in a computerized locked box commonly referred to as a Pyxis. Nurses authorized to handle drugs receive a user name and password to open the box. Every time a nurse opens the box, she documents in another computer the name of the drug, the amount of the drug and the patient information associated with the drug. In smaller hospitals and nursing homes with no Pyxis, nursing managers count narcotics by hand at least once a week, says Cates.

Many times the patient prescribed the narcotic is asleep or in a coma, says Cates, so nurses can administer just a little bit of narcotic in a syringe or none at all, and use the rest herself without arousing the patient’s suspicion. Even conscious patients don’t really know what’s contained in syringes nurses use. “A nurse can go to the bathroom, inject the morphine into her thigh and replace it with saline before seeing the patient,” says Cates. “Over time she may administer just enough so the patient is not in excruciating pain, but even so the patient will still be in pain because he’s not getting what he’s supposed to get.”

Nurses can also use drugs that they supposedly have wasted. Mele explains that sometimes nurses need to give a drug dose in liquid form, but the smallest container available contains more than what was prescribed. If that’s the case, the nurse extracts the entire

contents of the vial into a syringe and then pushes out excess liquid into a trash can or sink. A nurse who needs to waste narcotics has to ask a fellow nurse to watch and document the process. Mele says the problem is that nurses are so busy that some don't bother to observe their colleagues at all. "They just say, 'Oh I trust you...'"

Other methods of diversion include forging prescriptions or stealing. Cates says patients in chronic pain sometimes bring their own medications to the hospital, and a few chemically dependent nurses steal them.

Patients sometimes suffer in ignorance, says Mele, not aware that chemically impaired nurses may be victimizing them.

The road to recovery

Sometimes patients do alert staff about poor nursing treatment. Cates says her aunt, who lives in a nursing home, used to complain that she was in constant pain despite taking pain medication. The aunt's nurse had documented that she was giving her two Percocet pills every four hours, but the patient claimed that she was receiving much less. The nursing home scheduled the nurse for a drug screen for which she was positive.

Nurses also get caught because of sloppiness and changes in their work habits. A couple of nurses Mele knows have passed out on the floor from drug overdoses. Pharmacies also do periodic reviews of narcotics records. Auditors ask why is it that more drugs are wasted during one nurse's shift? Why are more drugs ordered during a particular shift? Nurses can also report colleagues acting out of character, but Cates says nurses rarely do that. "Nurses don't like to rat on other nurses," she says. "[They] think, 'Well if you have a problem and it's exposed, and someday I have a problem then I'll get exposed, so I don't want to say anything.' It's called 'professional enabling.'"

However, a study published in the 2005 issue of the International Journal of Nursing Studies suggests a higher probability of nurses reporting their impaired colleagues. It says that for every one case of substance abuse nurses wouldn't report, they would report five. The study used a sample of 120 registered nurses and nursing students in Florida.

Once a nurse is suspected of being chemically dependent, her employers call her in for a drug screen, says Mele. Depending on the results, she may be jointly met by the director of nursing, her direct supervisor, security personnel and sometimes even someone from the State Bureau of Investigation. "At that point most nurses admit they have a problem, and personally I believe the sloppiness is a subconscious attempt on their part to try and get caught because they want to stop but can't," says Mele.

Cates says if you are caught stealing drugs from the hospital, you are automatically fired. If you are caught abusing drugs that you acquired on your own, then you might be asked to take a leave of absence. Either way, your organization will likely report you to the North Carolina Board of Nursing. Bloome says she turned herself in to the board.

In North Carolina, the Board of Nursing handles cases involving impaired nurses. Kay McMullan, director of investigations and monitoring at the board, says it refers recovering nurses to one of two drug monitoring programs.

The Alternative Program for Chemically Dependent Nurses, where Bloome went, is a voluntary alternative to traditional disciplinary action. Participation in the program is kept confidential. State authorities do not confiscate the nurse's license, but rather hold it in abeyance.

Nurses not eligible for the alternative program attend the Chemical Dependency Discipline Program. "Typically these are nurses who have had at least two prior disciplinary

actions taken against them,” says McMullan. “They can also be nurses who completed the alternative program then relapsed after.”

The discipline program requires nurses to surrender their licenses to the board. The board then sends information about the nurse to the Nursing License Database, the National Practitioner Databank, and the Healthcare Integrity and Protection Databank, national data banks that list the names and information of healthcare professionals who have had actions taken against their licenses. The board also publishes the nurse’s information on its Web site. McMullan say this information remains available to the public indefinitely. “Someone can just go to our Web site, type in a nurse’s name or license number, and find out if she’s ever been disciplined and for what reason.”

The board sets requirements for nurses in either program to fulfill before they can get their licenses back. These requirements include attending an Alcoholics Anonymous meeting – many of which also cater to substance abusers – or a Narcotics Anonymous meeting three days a week and calling a 1-800 number five days a week, any day of which the counselor on the line may ask the nurse to go to a laboratory for drug testing. The board also requires the nurse to meet regularly with a sponsor, usually formerly addicted nurses who are helping at Alcoholics Anonymous or Narcotics Anonymous meetings. Sponsors must submit paperwork to the board stating that to the best of their knowledge their assigned nurses haven’t been using narcotics.

After three months, nurses in both the alternative and discipline programs can apply for reinstatement of their licenses. The board can approve or deny this request. If denied, the nurse can reapply every three months. If approved, the nurse gets a restricted license. When she does, the board no longer requires her to undergo drug screens, but she still has to attend

Alcoholics Anonymous or Narcotics Anonymous meetings. After three years of drug-free living, the restrictions on her license can be lifted. If she was enrolled in the discipline program, however, her name and information will remain in the North Carolina Board of Nursing's Web site and in at least three national databanks indefinitely.

A restricted license limits the type and amount of work a nurse can do, says Mele. Among other restrictions, nurses can't work in high-stress environments such as intensive care units and emergency departments. They can't work during the hours of 11 p.m. to 7 a.m. They also can't work more than 40 hours a week. Bloome says she expects to have a restricted license until 2011.

Mele says not all hospitals hire nurses with restricted licenses. Hospitals that get Medicare and Medicaid funding follow federal rules prohibiting hiring nurses who have had actions taken against their licenses.

Cates and Bloome say they believe that the restrictions faced by drug-abusing nurses are fair. "It's a mixture of punitive and rehabilitative," says Cates, who had all restrictions from her license lifted in 1999. She is now back at the bedside. "Nurses in recovery have to deal with the consequences of their actions, but they do get a chance to redeem themselves. And almost all of them do," she says.

Mele disagrees. She says that while the North Carolina Board of Nursing's alternative program is rehabilitative, the disciplinary program marks nurses for life. She opposes the board's current policy that keeps disciplined nurses' information available to the public indefinitely. McMullan says the board is reconsidering that policy.

** See Appendix C for the North Carolina Board of Nursing's alternative program for chemical dependency drug monitoring program contract.*

APPENDIX A

TYPES OF EQUIPMENT & DEVICES USED FOR SAFE PATIENT HANDLING

Categories	Description
Inflatable lateral-assist devices	Flexible mattress inflated with air to create a cushioned layer for patient transferring
Friction-reducing lateral-assist devices	Boards made with smooth, low-friction material used for patient transferring
Mechanical lateral-assist devices	Height adjustable stretchers used for patient transferring
Transfer chairs	Chairs that convert into stretchers, eliminating the transfer from a horizontal plane (bed or stretcher) to a seated position
Powered full-body sling lifts	Portable or ceiling mounted lift devices to lift and transfer highly dependent patients
Powered stand assist and repositioning lifts	Lifts with arm and/or back slings to assist patients with some weight-bearing ability
Bed improvements to support transfer or repositioning	Beds that convert directly into chairs or equipped with “sheerless pivot” that minimizes slipping toward foot of bed when head is raised
Sliding boards	Boards made of smooth, rigid, low-friction material for seated bed-to-chair or chair-to-toilet transfers that act as a supporting bridge
Gait belts	Belt with handles placed around the patient’s waist to improve grasp
Stand-assist and repositioning aids	Secure devices either free-standing or attached to beds to help patients lift themselves

Source: De Castro, A. (2006). Handle with care: The American Nurses Association’s campaign to address work-related musculoskeletal disorders. *Orthopaedic Nursing*, 25(6), 359.

APPENDIX B

SAFE PATIENT HANDLING STATE LEGISLATION (ENACTED)

Engrossed Substitute House Bill 1672

Passed Legislature - 2006 Regular Session

State of Washington

59th Legislature

2006 Regular Session

By House Committee on Commerce & Labor (originally sponsored by Representatives Conway, Hudgins, Green, Cody, Appleton, Morrell, Wood, McCoy, Kenney, Moeller and Chase)

READ FIRST TIME 02/03/06.

AN ACT Relating to reducing injuries among patients and health care workers; adding a new section to chapter 70.41 RCW; adding a new section to chapter 72.23 RCW; adding a new section to chapter 51.16 RCW; adding a new section to chapter 82.04 RCW; and creating a new section.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

NEW SECTION. **Sec. 1.** The legislature finds that:

(1) Patients are not at optimum levels of safety while being lifted, transferred, or repositioned manually. Mechanical lift programs can reduce skin tears suffered by patients by threefold. Nurses, thirty-eight percent of whom have previous back injuries, can drop patients if their pain thresholds are triggered.

(2) According to the bureau of labor statistics, hospitals in Washington have a nonfatal employee injury incidence rate that exceeds the rate of construction, agriculture, manufacturing, and transportation.

(3) The physical demands of the nursing profession lead many nurses to leave the profession. Research shows that the annual prevalence rate for nursing back injury is over forty percent and many nurses who suffer a back injury do not return to nursing. Considering the present nursing shortage in Washington, measures must be taken to protect nurses from disabling injury.

(4) Washington hospitals have made progress toward implementation of safe patient handling programs that are effective in decreasing employee injuries. It is not the intent of this act to place an undue financial burden on hospitals.

NEW SECTION. **Sec. 2.** A new section is added to chapter 70.41 RCW to read as follows:

(1) The definitions in this subsection apply throughout this section unless the context clearly requires otherwise.

(a) "Lift team" means hospital employees specially trained to conduct patient lifts, transfers, and repositioning using lifting equipment when appropriate.

(b) "Safe patient handling" means the use of engineering controls, lifting and transfer aids, or assistive devices, by lift teams or other staff, instead of manual lifting to perform the acts of lifting, transferring, and repositioning health care patients and residents.

(c) "Musculoskeletal disorders" means conditions that involve the nerves, tendons, muscles, and supporting structures of the body.

(2) By February 1, 2007, each hospital must establish a safe patient handling committee either by creating a new committee or assigning the functions of a safe patient handling committee to an existing committee. The purpose of the committee is to design and recommend the process for implementing a safe patient handling program. At least half of the members of the safe patient handling committee shall be frontline nonmanagerial employees who provide direct care to patients unless doing so will adversely affect patient care.

(3) By December 1, 2007, each hospital must establish a safe patient handling program. As part of this program, a hospital must:

(a) Implement a safe patient handling policy for all shifts and units of the hospital. Implementation of the safe patient handling policy may be phased-in with the acquisition of equipment under subsection (4) of this section;

(b) Conduct a patient handling hazard assessment. This assessment should consider such variables as patient-handling tasks, types of nursing units, patient populations, and the physical environment of patient care areas;

(c) Develop a process to identify the appropriate use of the safe patient handling policy based on the patient's physical and medical condition and the availability of lifting equipment or lift teams. The policy shall include a means to address circumstances under which it would be medically contraindicated to use lifting or transfer aids or assistive devices for particular patients;

(d) Conduct an annual performance evaluation of the program to determine its effectiveness, with the results of the evaluation reported to the safe patient handling committee. The evaluation shall determine the extent to which implementation of the program has resulted in a reduction in musculoskeletal disorder claims and days of lost work attributable to musculoskeletal disorder caused by patient handling, and include recommendations to increase the program's effectiveness; and

(e) When developing architectural plans for constructing or remodeling a hospital or a unit of a hospital in which patient handling and movement occurs, consider the feasibility of incorporating patient handling equipment or the physical space and construction design needed to incorporate that equipment at a later date.

(4) By January 30, 2010, each hospital must complete, at a minimum, acquisition of their choice of: (a) One readily available lift per acute care unit on the same floor unless the safe patient handling committee determines a lift is unnecessary in the unit; (b) one lift for every ten acute care available inpatient beds; or (c) equipment for use by lift teams. Hospitals must train staff on policies, equipment, and devices at least annually.

(5) Nothing in this section precludes lift team members from performing other duties as assigned during their shift.

(6) A hospital shall develop procedures for hospital employees to refuse to perform or be involved in patient handling or movement that the hospital employee believes in good faith will expose a patient or a hospital employee to an unacceptable risk of injury. A hospital

employee who in good faith follows the procedure developed by the hospital in accordance with this subsection shall not be the subject of disciplinary action by the hospital for the refusal to perform or be involved in the patient handling or movement.

NEW SECTION. **Sec. 3.** A new section is added to chapter 72.23 RCW to read as follows:

(1) The definitions in this subsection apply throughout this section unless the context clearly requires otherwise.

(a) "Lift team" means hospital employees specially trained to conduct patient lifts, transfers, and repositioning using lifting equipment when appropriate.

(b) "Safe patient handling" means the use of engineering controls, lifting and transfer aids, or assistive devices, by lift teams or other staff, instead of manual lifting to perform the acts of lifting, transferring, and repositioning health care patients and residents.

(c) "Musculoskeletal disorders" means conditions that involve the nerves, tendons, muscles, and supporting structures of the body.

(2) By February 1, 2007, each hospital must establish a safe patient handling committee either by creating a new committee or assigning the functions of a safe patient handling committee to an existing committee. The purpose of the committee is to design and recommend the process for implementing a safe patient handling program. At least half of the members of the safe patient handling committee shall be frontline nonmanagerial employees who provide direct care to patients unless doing so will adversely affect patient care.

(3) By December 1, 2007, each hospital must establish a safe patient handling program. As part of this program, a hospital must:

(a) Implement a safe patient handling policy for all shifts and units of the hospital. Implementation of the safe patient handling policy may be phased-in with the acquisition of equipment under subsection (4) of this section;

(b) Conduct a patient handling hazard assessment. This assessment should consider such variables as patient-handling tasks, types of nursing units, patient populations, and the physical environment of patient care areas;

(c) Develop a process to identify the appropriate use of the safe patient handling policy based on the patient's physical and medical condition and the availability of lifting equipment or lift teams;

(d) Conduct an annual performance evaluation of the program to determine its effectiveness, with the results of the evaluation reported to the safe patient handling committee. The evaluation shall determine the extent to which implementation of the program has resulted in a reduction in musculoskeletal disorder claims and days of lost work attributable to musculoskeletal disorder caused by patient handling, and include recommendations to increase the program's effectiveness; and

(e) When developing architectural plans for constructing or remodeling a hospital or a unit of a hospital in which patient handling and movement occurs, consider the feasibility incorporating patient handling equipment or the physical space and construction design needed to incorporate that equipment at a later date.

(4) By January 30, 2010, hospitals must complete acquisition of their choice of: (a) One readily available lift per acute care unit on the same floor, unless the safe patient handling committee determines a lift is unnecessary in the unit; (b) one lift for every ten

acute care available inpatient beds; or (c) equipment for use by lift teams. Hospitals must train staff on policies, equipment, and devices at least annually.

(5) Nothing in this section precludes lift team members from performing other duties as assigned during their shift.

(6) A hospital shall develop procedures for hospital employees to refuse to perform or be involved in patient handling or movement that the hospital employee believes in good faith will expose a patient or a hospital employee to an unacceptable risk of injury. A hospital employee who in good faith follows the procedure developed by the hospital in accordance with this subsection shall not be the subject of disciplinary action by the hospital for the refusal to perform or be involved in the patient handling or movement.

NEW SECTION. **Sec. 4.** A new section is added to chapter 51.16 RCW to read as follows:

(1) By January 1, 2007, the department shall develop rules to provide a reduced workers' compensation premium for hospitals that implement a safe patient handling program. The rules shall include any requirements for obtaining the reduced premium that must be met by hospitals.

(2) The department shall complete an evaluation of the results of the reduced premium, including changes in claim frequency and costs, and shall report to the appropriate committees of the legislature by December 1, 2010, and 2012.

NEW SECTION. **Sec. 5.** A new section is added to chapter 82.04 RCW to read as follows:

(1) In computing the tax imposed under this chapter, a hospital may take a credit for the cost of purchasing mechanical lifting devices and other equipment that are primarily used to minimize patient handling by health care providers, consistent with a safe patient handling program developed and implemented by the hospital in compliance with section 2 of this act. The credit is equal to one hundred percent of the cost of the mechanical lifting devices or other equipment.

(2) No application is necessary for the credit, however, a hospital taking a credit under this section must maintain records, as required by the department, necessary to verify eligibility for the credit under this section. The hospital is subject to all of the requirements of chapter 82.32 RCW. A credit earned during one calendar year may be carried over to be credited against taxes incurred in a subsequent calendar year. No refunds shall be granted for credits under this section.

(3) The maximum credit that may be earned under this section for each hospital is limited to one thousand dollars for each acute care available inpatient bed.

(4) Credits are available on a first in-time basis. The department shall disallow any credits, or portion thereof, that would cause the total amount of credits claimed statewide under this section to exceed ten million dollars. If the ten million dollar limitation is reached, the department shall notify hospitals that the annual statewide limit has been met. In addition, the department shall provide written notice to any hospital that has claimed tax credits after the ten million dollar limitation in this subsection has been met. The notice shall indicate the amount of tax due and shall provide that the tax be paid within thirty days from the date of

such notice. The department shall not assess penalties and interest as provided in chapter 82.32 RCW on the amount due in the initial notice if the amount due is paid by the due date specified in the notice, or any extension thereof.

(5) Credit may not be claimed under this section for the acquisition of mechanical lifting devices and other equipment if the acquisition occurred before the effective date of this section.

(6) Credit may not be claimed under this section for any acquisition of mechanical lifting devices and other equipment that occurs after December 30, 2010.

(7) The department shall issue an annual report on the amount of credits claimed by hospitals under this section, with the first report due on July 1, 2008.

1. For the purposes of this section, "hospital" has the meaning provided in RCW 70.41.020.

--- END ---

APPENDIX C

DRUG MONITORING PROGRAM CONTRACT

North Carolina Board of Nursing Alternative Program for Chemical Dependency (AP) Contract Section I

The North Carolina Board of Nursing (hereinafter referred to as ("Board")), is mandated by the Nursing Practice Act G.S. 90-171.37 to intervene when the Board determines that a licensee "(3) has a mental or physical disability or uses any drug to a degree that interferes with his or her fitness to practice nursing; (4) engages in conduct that endangers the public health; (5) is unfit or incompetent to practice nursing by reason of deliberate or negligent acts or omissions regardless of whether actual injury to the patient is established; and, (6) engages in conduct that deceives, defrauds, or harms the public in the course of professional activities or services".

The Licensee, _____ is a _____ in the state of North Carolina holding certificate number (s) _____.

The Licensee freely and voluntarily admits the following facts are true:

- (a) The Licensee acknowledges a chemical dependency problem; in particular abuse of _____.
(substance(s) of preference)
- (b) The Licensee began to abuse chemical substances _____,
(date/time)(setting)
which continued until _____.
(date)
- (c) Brief description of drug abuse habits emphasizing amount/time/place/pattern of consumption (i.e.: "The licensee used between 5-10 Percocet daily, both on and off the job."):

- (d) Brief description of incidents resulting from addiction/diversion/impairment:

Based upon the facts listed above, Licensee admits that his/her license(s) to practice nursing is (are) subject to suspension or revocation pursuant to the Nursing Practice Act. In

consideration of the Board's deferring any disciplinary action, the Licensee knowingly and voluntarily agrees to participate in the Alternative Program for Chemical Dependency (hereafter referred to a "Program") and consents to the following terms and conditions:

Licensee understands participation in this Program does not preclude action by law enforcement or other agencies.

If not currently participating in a treatment program which meets the criteria established by the Board, Licensee shall be referred to such a treatment program and have an initial assessment by a qualified health professional within 48 hours.

Licensee assumes financial responsibility for treatment and random body fluid screens.

Licensee voluntarily agrees to participate and successfully complete all conditions of treatment and aftercare set forth by the treatment program. This contract requires participation in aftercare for one year following treatment which involves a minimum of one (1) meeting each week.

Licensee voluntarily agrees the license(s) is/are held in abeyance by the Board until the Board determines the Licensee is safe to return to the practice of nursing. The purpose of holding the license in abeyance is to improve the licensee's prospects to successfully return to practice. The license will be held in abeyance a minimum of three (3) months beginning with the date the participant enters treatment. Following the three (3) month interval, the participant may petition for a determination for his/her readiness to re-enter practice with the Re-Entry/Reinstatement Committee.

The Licensee will not seek employment in nursing during the time the license is held in abeyance and will not practice nursing. Further, the licensee may not work as a NAI or NAII during the time of license abeyance.

If employed in any healthcare setting prior to returning to licensed nursing employment, licensee must notify Program of place of employment and job responsibilities. Licensee may not be employed in any position providing access to controlled substances.

Licensee shall abstain from the use of all chemical and alcohol substances except as may be prescribed for him/her for a medical condition by a licensed practitioner.

Some prescription and over-the-counter drugs may affect recovery or cause positive drug screen results. It is the licensee's responsibility to assure that any medication taken will not affect recovery or test results. Whenever medication is prescribed, it is the licensee's responsibility to provide the prescribing practitioner with the form supplied by National Confederation of Professional Services (NCPS), entitled "Prescription Identification Form". The prescribing practitioner returns the completed form to NCPS within five (5) days of prescribing the medication. The licensee submits a copy to the Alternative Program within five (5) days of the prescription being written. The consumption of any over-the-counter antihistamine, decongestant, or cough syrup medications must be reported in writing within

seventy-two hours of the first dose. Any concerns regarding appropriateness of medications as they relate to participation in the Program will be reviewed.

Licensee agrees to contact the treatment program for consultation regarding OTC drugs.

Licensee agrees to notify the Program if hospitalized or scheduled to undergo any surgical procedure on an inpatient/outpatient basis.

This document and all information regarding the Licensee's participation in the Program will be shared with other jurisdictions should the Licensee seek endorsement or renewal/reinstatement of license(s).

For the terms of this contract to be in effect, the nurse must be employed in nursing in North Carolina and must continue in compliance with all conditions of the contract.

Licensee understands as long as he/she participates in the Program and compliance is maintained, the Licensee's name will not be published on the website; however, privacy is maintained unless disclosure is necessary to protect the health, safety and welfare of the public or as ordered by a court of competent jurisdiction. Should disclosure become necessary, whenever feasible, the Board will notify the licensee. Privacy is respected; however, confidentiality is not assured.

Licensee will sign valid releases for the treatment program to release pertinent treatment (medical and psychiatric) records to the Program and to discuss issues relating to the Licensee's chemical dependency and recovery program.

The Licensee agrees to have detailed written reports and evaluations submitted to the Program Coordinator:

1. Upon completion of the initial assessment by the treatment program;
2. Upon completion of the inpatient and/or outpatient treatment program;
3. Urine or blood drug screen reports showing chain of custody will be requested on a random basis – must comply with policies related to screening process and remain current with any fees related to the screening.
4. The following reports are to be submitted beginning on the date agreed upon:
 - a. Therapist/Counselor reports;
 - b. Sponsor report from an approved self-help recovery program. (The Licensee will specify the self-help recovery program the Licensee is attending and the sponsor's first name who will be submitting reports)
 - c. Self Report from Licensee describing compliance and progress in recovery.
 - d. List of attendance at self-help recovery program meetings; must submit evidence of attending a minimum of three (3) 12 step meetings each week for one (1) year following signing of contract and minimum of two (2) each week for the remainder of participation in the Program. Caduceus and aftercare do not qualify as a 12-step meeting.

- e. Reports from probation officer if under court ordered probation.
- f. Any additional reports, evaluations, and verifications as requested by the Program.

Approved self-help recovery programs consist of programs approved by any treatment program which has met criteria established by the Board. Should the Licensee request permission to attend a self-help recovery program not approved by a treatment program, the Program will consult with the medical director or designate of the treatment program the Licensee attended for a recommendation of approval or non-approval.

Licensee shall provide within five (5) days written notification of any change in the Licensee's name, address, and/or phone number to the Program. Any request to transfer to another jurisdiction's monitoring program must be submitted in writing, and approval obtained prior to transferring to another program. If approved for transfer, may not hold a license in North Carolina or practice nursing in North Carolina until submits evidence of successful completion of monitoring program in transferring jurisdiction.

Licensee shall not violate any laws of the United States and North Carolina and inform the Program Coordinator, in writing within five (5) days, if charged with a misdemeanor or felony (other than minor traffic violations).

Licensee will not violate the Nursing Practice Act nor any rules promulgated by the Board of Nursing.

Licensee will immediately report relapse to the Program by telephone (within twenty-four (24) hours) and in writing (within three (3) days).

Relapse will be evaluated on an individual basis and may result in termination from the program. If Licensee is allowed to remain in the program following relapse and has signed Section II of the Contract, there must be a period of three (3) continuous years with no occurrence of relapse while employed in a licensed nursing position for the licensee to successfully complete the program.

Licensee understands if the Program has evidence the Licensee is not in compliance with the Program, participation in the program will be terminated and the license will be suspended for at least one (1) year and if and until the licensee submits evidence of a minimum of one (1) year of sobriety as defined by Board policy. This and subsequent action is public information. Additionally, the Licensee may withdraw from the Contract at any time and the license will be suspended for at least one (1) year and if and until the licensee submits evidence of a minimum of one (1) year of sobriety as defined by Board policy.

All disciplinary actions taken by the Board will be reported to the appropriate entities as outlined in Board policy, and as required by State and/or Federal guidelines. Those entities include, but may not be limited to: Nursing license database (NURSYS); National Practitioner Databank (NPDB); the Office of the Inspector General (OIG); Healthcare Integrity and Protection Databank (HIPDB); and any other state/jurisdiction in which we

know the licensee is or has been licensed.

It is the Licensee's responsibility to contact the Program if the licensee has any questions concerning this Contract.

Licensee acknowledges that any untrue or fraudulent statements made to the Program in preparation of or during the term of this Contract are a violation of this Contract.

_____ agrees to participate in the Alternative Program for Chemical Dependency of North Carolina Board of Nursing. Licensee voluntarily chooses to participate in the Program and agrees to adhere to Section I of this contract.

LICENSEE HEREBY AGREES THAT IN ACCORDANCE WITH THE INTERSTATE COMPACT FOR NURSE LICENSURE, LICENSEE SHALL NOT PARTICIPATE IN ANY OTHER PARTY STATE WHILE PARTICIPATING IN THE ALTERNATIVE PROGRAM WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE NORTH CAROLINA BOARD OF NURSING AND THE OTHER PARTY STATE. LICENSEE MUST PROVIDE EVIDENCE OF SUCH AUTHORIZATION FROM THE OTHER PARTY STATE TO THE NORTH CAROLINA BOARD OF NURSING.

Signature of Licensee

Date

Board Representative

Date

Section II

The following section of contract defining conditions, restrictions and monitoring requirements for employment will be signed once the licensee is deemed ready to return to the practice of nursing by the North Carolina Board of Nursing (hereafter referred to as ("Board")). This contract, including Section I and Section II, will be in effect from the date that Section I is signed and continuing until the licensee has been employed in a position requiring a nursing license and has submitted satisfactory required reports for a period of three (3) years.

REQUIREMENTS FOR NURSES RETURNING/SEEKING A NURSING POSITION

To maintain good standing in the Alternative Program for Chemical Dependency, the Licensee will:

1. Contact the Program to determine the appropriate area of practice prior to accepting a new position or returning to previous employment. Program approval is required.
2. Seek employment in the area of nursing which will enhance recovery. Issues to be addressed include: specific area of employment, responsibility, supervisor and hours.
3. Refer employer to the Program to verify participation in the Program prior to accepting the position.
4. Notify the Program in writing within five (5) days of accepting a position, the name, address and phone number of the place of employment, position description and name of immediate supervisor.
5. Notify the Program, in writing, within five (5) days of any change in address or employment. This includes new employment or probation, suspension, termination and/or resignation from employment.
6. Not work as a CRNA, for a staffing agency, or in home health or hospice for at least two (2) years.
7. Have the following conditions of employment:
 - a. Shall not work 11 p.m. - 7 a.m. and may not work more than 80 hours per 2 weeks or more than 48 hours in a 7 day interval unless approved by the Program; for at least one year.
 - b. Shall not have access to controlled substances, including Nubain, for at least one year;
 - c. Shall not work in critical care specialty areas and ER for at least one year.
 - d. Shall work for at least one (1) year under the direction of an on-site RN or, with approval, under the direction of an on-site work monitor who is a licensed health care provider.
 - e. Must show consecutive employment at same facility for two (2) months during first year of return to employment and consecutive employment at same facility for three (3) months the last two (2) years of contract in order for work performance reports to be acceptable.
 - f. Must work an average of sixty-four (64) hours per month for work performance reports to be acceptable.
1. Will refrain from working in any capacity in the healthcare setting if a drug screen tests positive until further testing and investigation is completed.
2. Perform his/her duties in a safe and competent manner satisfactory to the Board.
3. Not violate the Nursing Practice Act nor any rules promulgated by the Board.
4. Sign valid releases for the following reports to be submitted to the Program every

other month for one year and quarterly for two (2) years: (as applicable)

- a. Employee performance;
- b. Reports from therapist/counselor until discharged by therapist/counselor;
- c. Sponsor reports from an approved self help recovery program;
- d. If under court ordered probation, reports from probation officer.
- e. Written reports from Licensee describing compliance and progress in recovery and list of attendance at self-help recovery program meetings.
- f. Any additional reports, evaluations and verifications as requested by the Program.

Following completion of one (1) successful year of employment, Program will send letter to licensee and supervisor removing one (1) year conditions.

LICENSEE HEREBY AGREES THAT IN ACCORDANCE WITH THE INTERSTATE COMPACT FOR NURSE LICENSURE, LICENSEE SHALL NOT PARTICIPATE IN ANY OTHER PARTY STATE WHILE PARTICIPATING IN THE ALTERNATIVE PROGRAM WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE NORTH CAROLINA BOARD OF NURSING AND THE OTHER PARTY STATE. LICENSEE MUST PROVIDE EVIDENCE OF SUCH AUTHORIZATION FROM THE OTHER PARTY STATE TO THE NORTH CAROLINA BOARD OF NURSING.

_____ agrees to continue participation in the Alternative Program for Chemical Dependency and agrees to adhere to Section I and Section II of this contract.

Signature of Licensee

Date

Board Representative

Date

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INTERVIEWS

Adams, Marty. A registered nurse at UNC Hospitals who sustained a back injury in April 2006. Interviewed by phone on February 22, 2008 and March 19, 2008.

Book, Dewayne. Medical director, Fellowship Hall (a private, non-profit alcohol and substance abuse treatment center in Greensboro, N.C.) and past president, North Carolina Society of Addiction Medicine. Interviewed by phone on March 11, 2008.

Bloome, Amy. Registered nurse from Charlotte, N.C., who became addicted to prescription pain medication after sustaining a back injury in October 2006. Interviewed by phone on March 4, 2008, March 6, 2008, and March 9, 2008.

Cates, Marci. A registered nurse from Wilmington, N.C., who used to be addicted to marijuana and cocaine and now assists in facilitating nurses in recovery at Narcotics Anonymous meetings in Wilmington. Interviewed by phone on March 1, 2008 and March 6, 2008.

Charney, William. Former safety director, Washington (State) Hospital Services. Interviewed on March 12, 2008.

Dirschl, Douglas. Professor and chairman, Department of Orthopaedics, UNC School of Medicine. Interviewed by phone on February 20, 2008 and by email on April 4, 2008.

Durham, Carol. Clinical associate professor and director, Clinical Education & Resource Center, School of Nursing, UNC-Chapel Hill. Interviewed by phone on February 21, 2008.

Hudson, Anne. Founder, Work Injured Nurses' Group USA (WING USA). Interviewed on March 12, 2008.

Johnson, Karen. Nursing manager, Duke 3 unit (Burlington Airport), Duke Life Flight, Duke University Health System. Interviewed on February 20, 2008.

McMullan, Kay. Director of investigations and monitoring, North Carolina Board of Nursing. Interviewed by phone on March 24, 2008.

Mele, Connie. Director of provided services, Mecklenburg County Area Mental Health Authority. Interviewed by phone on February 22, 2008 and by email on March 27, 2008.

Nelson, Audrey. Director, Patient Safety Center for Inquiry, James A. Haley Veterans' Hospital. Interviewed on March 12, 2008.

Nevidjon, Brenda. Former chief operating officer, Duke University Medical Center. Interviewed by phone on February 21, 2008.

Powell-Cope, Gail. Associate director, Patient Safety Center for Inquiry, James A. Haley Veterans' Hospital. Interviewed on March 12, 2008.

Pruett, Gail. Director of nursing education and practice, North Carolina Nurses Association. Interviewed by phone on February 20, 2008.

Silverstein, Barbara. Research director, Safety & Health Assessment and Research for Prevention (SHARP), Washington State Department of Labor and Industries. Interviewed on March 12, 2008.

Stevens, Joanne. Lobbyist and director of government relations, North Carolina Nurses Association. Interviewed by phone on March 27, 2008.

Taylor, Cindy. Director, Environmental Health and Safety Department, UNC Hospitals. Interviewed on February 20, 2008 and by email on March 24, 2008.

Tonges, Mary. Senior vice president and chief nursing officer, UNC Hospitals. Interviewed by phone on February 27, 2007 and February 15, 2008.

Van Steen, Tracy. Ergonomics specialist, Department of Occupational Health, WakeMed Health & Hospitals. Interviewed by phone on February 21, 2008.

Wallace, Linda. Clinical nurse consultant, Diligent Services, Inc. Interviewed on March 11, 2008.