



# Napping During Night Shift: Practices, Preferences, and Perceptions of Critical Care and Emergency Department Nurses

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**BACKGROUND** Nurses working night shifts are at risk for sleep deprivation, which threatens patient and nurse safety. Little nursing research has addressed napping, an effective strategy to improve performance, reduce fatigue, and increase vigilance.

**OBJECTIVE** To explore nurses' perceptions, experiences, barriers, and safety issues related to napping/not napping during night shift.

**METHODS** A convenience sample of critical care nurses working night shift were interviewed to explore demographics, work schedule and environment, and napping/not napping experiences, perceptions, and barriers. Transcripts were constantly compared, and categories and themes were identified.

**RESULTS** Participants were 13 critical care nurses with an average of 17 years' experience. Ten nurses napped regularly; 2 avoided napping because of sleep inertia. The need for and benefits of napping or not during night shift break were linked to patient and nurse safety. Ability to nap was affected by the demands of patient care and safety, staffing needs, and organizational and environmental factors.

**CONCLUSIONS** Nurses identified personal health, safety, and patient care issues supporting the need for a restorative nap during night shift. Barriers to napping exist within the organization/work environment. (*Critical Care Nurse*. 2011;31[2]: e1-e11)

In Canada, of the close to 258 000 registered nurses employed in nursing, approximately 34 500 (13%) work on units that regularly, if not

primarily, deliver care to critically ill patients; 18 600 (7%) work in critical care settings and nearly 16 000 (6%) are employed in emergency care settings.<sup>1</sup> Data from the United States indicate that of the 2 421 351 registered nurses employed in nursing in 2004, the

number of nurses working more than half of the time they provide direct patient care in critical care settings was 229 914 (9%) and in emergency departments was 117 637 (5%).<sup>2</sup> The unique challenges of these environments require specialized and demanding nursing and assessment skills, rapid decision making, as well as enhanced organizational and motor performance skills. Further, because critical care and emergency department nurses provide 24-hour care to patients who are often in an unstable condition, such nurses must not only perform accurate clinical assessments but must remain highly vigilant and respond swiftly to subtle changes in a patient's condition.<sup>3</sup>

Shift work, and more particularly working night shifts, is recognized as a source of stress for nurses.<sup>4</sup> For nurses working either 8- or 12-hour night shifts, sleep deprivation increases the risk for patient errors, near misses, and personal

injuries on shift and while driving home.<sup>5-9</sup> Sleep deprivation, sleep disturbance, and fatigue also are significant contributing factors to impaired personal health.<sup>10-12</sup>

Restorative napping, defined as a purposeful, brief sleep period, has been identified as a potential strategy to improve performance, reduce fatigue, and increase vigilance for individuals working extended hours or during night shift.<sup>13-17</sup> In order for restorative napping to occur, it has been suggested that managers of health care facilities provide a safe and comfortable resting place for nurses working night shift, ensure that nurses do not miss breaks, and use strategies to combat shift work issues such as fatigue.<sup>18-22</sup>

Historically, napping by health care staff during night shift has not been condoned by management, with anecdotal evidence to suggest this still may be the case in some jurisdictions.<sup>23,24</sup> Although critical care nurses may nap on breaks in some facilities during night shift, this phenomenon may not be acknowledged and, moreover, has not been fully explored. To date, only 1 known study<sup>25</sup> has provided a focused investigation of the impact of napping in critical care or emergency department nurses. Further, despite published suggestions to managers

to support napping,<sup>20,21</sup> barriers continue to exist to impede the adoption of napping by nurses. These barriers include not always getting breaks, insufficient relief of patient care responsibilities, and worry about patients and colleagues, which impedes the opportunity to nap.<sup>26-28</sup>

The Institute of Medicine<sup>9(p325)</sup> has called for research related to “methods to help night shift workers compensate for fatigue.” In support of the health and safety of patients and nursing staff, it follows that the phenomenon of napping warrants exploration; specifically, the benefits, disadvantages, and barriers to nurses’ napping during night shifts require identification. Additionally, factors contributing to the forfeit of or ability/inability to achieve a restorative nap within the critical care environment need explication. It is important to determine these views and experiences if effective and realistic strategies for addressing sleep, health, and safety needs of critical care and emergency department nurses are to be developed, tested, and implemented in an effort to enhance patient care.

## Literature Review

### *Health and Safety*

Health and safety are paramount within health care delivery. It is well

known that individuals experiencing sleep deprivation and fatigue pose serious health and safety risks to others and themselves because of cognitive and motor impairments and mood disturbance.<sup>29,30</sup> Even modest sleep restriction (a reduction from 8 to 6 hours per night for one week) in young, healthy, normal sleepers leads to significant sleepiness, psychomotor impairment, and increased secretions of pro-inflammatory cytokines.<sup>31</sup> A large majority of nurses are female,<sup>32</sup> and shift work adversely affects females more than males, making this target group especially vulnerable to the impact of insufficient or disturbed sleep.<sup>33,34</sup> In health studies of shift workers, compared with men, women are reported to experience more sleep disturbance,<sup>33,34</sup> difficulty falling and remaining asleep,<sup>33,34</sup> morning headaches,<sup>34</sup> and greater morning fatigue.<sup>34</sup>

### *Patient Safety*

Within the health care setting, evidence indicates that sleep deprivation and fatigue within resident physicians pose a serious threat to patient safety.<sup>35-37</sup> Furthermore, reduction in empathy and increased risk for depression and burnout associated with chronic sleep deprivation in medical residents may jeopardize the quality of care delivered as well as the health of the care provider.<sup>38</sup>

Similar concerns related to patient safety arise for nurses working night shifts. Nurses working nights are less alert and more likely to struggle to stay awake during the latter half of the shift than are nurses working permanent day or evening shifts.<sup>39,40</sup> In a study<sup>5</sup> of 23 Australian nurses, getting less sleep was significantly related to increased likelihood of making a patient error and a decreased likelihood

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of catching someone else's error. Given that patient safety is a priority within the hospital environment, processes and systems that foster the optimal contribution of critical care nurses to safe patient care are paramount.<sup>9</sup> Additionally, the need for providers "to acknowledge their responsibility to be alert when making decisions that may affect their patient's lives or even their own and to use simple countermeasures, such as napping"<sup>41(p857)</sup> has been recognized.

### *Personal Safety*

Awareness is growing of an increased risk to personal safety during night shifts for health care providers. Findings from the US National Postgraduate Medical Survey<sup>42</sup> indicate that, when compared with day shift work, night work was associated with double the risk (odds ratio, 2.04) of percutaneous injury (needle stick and lacerations) in first-year medical interns, injuries posing serious hazards of transmission of blood-borne pathogens. Nurses working nights also experience more fatigue, sleep disturbance, and disturbed mood, and have poorer sleep quality than do nurses who do not work night shifts.<sup>39,43</sup> Within the critical care setting, nurses who work nights are reported to experience poorer sleep quality and more depression than nurses who work days only.<sup>12</sup> In another study of critical care nurses (N = 45), 95% of those who worked night shifts reported automobile-related injuries and near-accidents that occurred driving home following night shift.<sup>44</sup>

### *Benefits of Night Shift Napping*

A growing body of literature in areas outside of health care supports

the concept that vigilance<sup>45</sup> and memory<sup>46,47</sup> are improved when workers are allowed to nap. Several studies support positive outcomes for on-duty napping by health professionals. Arora and colleagues<sup>48</sup> reported that medical interns receiving scheduled napping coverage during night shift reported less overall fatigue and less postcall fatigue than they reported with their standard night shift schedule. In a study<sup>25</sup> of a planned nap for emergency department physicians and nurses, Smith-Coggins and colleagues reported that participants in the planned nap group had fewer performance lapses and reported more vigor, less fatigue, and less sleepiness. In a randomized, cross-over study<sup>49</sup> (N = 9), Smith and colleagues report that, compared with a no-nap night shift, a single 30-minute nap break between 2 AM and 3 AM had a significant positive impact on subjective and objective measures of alertness in hospital workers (nurses working in nonacute units and scientists) and that this improved vigilance persisted to the end of the shift. In another study,<sup>50</sup> musculoskeletal pain, and specifically pain in the arm, leg, neck, and shoulder, was lower for 66 nursing home care shift workers (including 11 nurses) who took a nap during night shift on at least half of nights worked compared with persons who took a nap during fewer than half of night shifts.

### *Study Purpose*

The purpose of this research was to provide an in-depth description of critical care nurses' practices, preferences, and perceptions of napping/not napping when working night shift in either an emergency

department or an intensive care unit (ICU). In addition, the benefits and drawbacks and the impact of napping/not napping on both patients' and nurses' personal health and safety were sought. Critical care nurses, for the purpose of this research, were defined as registered nurses working in either an emergency department or an ICU.

### *Methods*

Qualitative research approaches are used when knowledge of a phenomenon is limited and the goal is to gain a greater understanding of an experience from the perspective of the research participants. Sandelowski<sup>51(p339)</sup> described qualitative description as "the method of choice when straight descriptions of phenomena are desired."

### *Sample and Setting*

This qualitative descriptive study was undertaken in an accredited acute care community hospital located in central Canada. The hospital has an active 8-bed mixed ICU, and an emergency department with more than 30 000 visits per year. Bedside nurses in both these areas generally work either 8- or 12-hour shifts on a day/night or day/evening rotation. The hospital did not have a written policy about napping on breaks.

Purposeful sampling was used.<sup>52</sup> The sampling frame consisted of registered nurses who worked at the bedside caring for critically ill patients in either the emergency department or the ICU, had worked night shifts within the preceding 3 months, and were willing to participate in the study.

## Instruments

An interview guide was devised for this study (Table 1). Interview questions were based on a review of the literature and the clinical expertise of the researchers, which included both emergency department and ICU experience, as well as expertise in sleep health. In addition, a demographic questionnaire was devised to provide descriptive information related to the sample of participants. Information such as sex, age category, department, marital status, and length of time working on the night shift was collected.

## Procedure

After approval was received from the University of Manitoba research ethics board and access to the facility was granted, nurses from both the emergency department and the ICU were recruited through verbal invitations at staff meetings and written invitations left in their mailboxes at work. Those wishing to hear more about the study were invited to contact a researcher by telephone. Participants were offered a small honorarium (Can\$35) to offset costs associated with the interview such as travel, parking, and child care.

After written informed consent was obtained from the participant, a 60- to 90-minute audio-taped, semistructured interview with each participant who volunteered to take part in the study was undertaken by 1 of the researchers (M.P.E.) at a mutually convenient time and place. Interview data were subsequently transcribed verbatim by a transcriptionist; transcribed interviews were checked for accuracy by the researcher undertaking the interviews. After each interview, the

**Table 1** Interview questions

1. What is it like to work night shift in your department?
2. Tell us about your sleep habits or napping before a night shift.
3. After you have completed your stretch of nights, how long does it take you to recover?
4. What do you do to keep awake on night shift?
5. Tell us about napping in general during a night shift in your department. Tell us about your napping on night shift.
6. What, from your perspective, have been the barriers to having a quality nap on night shift?
7. What are your colleagues' perceptions about napping in the workplace on night shift?
8. How do you think the hospital or management perceive napping while on shift?
9. How do you think the public would perceive nurses napping on night shifts?
10. What do you perceive as the impact of napping/not napping during night shift on your performance?
11. Do you have any concerns about driving home after a night shift?
12. On a night shift when you or a colleague wanted to nap but were not able to, or chose not to, what were the consequences?
13. Do you have any fears/concerns about yourself or your colleagues napping?
14. Do you think napping should be supported in health care organizations?
15. If a nap room was made available in the hospital, would you use it and what amenities in it would be beneficial to your napping?

interviewer recorded brief field notes by reflecting on the participant's perception of the clarity of the questions posed, the participant's responses to those questions, and the interaction between the interviewer and the participant. Interview questions were revised or extended on the basis of the field note observations and discussion among the researchers after the first few interviews.

## Data Analysis

Ethnograph software (Qualis Research, Colorado Springs, Colorado) was used to help organize and manage the interview data. The data were analyzed by using the strategies outlined by Knafl and Webster.<sup>53</sup> The data analysis process was also informed by the notion of "constant comparison" described by

Glaser and Strauss.<sup>54</sup> The researchers began with an independent line-by-line review of the first 4 transcripts. New data were compared with data that had been previously examined for similarities and differences.<sup>54</sup> The researchers then met to discuss and agree upon major coding categories, and all existing transcripts were coded by using these categories. After individually reviewing 4 more interview transcripts, the team met again to assess the need to expand or collapse categories or add new ones. Multiple perspectives encouraged thoughtful reflection on and lively discussion of the data. After all the transcripts were reviewed, the data within and across categories were compared and contrasted by the research team to identify themes.

Descriptive statistics (mean, standard deviation, range) were used

to report numerical data relating to years actively practiced as a nurse, years working night shift, and days since last night shift. Relative frequencies expressed as percentages were used to describe categorical data such as sex, age category, and marital status.

### Rigor

Data integrity and trustworthiness were ensured through (1) concurrent data collection and analysis, (2) the use of only 1 interviewer, (3) reviewing transcribed interviews for accuracy, and (4) independent coding of the transcripts by the study investigators followed by discussion and consensus to identify categories and themes.<sup>55,56</sup> In addition, excerpts, in the form of participant quotes drawn from the data, are included in the results section to allow readers to assess the credibility and transferability of findings.

## Results

Interviews were conducted during a 6-month period with 13 registered nurses who worked either in the emergency department (9 participants) or the ICU (4 participants). Most participants were female, married, 31 to 50 years of age, had dependents, and worked full-time in a night/day or night/evening rotation (Table 2). On average, participants had practiced as a nurse for 17 years and had worked 11 years on the night shift. Ten nurses (77%) described themselves as regular nappers, meaning they napped on all of their night shifts whenever circumstances, including staffing levels and the busyness of the unit, allowed for that. Only 1 nap was taken each night shift by those nurses who napped.

The length of the naps taken by study participants varied, in part dependent on the length of their breaks.

The participants' descriptions of their practices, preferences, and perceptions of napping on breaks during night shift spoke to the complexity, dynamic nature, and unpredictability of the critical care environment and to the challenges of remaining vigilant during the night shift work

period. Nurses outlined the factors considered as they scanned the environment of the unit or department to determine if it was safe to nap on breaks and their perceptions of the effects of napping or staying awake during their breaks. The findings are presented under 3 themes: (1) the environmental scan, (2) impact

of napping—energized or disoriented, and (3) consequences of not napping—foggy thinking (Table 3).

### The Environmental Scan

Participants spoke of the decisions that had to be made each night regarding when, or if, breaks would be taken, what order nurses

**Table 2** Characteristics of participants (N = 13)

Demographics	No.	% <sup>a</sup>
Sex		
Female	11	85
Male	2	15
Age category, y		
18-30	2	15
31-50	7	54
51-65	4	31
Work schedule		
Full time	7	54
Part time	5	38
Casual (as needed)	1	8
Work area		
Emergency department	9	69
Intensive care unit	4	31
Other shifts normally worked with night shift		
Days	7	54
Evenings	1	8
Days and evenings	2	15
Nights only	3	23
Marital status		
Single, never married	1	8
Married	11	85
Divorced	1	8
Caring for dependents (children, parents)		
No	5	38
Yes	8	62

<sup>a</sup> Percentages may not total 100 because of rounding.

**Table 3** Major themes emerging from the data

Theme	Description
Environmental scan	A number of variables are taken into consideration when determining when (or if) breaks or naps will be taken.
Impact of napping—energized or disoriented	Most nurses felt refreshed after a nap, but a few nurses avoided napping because of significant challenges with sleep inertia.
Consequences of not napping—foggy thinking	Slowed mental processing, uncertainty, irritability, and energy loss were described by nurses who wanted but were unable to nap during night shift.

would be sent for breaks, or if it was safe to nap. Participants described a thorough and continuous process of scanning the environment to make decisions about breaks. A number of variables were considered in this scan: the busyness of the unit, the mix of junior and senior nurses on the shift, the acuity of the patients in the unit, who was available to relieve the nurse, and whether or not anyone was working a double shift (eg, a 16-hour shift due to overtime). One participant described this decision-making process as follows:

*... they assess the unit first. For instance, when we are with junior nurses and we have heavy patients, we never, ever go for a nap, or we never, ever go for a break.* (Participant 2)

With this environmental scan, patient care issues clearly took priority over the nurses' need for a break. Even if it was determined that the environment was such that nurses could go for break, it was still possible that they might be called back to the unit if needed (eg, for an admission or a code). As one participant explained:

*... and right now, because of our staffing issues, we don't always have a person that can relieve me. So I can go for a break, but I have to come back every time there's someone at triage.* (Participant 12)

All of the participants spoke about the importance of getting breaks when working in the fast-paced emergency department or ICU, but acknowledged that getting

a break was not always possible. In part, the inability to get a break was due to the uncertainty of the environment. As 1 participant explained it:

*It's very changeable. It can start off absolutely crazy, and then taper off, or it can be crazy the whole time. There are very, very many shifts that you don't get a break.* (Participant 13)

As explained by 1 of the ICU participants, the inability to get a break was also due to the realities of staffing on nights and the expectation of responding to codes both within the unit and throughout the hospital.

*You're dealing with a lack of physician, you're dealing with the possibility of going on codes in the middle of the night, you're dealing with junior staff, and often dealing with short staff in the nights.* (Participant 5)

#### **Impact of Napping: Energized or Disoriented**

All of the participants had napped at some point in their career when working night shifts, but 10 participants (77%) reported that they were regular nappers—that is to say, if possible, they usually napped on breaks when working a night shift. Three participants (23%) identified themselves as non-nappers.

Those who napped regularly specified a number of benefits of a nap, including feeling energized or refreshed, improved mood, and clearer judgment. Participants described how they felt after a brief nap as follows:

*Alert. Energetic. Sometimes when I go for [my] break, I'm*

*slow ... wish I hadn't picked this shift up, and then I take my break, it's like whoosh, let's go. Let's clean all the Dynamaps ... and [I] just feel happier after.* (Participant 2)

Another participant shared:

*... those 20 minutes that I take [to nap] will facilitate me staying more alert for the remaining 3 hours of my shift. And it would be better, like I would be able to do my job better. I'd be more alert. Yeah. So it would go to improve my work performance—just because I have a renewed mental alertness, I guess.* (Participant 8)

Increased vigilance and improved nurse and patient safety were identified by another participant:

*I think if you get your nap, you're not as tired, so you tend to be more alert, tend to be not as accident-prone or mistake-prone.* (Participant 9)

Not all of the participants felt refreshed by a nap. In fact, some participants (23%) felt disoriented after napping, and this disorientation was reported as the reason that 2 of the participants chose not to nap on their breaks. One participant who did not nap regularly described an experience she had after being awakened from a nap on a night shift.

*I was asleep and I was in a deep sleep. I was tired and I woke up and one of my patients was in congestive heart failure really bad. And I just felt like I didn't know what to do. I didn't know how to arrange my thoughts of what needs to be done. And I*

*just felt—I felt useless.* (Participant 3)

A participant who regularly napped described similar experiences of trying to wake up after a nap as she tried to “get up to speed” with what was going on with her patient.

*I can recall 2 situations where I've woken up and there's been stuff going on, and I've really had to grab hard. It's like I had to—I had to reach down inside of myself and say, “wake up and do this now,” you know. You have got to be there.* (Participant 5)

This same participant went on to say:

*Some people have that longer period of, you know, that fuzzy state when they come back from their break, where I would say they would be extremely vulnerable to errors.* (Participant 5)

### Consequences of Not Napping: Foggy Thinking

When unable to get a nap, those participants who regularly napped described experiencing slowed mental processing, uncertainty in relation to clinical judgment, irritability, loss of energy, and safety concerns at work. As 1 participant stated:

*... I think I tend to ask others a little bit more readily, when I'm really tired. Like I don't have quite the confidence in my decisions, so I will, “Well, what do you think about this?” ... I might have to check it 3 or 4 times to make sure that I'm giving the right one [drug],*

*and the right dose.* (Participant 10)

Another suggested:

*You won't respond as quickly. Say that the nurse is supposed to be monitoring telemetry, and they're a little bit sleepy, and they're kind of nodding off. And a run of something happens on the screen, and they miss it. Then that could be something that's potentially quite serious.* (Participant 11)

Some of the participants who identified themselves as regular nappers felt that the period between approximately 4 AM and 6 AM proved particularly challenging if they had not napped. One participant stated:

*Well, the thing is, you're wondering about how good your judgment is, because that's what we have to consider in emergency. What are—are we making the right decisions here? Are we performing up to standard? And is the judgment good or not? And I would say that if I don't [nap], then I could be compromising that time when I really get that low period between 4 and 6 [AM]. If I don't get a break*

*time, then I don't know if I necessarily trust my judgment as greatest.* (Participant 4)

It was not only at work that nurses worried about safety issues. A number of participants described the lengths they went to in order to stay awake and safe on the drive home after their night shift. As reported by 1 participant:

*... there was more having to have the window open and the radio on, and even considering stopping at the side of the road.* (Participant 1)

Another participant noted the following:

*I've gone through red lights driving home in the morning. ... I drove home, went through a red light, and I didn't know it was a red light. And I thought, why have those cars stopped on the other side of the road? ... There are mornings—I have no recollection. I left the hospital, and I have no clue how I got home.* (Participant 9)

Factors influencing why nurses are not always able to get a nap are summarized in Table 4.

**Table 4** Reasons reported for not being able to nap

- Busy, often understaffed units
- Vigilance: “Sleeping with 1 eye and 2 ears open”
- Unstable patients
- Responding to codes—“Sleeping with my runners on”
- Lack of a comfortable place to nap
- Interruptions during nap because of shared space or multipurpose use of room
- Sense that management does not support napping
- Fear of sleep inertia

## Other Findings

In addition to the major themes emerging from the interview data, nurses also discussed their thoughts on the perceptions of both management and the public about nurses napping during night shift. Participants' comments regarding management's perceptions of napping on breaks were varied. Some participants felt that napping was discouraged by management, even if not overtly, while others felt that napping was neither encouraged nor discouraged. One participant explained:

*There's a sense that you shouldn't nap—maybe there's a sense that if you're caught, you know, you could be suspended or disciplined somehow. (Participant 2)*

Another participant stated:

*With our unit there's, I wouldn't say indifference, but there's a general acceptance of it, that it happens. (Participant 9)*

Participants expressed a range of opinions regarding how the public might view nurses napping on breaks on night shift. Some described encounters with patients and their family members that illustrated that people assumed that nurses slept on their breaks. Other participants did not know how the public would feel about nurses napping, but sensed that patients and visitors might not be supportive of this practice, particularly if nurses could be seen napping out in the open or if they were away from the bedside or work area for extended periods. One participant stated:

*They might not understand what it's like to work nights,*

**Table 5** Nurses' desired attributes of a nap room

Amenities	Environment
Blankets	Quiet area
Pillows	Clean area
Beds, couches, stretchers, reclining chairs	Proximity to unit
Timers	Private area for each person
Low lighting	Separate from lounge area (low traffic area)
	Exclusive to unit staff

*and that's how we function. That's our routine. . . . But it might sound funny to the average person, that you're sleeping on your—at work. You're sleeping on your break. For the general person, you think maybe that doesn't sound quite—maybe it sounds like you're slacking off, or maybe it sounds like you're sleeping 8 hours, or you're sleeping when you should be taking care of their mother or father. (Participant 1)*

Last, participants identified what was desirable in a nap room, should one be provided (Table 5).

### Study Limitations

Several limitations of this study must be noted. The few participating critical care nurses may not be representative of all nurses working in the critical care environment, although the inclusion of both emergency department and ICU nurses who work either 8- or 12-hour shifts allows for increased transferability of the results. Most participants in this study (10/13) classified themselves as nappers. It would be important to hear more from non-nappers to better understand their experiences. Further

study is needed to determine if the ratio of nappers to non-nappers (10 to 3) seen in this study is generally reflective of nurses' napping behavior in the critical care setting. Last, information was gathered from one acute care site, which is a community hospital. The views of nurses at this site may not be representative of nurses at larger teaching facilities or at other community hospitals.

### Discussion

The findings of this qualitative study, based on the experiences of 13 nurses working in either an emergency department (9) or an ICU (4), provide insight into some of the benefits of and concerns related to napping on breaks during night shift. Ten of the 13 nurses in this study noted improvements in mood, energy level, and response time when the work environment allowed them to nap. Even a short 20-minute nap was viewed by some nurses as restorative, allowing them to better attend to their job and improve their work performance. This result is in keeping with the findings of Smith-Coggins and colleagues<sup>25</sup> (49 emergency department nurses and physicians) that subjects in a nap group experienced less fatigue and fewer performance lapses on night shift than subjects in a

control group, and of Smith and colleagues<sup>49</sup> (9 hospital workers) that napping on night shift was associated with improved measures of alertness. The recommendations of other researchers also support a brief nap during the shift period to combat the sleep loss and fatigue associated with night shift work.<sup>14,57</sup>

Well-rested nurses are expected to have increased central nervous system arousal, increased vigilance, faster reaction times, improved mood, and a better overall work performance. Participants in our study identified impairments in cognitive functioning and decision making when naps were desired but not possible, experiences congruent with findings that nurses were at increased risk for making and not catching errors during periods of sleep deprivation.<sup>5</sup> Similar to findings reported by Dorrian et al<sup>5</sup> and Scott et al,<sup>8</sup> nurses in our study reported risk for personal injury related to fatigue and specifically associated with the drive home after working the night shift.

When tired before a nap, nurses in this study reported the increased need to be more vigilant when making decisions, for example, when preparing medications. In a study of critical care nurses by Scott et al,<sup>3</sup> the highest frequency of drowsy episodes occurred between 2 AM and 4 AM, with the second highest frequency of episodes reported to occur between 4 AM and 6 AM. Smith and colleagues<sup>49</sup> found that compared with conditions that involved no nap break, night shifts with a nap break were associated with significantly fewer lapses in a vigilance task at 6 AM. Comments from nurses in our study support the difficulties

encountered during these periods to remain awake and vigilant.

Although most participants in our study preferred naps during breaks, the ability to achieve a restorative nap was frequently curtailed. The unstable nature of patients' conditions, staffing issues, worry, and a non-supportive napping environment combined to contribute to an inability to take a nap, or the inability to achieve a restful nap. These same concerns regarding patient care and continuity of care were identified as barriers to using available nap coverage in the study of medical interns by Arora and colleagues.<sup>48</sup>

Further barriers exist that impede the adoption of napping by nurses as a useful strategy. Participants in our study described regularly scanning the work environment to ensure safe patient care could be provided before decisions were made to go for a break or take a nap. Rogers and colleagues had 393 nurses complete logbooks over 28 days for a total of 5211 shifts and found that on more than 50% of shifts worked, participants were not "completely free of patient responsibilities"<sup>726(p514)</sup> during their breaks. Trinkoff et al,<sup>27</sup> in a survey of 2273 nurses in the United States, found that 11% of nurses typically did not take breaks. Scott and colleagues,<sup>28</sup> in a study examining factors that affect the feasibility of a fatigue countermeasures program, identified that nurses felt guilty taking breaks and uncomfortable handing off responsibilities for their patients.

For 2 of the 3 participants in this study who chose to avoid naps on most nights, the fear of sleep inertia after a nap was a strong deterrent to attempting to take a

nap. The experience of some degree of sleep inertia appears to be a common phenomenon,<sup>58</sup> whether following a full night's sleep period or a daytime or nighttime nap. However, findings related to the duration and severity of sleep inertia and the relationship of sleep inertia to both nap length and timing remain controversial and are based on modest sample sizes.<sup>59-61</sup>

Symptoms of sleep inertia measured as sleepiness, fatigue, and dullness have been reported to increase in the first hour immediately after a night-shift nap with subsequent decreases in reported symptoms over time to prenap levels.<sup>59</sup> Impairments in cognitive performance upon awakening even after a full night's sleep are not consistent, with severe impairment ranging from the first 3 minutes of awakening<sup>61</sup> to up to 10 minutes.<sup>62</sup> What can be concluded is that a recovery period following the nap may be an important component of a planned nap period. In terms of timing, naps taken earlier in the night shift (between midnight and 2 AM) have greater performance and physiological benefit than do naps taken later in the night (4 AM-6 AM).<sup>60</sup> Lewis reviewed the literature in this area (16 studies with a high level of evidence) and found that the evidence suggests that a 40- to 60-minute nap between 2 AM and 4 AM was superior to a longer nap (>60 minutes) earlier in the shift.<sup>63</sup> This evidence poses an organizational challenge for health care, where coverage is required throughout the shift period. Whether a shorter nap with a longer recovery period could effectively minimize sleep inertia for these nurses remains to be explored.

## Conclusion

Patients in critical care environments have demanding health care needs, making it essential for nurses to be constantly vigilant. Night shift work is a necessity of care but often leads to sleep deprivation and fatigue—2 factors strongly associated with reduced patient safety and impaired personal health for the care provider. It is clear that further research and education are needed to assist nurses in critical care environments to promote sleep health within the complex context of their own sleep needs, organizational demands, and domestic responsibilities. One recommended strategy used in other shift work environments is the support of a brief nap during the work period. The findings of this qualitative study illustrate some of the benefits and concerns associated with napping on breaks during night shift from the perspective of 13 nurses working in an emergency department or ICU.

Currently, barriers exist both within the organization and work environment for achieving naps.<sup>28</sup> Nursing journal editors and columnists in the United States and the United Kingdom have called for exploration of the evidence related to night-shift napping and consideration of policies to support it.<sup>19,22,23</sup> Recent recognition of the need to change policy and implement guidelines in support of a napping intervention in health care settings is apparent in a document copublished by Canada's national nursing organization, the Canadian Nurses Association, and the Registered Nurses Association of Ontario.<sup>64</sup> Further research is needed to explore fully the perspectives of decision makers

(eg, hospital administrators, managers) on this issue. Given the complexity of the environments within which critical care nurses work, researchers, administrators, and nurses must work together to find creative ways to develop effective napping interventions and environments conducive to napping, and, in turn, healthier and more effective nurses. **CCN**

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