

**The Costs of Mandatory  
Overtime for Nurses**

**Prepared for the  
Michigan Nurses Association**

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## Introduction

In May 2004, Michigan State Senator Bruce Patterson (R-Canton) introduced a bill entitled the “Safe Patient Care Bill” to the Michigan Legislature. The purpose of this bill is to amend Michigan’s Public Health Code (1978 PA 368) to incorporate standards that will assure that all Michigan acute-care facilities will have sufficient registered professional nurses to provide and ensure safe patient care. This bill establishes minimum patient-to-registered nurse (RN) ratios through establishment of a staffing plan for each acute-care facility and through the use of an acuity system to increase RN staffing capacity should the health care needs of the patients warrant it. In addition, mandatory overtime as a staffing strategy is eliminated except in the case of a serious and unforeseen emergency situation.

For purposes of this legislation, mandatory overtime is defined as involuntary time when the RN is (1) required to remain for all or part of another shift when the RN planned to leave at the end of the agreed-upon shift assignment, or is (2) required to come to work beyond the agreed-upon shift assignment. (Bissonnette, 2004)

Nurses are health care organizations’ single greatest expense (Kosel and Olivo, 2002), and nurses are increasingly working overtime (International Council of Nurses [ICN], n.d.), thus driving health care costs even higher. There are several reasons that are generally offered to explain the use of overtime in health care organizations. An unexpected emergency situation may require on-duty staff to remain on duty in order to address the situation or, similarly, weather conditions or some other uncontrollable event may prevent the normal change of shift. Professional ethics also prevent nurses from leaving during an ongoing procedure. On the other hand, hospital administrators often refer to their inability to hire sufficient full-time nursing staff, so overtime is used to fill in the gaps. (Black, 2002; ICN, n.d.) Nurses who are subject to mandatory overtime, however, see this as a way to reduce hospital costs that leads to chronic understaffing. (Massachusetts Nurses Association, 2000; American Federation of State, County, and Municipal Employees [AFSCME], n.d.) While nurses who work overtime are paid time and a half, employers who require nurses to work overtime do not have to provide any additional benefits, and employers save the cost of hiring agency nurses or traveling nurses to fill in. For example, specialty nurses with a mean annual salary of \$65,000 will likely be paid about \$47 per hour (with no additional benefits) for overtime work compared with between \$60 and \$80 per hour for agency or traveling nurses. (Pricewaterhouse Coopers, 2003)

Although there has been a small but growing number of research studies and peer-reviewed papers concerning the association of nursing staff levels to patient safety, quality of care, and health care costs (see, for example, Stanton and Rutherford, 2004), there have been only a few reports that have directly addressed the issue of nursing staff overtime and its relationship to patient safety and quality of care. There has been almost no research conducted that examines the relationship of overtime work (mandatory or voluntary) and health care costs.

## Relationship of Mandatory Overtime to Patient Safety and Quality of Care

There are several industries in which employees' working hours are strictly regulated, mainly to protect the health and safety of the public as well as the employees who serve them. The most well-known examples come from the transportation industry where the work loads of aircraft flight crews, and particularly pilots, are strictly regulated and where over-the-road truck drivers are similarly required to limit their driving time and keep detailed logs to prove it. Working at night is considered even more hazardous. (Page, 2004, p. 417) With the exception of a few states that have passed legislation or created administrative rules that prohibit health care organizations from requiring nurses to work overtime except in the case of emergencies—states such as California, New Jersey, Maine, Maryland, West Virginia, and Washington (CNN.com, 2004; Mengers, 2004)—the hours that nurses may work in providing direct care to patients is not regulated in the United States.

It is widely recognized that overtime work among nurses and patient safety are related, and this association is routinely described as one in which increased overtime (voluntary or mandatory) is associated with reduced patient safety. The International Council of Nurses (ICN) acknowledges that nurses throughout the world are increasingly working overtime, and “the increasing amount of overtime threatens nurses’ ability to provide safe and individualized care for patients.” (ICN, n.d.) Threats to patient safety that are likely to result from extensive nursing overtime include the following:

- Nurses being less alert to changes in patients’ condition
- Nurses having slower reactions
- Medication errors—adverse drug events (ADEs)
- Errors in clinical judgment
- Increase in nosocomial infections<sup>1</sup>
- Increase in decubiti<sup>2</sup> (Ibid.)

In a report to Congress on mandatory overtime in Department of Veterans Affairs (VA) facilities, the VA (for which mandatory overtime for nurses is allowed) is clearly concerned about the impact of mandatory overtime on patient safety as they report that while “no direct relationship between overtime and medical errors has been identified . . . the Veterans Health Administration will continue to take the steps necessary to reduce the amount of mandatory overtime to the lowest level possible.” (Department of Veterans Affairs, 2002.)

In a statement to the Senate Committee on Health Education, Labor, and Pensions, the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) reported that almost one-quarter of sentinel events that were analyzed under their guidance were related to nurse staffing issues, including fatigue. (JCAHO, 2001) Perhaps most significant, however, are statements in the Institute of Medicine’s recent report, *Keeping Patients Safe: Transforming the Work Environment of Nurses* (Page, 2004), including:

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<sup>1</sup> Hospital-acquired but unrelated to the original condition for which the patient is being treated.

<sup>2</sup> Ulcers or bedsores.

- The long hours worked by some nurses pose some of the most serious threats to patient safety.
- Prolonged periods of wakefulness can produce effects that are similar to the effects produced by alcohol intoxication. This may include decreases in reaction time and the speed of mental processes<sup>3</sup>
- More than one-quarter of nurses studied reported working in excess of 13 hours at least once per week.
- Some nursing shifts as long as 22.5 hours were recorded in recent research that was cited. (Ibid., p. 6)

Two research studies were referred to by the Institute of Medicine in this regard, and both were citations of unpublished data from researchers at the University of Pennsylvania and the University of Maryland at Baltimore, respectively. Dr. Ann Rogers, author of one of the studies, noted in response to receiving a grant to do this research from the Agency for Healthcare Research and Quality (AHRQ) that “based on my experience, I am familiar with the effects of fatigue on full-time staff nurses, but up until now, the care provided by exhausted staff nurses has been undocumented and remains anecdotal at best.”<sup>4</sup> (Nevada Nurses Association, 2002) Since then, however, Dr. Rogers has completed this new study that begins to address the issue directly. As noted in the introduction to her most recent report, “both errors and near errors are more likely to occur when hospital staff nurses work twelve or more hours at a stretch.” (Rogers, et al., 2004)

This most recent study had a sample of 393 registered nurses working full time in hospitals across the United States who maintained detailed logs of their hours worked, time of day worked, overtime, days off, patterns of sleep and awake hours, mood, caffeine intake, and, most notably, errors and near errors that occurred while they were working.<sup>5</sup> Logs were maintained for two 2-week periods. Data were collected for a total of 5,317 work shifts. The major findings concerning RN working hours include the following:

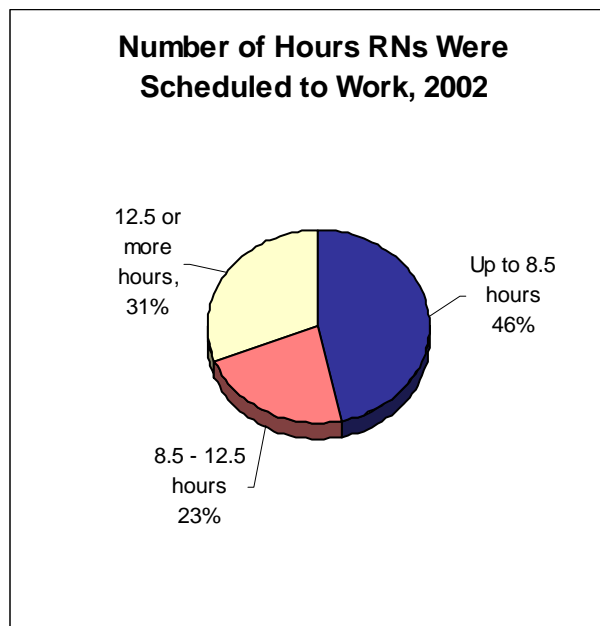
- RNs typically work longer than scheduled on a daily basis, and they generally work more than 40 hours per week (see Figures 1a and 1b, below).
- Thirty-one percent of RNs were scheduled to work shifts in excess of 12 hours; 38.7% actually worked more than 12.5 hours.
- Fourteen percent of study participants reported working 16 or more consecutive hours at least once during the two 2-week periods on which they reported.
- The longest reported shift was 23 hours, 40 minutes.

<sup>3</sup> Periods of wakefulness in excess of 16 hours can produce performance decrements equivalent to a blood alcohol concentration (BAC) level of .05 percent. (Page, 2004) Alcohol intoxication is defined as .05 percent BAC in several western industrialized nations although the level in the U.S. varies from .08 to .10 among the states. (Dawson and Reid, 1997; Lamond and Dawson, 1998)

<sup>4</sup> Several anecdotes from nurses required to work overtime at hospitals and nursing homes in Saskatchewan, Canada, may be found in the January 1999 edition of *SunSpots*, the official newsletter of the Saskatchewan Union of Nurses. It is important to note that although all of the Canadian provinces maintain a single-payer health care system where access to care is regulated, mandatory overtime is still a significant problem.

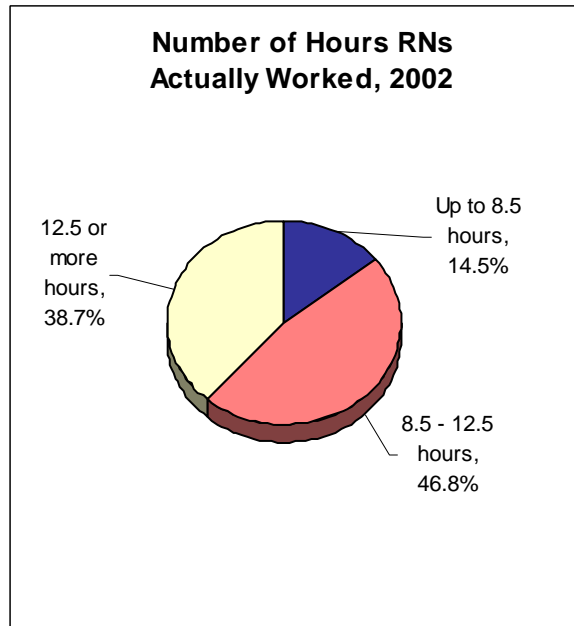
<sup>5</sup> According to the authors, confidential and/or anonymous reporting of errors, as in this study, has been shown to be “a valid approach to ascertaining the nature and prevalence of nursing errors.” (Scott, et al., p. 3)

- Regardless of the scheduled shift time (8 hours, 12 hours, or other), almost two-thirds of the nurses worked overtime at least 10 times during the two 2-week reporting periods.
- One-third of the nurses reported working overtime every day during the reporting period.
- Nurses' reported overtime work was mandated in almost 10% of the 5,317 shifts that were reported on in this study. (Rogers, et al., pp. 4-5)



**Figure 1a**

Source: Rogers et al., 2004.



**Figure 1b**

Source: Rogers et al., 2004.

The impact of hours worked, duration of work, and overtime in this study were shown to have a statistically significant impact on patient safety. According to Rogers, et al., “the likelihood of making an error increased with longer work hours and was three times higher when nurses worked shifts lasting 12.5 hours or more . . .” and “working overtime increased the odds of making at least one error, regardless of how long the shift was originally scheduled.” (Ibid., p. 5) The study also showed that there is a significantly higher risk of error associated with nurses working overtime after 12-hour shifts. These results also held for the likelihood of “near errors.”<sup>6</sup>

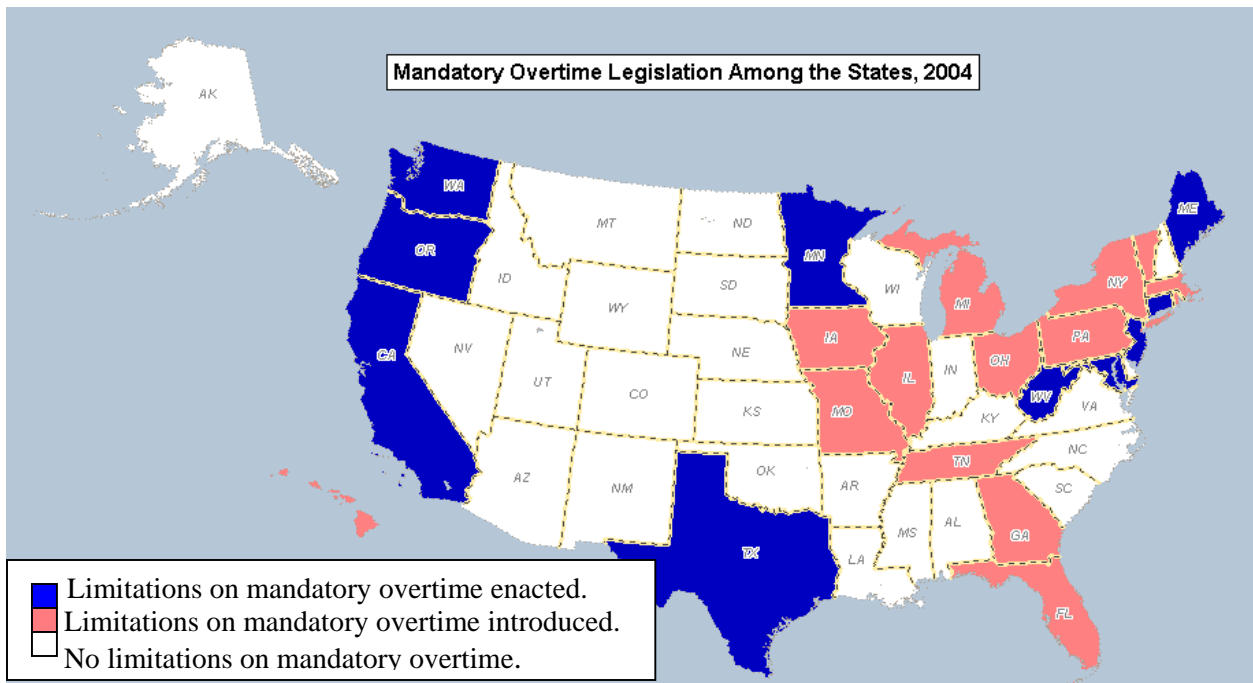
The authors of this recently published study conclude that as these findings imply a link between poor working conditions (long hours and overtime, mandatory or otherwise) and patient safety, the “routine use of twelve-hour shifts should be curtailed, and overtime—especially that associated with twelve-hour shifts—should be eliminated.” (Ibid., p. 9) This conclusion is consistent with the recommendation made by the Institute of Medicine in its report on working conditions for nurses and patient safety:

*To reduce error-producing fatigue, state regulatory bodies should prohibit nursing staff from providing patient care in any combination of scheduled shifts,*

<sup>6</sup> A “near error” is when a nurse catches himself or herself before making an error.

*mandatory overtime, or voluntary overtime in excess of 12 hours in any given 24-hour period and in excess of 60 hours per 7-day period. (Page, 2004, p. 13)*

In response to this and other admonitions concerning the elimination of mandatory overtime for nurses, almost half of the states in the nation have enacted or introduced legislation concerning this issue. Ten states—California, Connecticut, Maine, Maryland, Minnesota, New Jersey, Oregon, Texas, Washington, and West Virginia--have enacted restrictions on mandatory overtime for nurses or have prohibited punitive action against nurses who refuse to work overtime, except in emergencies, or have required hospitals to develop policies and procedures for mandatory overtime. Louisiana and Nevada have established government committees to study the issue of mandatory overtime, and just this year, legislation to prohibit mandatory overtime among nurses was introduced in Michigan as well as in the states of Florida, Georgia, Hawaii, Iowa, Illinois, Massachusetts, Missouri, New York, Ohio, Pennsylvania, Rhode Island, Tennessee, and Vermont. (American Nurses Association, 2004) These are illustrated in Figure 2, below.



**Figure 2**

Source: American Nurses Association, 2004.

## Relationship of Mandatory Overtime to Health Care Costs

Overtime work—whether voluntary or mandatory—has a significant effect on the finances of hospitals and other health care organizations. As noted in a Voluntary Hospitals of America (VHA) report on workforce stability in hospitals, those sentinel events (e.g., medical errors) examined by the JCAHO, as noted above, “along with those not reported, involve the potential for sizable malpractice awards, and may compromise the quality of patient care.” (Kosel and Olivo, p. 11)

The financial impact of long work hours, expanded workloads, and mandatory overtime for hospital staff nurses is not a direct relationship, but this relationship is, nonetheless, important to recognize and understand. In the short run, most financial analyses will demonstrate those extending work hours, doubling shifts, and mandating that RNs work overtime is less costly than either hiring temporary staff to fill the staffing gaps or hiring additional full-time nurses in order to alleviate staffing pressures. This, at least, is the theory. When a longer time horizon is employed, however, the documentation reported here and in the companion report, *The Business Case for Reducing Patient-to-Nursing Staff Ratios . . .* present a strong case that the consequences of long shifts, increased workload, and overtime (mandatory or voluntary) contribute to fatigue and nurse burnout which, in turn, lead to several costly consequences for health care organizations.

The financial impacts of fatigue and nursing staff burnout tend to be associated with increased patient-care errors and medical errors, liability concerns, and increased absenteeism and turnover. Each of these is associated with increased costs to health care organizations.

### Patient-Care Errors / Medical Errors

Longer hours are associated with a variety of patient-care or medical errors, including medication errors, and the longer the hours worked, the greater the likelihood of making an error.<sup>7</sup> All patient-care or medical errors are serious, but some are more serious than others, and it is generally recognized that approximately 5.0% of significant errors are potentially life threatening. (Leape, 1996)

The costs of some serious patient-care errors or complications can be and have been estimated. Based on an analysis of approximately 124,000 surgical-patient records during the mid-1990s, Cho, et al., (2004), estimated that hospital-acquired pneumonia added between \$22,000 and \$28,000 in costs per patient when all the costs of additional care, tests, pharmaceuticals, and additional time in the hospital are added up. Unfortunately, the data available to compile specific estimates of the costs of patient-care errors associated with increased work hours and mandatory overtime for nurses are not presently available. The cost of a “typical” medication error is also not available and cannot easily be determined, as such errors may have widely varying effects depending on the patient’s condition, the specific medication, and the type of medication error that occurs. In addition, although expanded nursing hours are statistically

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<sup>7</sup> Medication errors include the wrong patient, the wrong medication, the wrong dosage, the wrong means of administration (e.g., intravenous, oral, etc.), the wrong time, and failure to administer the medication at all.

associated with increases in patient-care errors such as medication errors, the number and type of such errors have not yet, been specified through scientific research. The number of and costs of “near errors” are similarly indeterminate. Nonetheless, there are direct costs associated with such shortcomings in patient care.

Direct costs may include any remedial action that must be taken to rectify a patient-care or medical error, additional stay in the hospital in some cases, recording of the error, and internal hospital review and analysis of the error. Moreover, some errors may have consequences that reach beyond the individual patient. Rogers, et al. (2004), for example, make note of two hospital-wide epidemics of staphylococcus aureus in which extended work hours and nurse fatigue were contributing factors. The costs of identifying, addressing, and rectifying these errors and their results are not insignificant and, except for direct remedial action, they are not usually reimbursable. In addition, there are also indirect costs associated with patient-care and medical errors that may result from nursing staff fatigue associated with long work hours. Patient-care and medical errors can lead to heightened risk-management activities, increased internal-review and remediation efforts, public relations issues, and, in extreme cases, threats to accreditation and licensure.

### **Medical Liability**

Any policies or practices that may lead to the increased patient-care errors inevitably produce increased activity on the medical liability front. As noted above, increased errors resulting from long hours and nursing staff fatigue, at a minimum, induce greater levels of activity for risk managers and various quality review committees. In some cases, these events may lead to insurance claims and litigation, both of which are typically expensive. The American Hospital Association conducted a survey of 1,000 hospitals across the nation and reported that the cost of liability coverage for many hospitals had doubled between 2001 and 2003. (Rice, 2003) According to Circadian Technologies, Inc. ([www.circadian.com](http://www.circadian.com)), a consulting firm that specializes in risk assessment and analysis with regard to human fatigue, inattention, or other impairment related to work hours, there has been an increase in recent years in malpractice lawsuits that claim a medical “error” was precipitated by physician or nurse fatigue due to extended working hours. Many nurses believe that the fatigue associated with extensive overtime does contribute to a greater potential for error. Nurses in Pennsylvania who were rallying in support of an end to mandatory overtime indicated that medical malpractice and the nursing crisis go hand in hand. “Nurses said that when they’re pushed beyond their limits, medical mistakes are made, lives are lost, and malpractice suits are filed. They said that the problem could be cut down by ending mandatory overtime.” ([www.seiu1199P.org](http://www.seiu1199P.org))

Often cited in these claims is a recent report by the Institute of Medicine (IOM) that errors made by medical staff in hospitals cause between 44,000 and 98,000 fatalities per year, and that sleep deprivation and fatigue can contribute significantly to the risk of human errors.” At a conference on medical liability hosted by the National Council of State Boards of Nursing in 1999, Dr. Julian Leape estimated that as many as 1 million medical errors occur each year and that 120,000 of these errors result in death. He projected the cost of these deaths at \$69 billion or \$575,000 total cost per death. (Zubieni, n.d.) A study released in July, 2004, from Health Grades, Inc., estimates that as many as 195,000 hospital patient deaths per year result from preventable hospital errors—the equivalent of 530 deaths per day. Many of these deaths are coded as

“failure to rescue” that refer to errors or diagnoses or treatments that occur after surgery, including pneumonia, infection, and postoperative embolism. (Davis, 2004)

Based on figures reported about the Health Grades study, the cost of *excess* care due to preventable errors is estimated to be approximately \$14,900 for each of the 195,000 patients who are likely to die each year as a result of these errors. Assuming Michigan’s share of the 195,000 preventable deaths in the U.S. each year is 3.6%, as many as 7,020 preventable deaths may occur in Michigan hospitals each year.<sup>8</sup> If only 5% of these preventable patient deaths are directly associated with overtime and nursing fatigue, eliminating overtime could result in 351 fewer unnecessary patient deaths each year and save Michigan hospitals \$5.2 million in costs for care above and beyond the cost of treating these patients for their originally diagnosed illnesses or injuries.

In recent years, the median jury award in medical malpractice cases reached \$1 million<sup>9</sup> ([www.juryverdictresearch.com](http://www.juryverdictresearch.com)), and hospitals have recently been experiencing significant increases in their medical liability premiums. (Rice, 2003) As of 2002, plaintiffs won 42% of all medical malpractice cases, up 2% from 2001 ([www.juryverdictresearch.com](http://www.juryverdictresearch.com)). Unfortunately, there is no definitive information available regarding any change in malpractice experience, awards, or liability costs that can be directly attributed to changes in nurses’ working hours, mandatory overtime, or fatigue among nurses. Nonetheless, if only 5% of preventable patient deaths in Michigan each year are assumed to be directly associated with overtime and nursing fatigue (as assumed earlier), and if only 42% of these cases are won by the plaintiffs, and if the nationwide median of \$1 million is a reliable estimate, the cost of nursing overtime—whether mandatory or voluntary—may be associated with approximately \$29 million in medical liability losses each year in Michigan.

Together, the hypothesized savings in direct liability losses and from the reduced need to treat medical errors could theoretically produce \$34 million in direct hospital savings each year as a result of reduced instances of excessive nursing overtime. There may also be additional savings from reduced liability premiums.

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<sup>8</sup> Michigan’s population represents 3.6% of the entire U.S. population.

<sup>9</sup> The average award for cases that went to trial in the nation’s 75 most populous counties in 2001 was \$425,000 according to the U.S. Department of Justice (2004).

**Table 1: Hypothetical Cost of Liability Associated With Nursing Overtime and Fatigue in the U.S. and Michigan**

	United States	Michigan
Estimated annual preventable hospital patient deaths	195,000	7,020
Assume annual preventable deaths associated with nursing overtime and fatigue (estimated at 5%)	9,750	351
Cost of additional care at \$14,872	\$145,002,000	\$5,220,072
Assume that 20% of cases are litigated (all others settled out of court)	1,950	70
Cases won by plaintiffs at 42%	819	29
Median award in 2002 (Jury Verdict Research)	\$1,000,000	\$1,000,000
Estimated annual health care organization liability	\$819,000,000	\$29,000,000

Source data: JVR News Release, April 1, 2004, [www.juryverdictresearch.com](http://www.juryverdictresearch.com); Davies, 2004; estimates prepared by Public Policy Associates, Incorporated, 2004.

It would be highly desirable to know the actual financial impact of nursing staff overtime on the additional cost of care, medical liability costs, and jury awards resulting from malpractice cases associated with fatigue-related medical errors. Nursing associations in several states that have enacted overtime limitations were contacted to determine if any data relating liability and, particularly, liability costs to overtime are available. None of those contacted reported that any such data are available, and there was no anecdotal information about the impact of overtime legislation either. One contact, pointed out that there was little likelihood that any such data would become available as most liability cases against hospitals are settled out of court, and the settlements typically prohibit discussion or reporting of the results. An extensive search of current literature has not brought any independent research on this topic to light either.

There are, however, some other costs that may be associated with mandatory overtime. In addition to the direct cost of care, nursing staff fatigue and overwork may also lead to additional administrative costs associated with risk management and documenting “near misses.” A case study reported in *Healthcare Financial Management* (December, 2002) related the experience of a Mississippi hospital that conducted a trial hiring freeze and mandated that existing employees work overtime to make up the difference. During the trial period, hospital administrators compiled data on patient satisfaction, complaints, falls, and medication errors. The results indicated that:

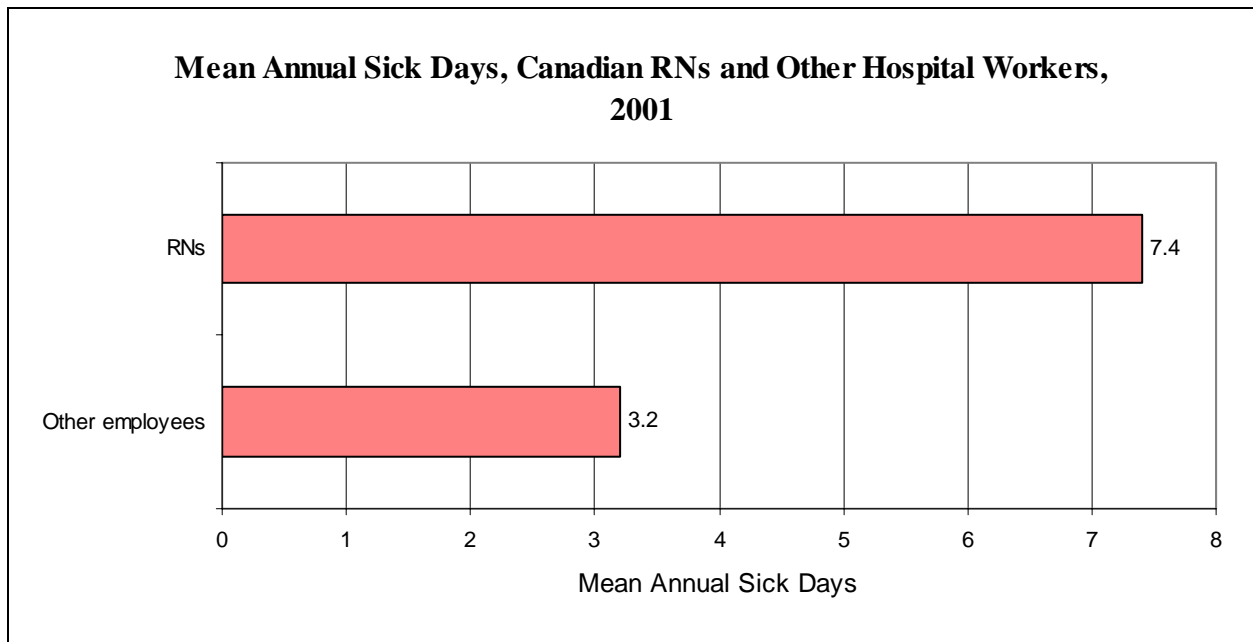
*Increases in overtime hours seemed to correlate with sharp rises in the number of falls and adverse drug events, especially so-called [sic] “near misses” . . . The preliminary findings seemed to support the premise that overworked nurses make more mistakes and, therefore, expose the hospital to an increased risk of costly lawsuits due to claims for malpractice or negligence. (HFMA, Datatrends, December, 2002)*

### Absenteeism and Turnover

The most immediate financial impacts of the stress and fatigue of long working hours, extended shifts, and mandatory overtime are manifested in increased absenteeism and turnover among the nursing staff. A recent study of Canadian nurses, for example, reported that long hours and fatigue are directly associated with job dissatisfaction and increased absenteeism.

Approximately 12.0% of nurse absences are related to fatigue associated with the length of their shifts or the potential for overtime at the end of their shifts. In addition, nurses who worked longer shifts exhibited lower levels of job satisfaction than those who worked shorter shifts.

(Zboril-Benson, 2002) Figure 3, below, illustrates the mean number of annual sick days taken by Canadian RNs and other hospital workers in 2001.



**Figure 3**

If elevated levels of absenteeism are an outcome of long hours and overtime for nurses in the United States, as the study cited above implies, there are only two possible responses. Hospitals either hire temporary nursing staff at premium rates to fill in for those who are absent, or they impose greater workloads and longer hours on those RNs who are in attendance. In the first case, there is an immediate cost to the hospital. In Maryland, the average hourly wage for an employed hospital RN was approximately \$34 during the last few years. The average hourly cost for an agency nurse was \$55, or \$21 more. (Maryland Hospital Association, n.d.) The Maryland Hospital Association also noted that hiring agency nurses added \$241 million to the cost of hospital care in Maryland in 2002. (Ibid., 2003) In the second case, a less immediate but potentially more serious outcome is the likelihood of generating greater job dissatisfaction among nurses, increased nurse burnout, and, ultimately, increased turnover among nurses. One recent study of 43,000 nurses in five countries reported that more than 40.0% of nurses working

in United States hospitals were dissatisfied with their jobs, and almost 23.0% planned to leave their current jobs in the near future.<sup>10</sup> (Aiken, 2001)

VHA examined the impact of staff satisfaction and “willingness to stay” (i.e., how long an employee planned to stay within his or her organization). They found that as satisfaction declined, employees were less willing to stay, thus increasing turnover rates. (Kosel and Olivo, 2002) According to Gelinas and Bohlen (2002, p. 6), “the demands of 24/7/365 staffing, on-call work, and mandatory overtime seem increasingly unattractive.”

As detailed in *The Business Case for Reducing Patient-to-Nursing Staff Ratios and Eliminating Mandatory Overtime for Nurses*, turnover is costly to health care organizations both in terms of patient safety and in terms of increasing hospital costs. A study of 235 VHA hospitals in 2001 that was cited in that report demonstrated that health care organizations with lower turnover rates exhibited shorter patient lengths of stay; hospitals with higher turnover rates exhibited longer patient stays. High-turnover hospitals had higher per-patient costs. On average, severity-adjusted patient length of stay was more than a day greater at high turnover hospitals than at low-turnover hospitals (Kosel and Olivo, 2002), and corresponding patient costs at high-turnover hospitals were almost \$2,000 more (in year-2000 dollars) per discharge than at low-turnover hospitals. (Gelinas and Bohlen, 2002) As reimbursement contracts rarely pay for all costs, increased length of stay typically means higher actual costs and lower margins for the health care organization.

In addition, the typical cost for replacing a staff RN is approximately equivalent to the annual salary of the individual being recruited. Every instance of increased working hours, expanded shifts, or mandatory overtime that contributes to nursing turnover invariably leads to higher—and preventable—hospital operating expenses. At current salary levels, this could be as much as \$50,000 for each medical/surgical nurse replaced and up to \$64,000 for each critical-care nurse or other nurse specialist that must be replaced. Replacing twenty nurses who resign due to fatigue and burnout from workload and overtime stresses could cost a health care organization \$2 million—\$1 million in salaries for replacement staff and \$1 million to recruit, hire, and orient new staff.

Although the relationship between increased overtime for nurses and patient-care errors, nurse burnout, and nursing staff turnover has been reasonably well demonstrated, the quantitative impact of overtime hours on patient-care/medical errors, as well as the number of nurses who are replaced annually as a result of excessive working hours, has still not been specified. As nurses represent the largest single labor expense for hospitals, reliance on mandatory overtime to fill the gaps will likely continue to produce short-term savings for health care organizations. But accounting for the fatigue and additional stress this strategy places upon the direct-care nursing staff, the long-term financial impact of increased patient-care errors, and higher rates of nursing staff turnover will, in the long run, far exceed any transitory savings that may result from long hours and mandatory overtime.

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<sup>10</sup> According to Aiken et al. (2001), the percentage of nurses planning to leave their present job in the next year are 22.7% (U.S.), 16.6% (Canada), 38.9% (England), 30.3% (Scotland), and 16.7% (Germany).



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