



A SRNA Discussion Paper on Hours of Work, Fatigue and Patient Safety

Competent, caring, knowledge-based nursing for the people of Saskatchewan

In today's work environments, RNs* are frequently faced with increased requests and requirements to work extra shifts and overtime. Fatigue has been identified as a contributing factor to medical errors which can impact patient safety. The purpose of this discussion paper is to present the research and literature related to fatigue and to make recommendations. The responsibilities of RNs, RN managers/employers, educators and researchers are outlined.

RNs have a professional obligation and legal duty to provide their clients with competent, caring, knowledge-based, ethical and safe care as determined by *The Registered Nurses Act, 1988, the SRNA Standards and Foundation Competencies for the Practice of Registered Nurses, 2007 and the Canadian Nurses Association (CNA) Code of Ethics for Registered Nurses*. RNs need to balance the duty to provide care with the impact their health and well-being can have on patient safety, co-workers or themselves. If they are aware that they do not have the necessary physical, mental or emotional capacity to practice safely and competently, they must withdraw from the provision of care after consulting their employer (CNA, 2008).

Fatigue can lead to the risk of incompetence or professional misconduct in nursing practice. *The Registered Nurses Act, 1988* defines incompetence as "...the display by a nurse in the professional care of a client of a lack of knowledge, skill or judgment or a disregard for the welfare of a client of a nature or to an extent that demonstrates that the nurse is unfit" (p. 15). Professional misconduct is defined as question of fact that "...is contrary to the best interests of the public..." (p. 16). See page 15-16 of *The Registered Nurses Act, 1988* for the full definition of these terms.

Individual RNs are responsible for:

- Recognizing, reporting and taking action in situations that are potentially or actually unsafe and involve client/staff safety and/or well being (SRNA, 2007).
- Judging their capability to practice safely in overtime situations.

- Being attentive to signs that a colleague is unable, for whatever reason, to perform his or her duties and take the necessary steps to protect the safety of persons receiving care (CNA, 2008).
- Considering the impact that multiple jobs may have on their level of fatigue and ability to practice safely.
- Having a legal, ethical and personal obligation to schedule reasonable work hours and workload.

*RN includes registered nurse, registered nurse-nurse practitioner and graduate nurse.

Nurse Managers and/or Employers are responsible for:

- Advocating for and providing adequate staffing to meet the nursing requirements for safe patient care.
- Ensuring RNs have a balance between work and time off to ensure safe, competent practice.
- Instituting scheduling practices and working conditions that minimize fatigue to prevent risk to patients and RNs.
- Intervening if they have reason to believe that a RN is unfit to practice or too fatigued to work.

RN Educators are responsible for:

- Educating nursing students and nursing staff on the effects of shift work, fatigue and the risks associated with fatigue and strategies to reduce fatigue.

RN Researchers are responsible for:

- Continuing with research to gain additional knowledge about the relationship between work patterns, sleep duration, and well-being on patient and personal safety.
- Disseminating information to RNs, managers, administrators and other stakeholders related to the research.

Background

Fatigue impairs decision-making skills and sound judgment thus compromising client safety. Fatigue is

defined as “an overwhelming sustained sense of exhaustion and decreased capacity for physical and mental work at the usual level” (Taber, 2005). Fatigue may result from sleep deprivation, stress, work overload, physical exhaustion, excessive hours and changes to circadian rhythms. Excessive wakefulness or insufficient sleep was found to be the best predictor of fatigue and the risk of adverse events occurring (Dorrian, et al., 2006). There appears to be agreement that most adults require between 6 and 10 hours of sleep per 24 hours. Research shows that when adults get less than five hours of sleep per 24 hours, mental abilities start to show impairment (Jha, Duncan & Bates, 2004).

Moderate levels of fatigue have been likened to drunkenness. After 17 hrs of being awake, cognitive performance declined to levels similar to someone with a blood alcohol concentration of .05 per cent. After 24 hrs without sleep, the equivalent blood alcohol rate rises to 0.1 per cent (Dawson & Reid, 1997). Signs of fatigue include verbal complaints of tiredness, lack of energy to perform routine tasks, complaints about physical ailments, irritability, difficulty concentrating and complaints about not getting enough sleep or being unable to sleep (Avillion, 2005).

Registered nurses in all areas of practice are facing increased requests and requirements to work extra hours beyond their regular scheduled work hours.

- Overtime has increased by 58% between 1997 and 2005. The average number of overtime hours worked per week by RNs has remained at 6.4 hours (CNA, 2006).
- 16% of the RN workforce in 2007 in Saskatchewan worked more than 40 hours per week. The percent of RNs working overtime increased from 21% in 1998 to 30% in 2007. In an average week, three in ten worked some paid or unpaid overtime (Elliott, 2008).

Hours of Work, Fatigue and Patient Safety

Research demonstrates the relationship between extended shifts (more than eight hours), fatigue and increased safety risks. As well there are indicators related to the quantity and quality of sleep, shift rotations and shift patterns on performance at work.

- There are links between medication errors, hours of work, the work organization and workplace environment. Two thirds of Canadian RNs surveyed worked longer than their scheduled shift.

Forty-five percent said they regularly worked twelve hour shifts. Among the RNs who usually worked overtime, 22 percent reported giving the wrong medication or dose compared with 14 per cent of those who did not work overtime (Statistics Canada, 2006).

- RNs who work overtime were three times as likely to make an error if they worked shifts lasting 12.5 hours or more. The majority of errors and near-errors were medication-related (Rogers, Hwang, Scott, Aiken & Dinges, 2004).
 - Longer work duration increased the risk of errors and near errors and decreased critical care nurses' vigilance (Scott, Rogers, Hwang & Zhang, 2006).
 - RNs who worked more than one job were more likely to work stretches of consecutive days without breaks, work with insufficient rest, and work during scheduled time off (Trinkoff, Geiger-Brown, Lipscomb & Muntaner, 2006).
 - Long hours worked without adequate and quality rest time is associated with impaired performance and human errors. The effects of fatigue include slowed reaction time, lapses of attention to detail, errors of omission, compromised problem solving, reduced motivation, and decreased energy for successful completion of tasks (Institute of Medicine [IOM], 2004).
 - Shift rotation and patterns contribute to fatigue. Shift workers experience circadian rhythm disturbances, have poorer sleep quality compared to those who do not rotate shifts, experience less rapid eye movement (REM) sleep and are more likely to complain of sleepiness during work hours. Forward rotation of shifts (days to evenings to nights) is usually considered less fatiguing than backward rotation (Jha, Duncan & Bates, 2004).
 - There is a mixed conclusion over comparisons of shifts (8- hour vs. 12-hour) relating to the nurse, the system and quality patient outcomes. RNs generally perceive the 12-hour shifts as more desirable (i.e., more satisfaction with job, less emotional and physical exhaustion, more days off, and improvement in family relations) (Stone, et al., 2006). Other studies indicate that those working 12-hour shifts experience more chronic fatigue, cognitive anxiety, sleep disturbance and emotional exhaustion (Smith, Folkard, Tucker & Macdonald, 1998).
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Union Agreements and Hours of Work

Saskatchewan Union of Nurses (SUN)	Employees shall not be required to work more than six (6) consecutive shifts between days off and employees shall not be required to work overtime against their wishes except in emergency circumstances (SUN, 2008).
United Nurses of Alberta (UNA)	No employee shall be requested or permitted to work more than a total of sixteen (16) hours (inclusive of regular and overtime hours) in a twenty-four (24) hour period beginning at the first (1st) hour the employee reports to work (UNA, 2007).
The Nova Scotia Nurses Union (NSNU)	Registered nurses cannot work more than 16 hours before taking 8 hours off (NSNU, 2006).
Registered Nurse and Protection Act 2001, United States	The Act was introduced to limit the number of hours that licensed health care workers, including RNs would be obliged to work. The bill amended the Fair Labour Standards Act to bar mandatory overtime beyond 8 hours in the workplace or 80 hours in any given 14 week work period. Exceptions include natural disasters or a declared state of emergency. Licensed caregivers may voluntarily work beyond 8 hrs in any given workday (International Council of Nurses [ICN], n.d.).
The European Union of Nurses	The European Union of Nurses is protected by law from being forced to work overtime. Regulations state that work time must not average more than 48 hrs per week over a standard averaging period of 17 weeks (ICN, n.d.).

Other

The Saskatchewan Labour Standards Act and Regulations	Employees are entitled to 8 hours rest in any 24 hour period unless there is an emergency. Employee can agree to work hours that do not give them 8 hrs of rest, but the employer cannot punish an employee for not agreeing to work. Employees who usually work 20 hrs or more per week get 24 consecutive hours off. Employees are limited to working 44 hours per week unless there is an emergency and unless the employee agrees to work extra hours (Province of SK, 1978).
Institute of Medicine	Recommended to the State regulatory bodies to prohibit nursing staff from providing patient care in any combination of scheduled shifts, mandatory overtime, or voluntary overtime in excess of 12 hours in any given 24-hr period and in excess of 60 hours per 7-day period (IOM, 2004).

Recommendations to Prevent Fatigue & Reduce Risk to Patients

The research indicates that fatigue is a contributing factor to an increased rate of human error. Overtime, shift rotation, work load and stress are factors that have been identified as contributing to fatigue. Based on research literature the following have been recommended as best practice.

- RNs work no more than 12 hours in a 24 hour period and no more than 60 hours in a seven-day period.
- Forward rotation schedules (days-evenings-nights).
- Shift rotations scheduled approximately every one or two weeks to allow for adaptation of circadian rhythm.
- Work schedules that provide for adequate rest and recuperation between scheduled shifts.
- Staffing systems that foster a safe and healthful environment.
- Policies and procedures that promote healthy nursing work hours and patterns for the safety of nurses and patients.
- A systems-based approach in health care organizations that limit causes of fatigue in the workforce and reduce the potential for human error. Factors that contribute to fatigue beyond sleepiness, such as job stress should be part of the multifaceted strategy.
- Education and orientation programs for nursing staff should include information related to the science of sleep, risks associated with fatigue,

mechanisms that underlie fatigue and sleep disorders, circadian rhythm disturbances, and approaches to optimize performance.

- Personal commitment to work life balance and regular exercise.

Summary

With the increasing shortage of RNs in the workforce overtime rates are on the rise. Excessive work hours, sleep deprivation, stress, work overload, shift patterns and physical exhaustion are factors contributing to fatigue. Research indicates that long work hours without adequate rest time are associated with errors and impaired performance thus threatening the RN's ability to provide safe, competent care. Restricting work hours is only one of many ways to reduce fatigue-related risk. Management of fatigue-related risk is a shared responsibility of organizations, managers and employees. The broader issues related to fatigue-related risk must be considered, as well as a systems-based approach to safety, in order to lead to overall improvements in patient safety.

RESOURCES

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