



## NAPPING ON THE NIGHT SHIFT: SLACKER OR SAVIOR?

“Sleeping on the job” has been anathema to expected job performance and a sure-fire way to lose your job for generations of workers in the United States. Soldiers on watch in the military could be court-martialed or—in time of war—shot for sleeping on duty. Even long before the 24/7 pace at which today’s workers grind, sleeping at work has been viewed as irresponsible, immature, indolent, and/or indisputable evidence of disinterest in maintaining employment. Unlike some Mediterranean and Latin American cultures where a portion of workers’ waking hours are dedicated to taking an afternoon siesta, the United States has perpetuated a cultural disdain for daytime napping for anyone other than preschool children, the sick, or the elderly.

When your work involves the security, safety, or health of others, the penalty for being caught sleeping on the job can be immediate termination. The rationale for the pink slip is clear enough, that is, a watchman in an office building under construction is paid to protect the security and integrity of that building and its contents during his shift. If the guard is taking naps, the building and contents are at risk for many potential types of harm. When this transgression is discovered, no one would be surprised to hear that the guard was fired; many would even consider that action to be both justified and appropriate. Likewise, in the case of a security officer found asleep on the job at a hospital in Pennsylvania, the Commonwealth Court indicated that sleeping on the job is a “prima facie ... act of willful misconduct.”<sup>1(p1)</sup>

So what do you think about the scenario of a night shift critical care nurse napping on the job?

In your unit, would that situation be considered as a significant dereliction of professional responsibility? If the nurse was a staff nurse, would it be perceived as compromising the safety and integrity of care for that nurse’s assigned patients? If the napster was a charge nurse, would it be considered as compromising the safety and integrity of patient care on the entire unit? In either case, would it be viewed as a no-no of major glaring proportions that would surely precipitate a stern written warning with the first incident and immediate dismissal with the second? Wouldn’t it? Now I have another question for you to ponder:

What do you think about a healthcare facility that is considering not only not punishing, but actually encouraging and facilitating critical care nurses to take a nap during their night shift?

Why would a health care employer encourage and support critical care nurses napping on nights? Some of the reasons for this consideration relate to the propensity of many Americans to function in a chronically sleep-deprived state and others relate to a growing body of evidence on the benefits of napping.

### A Sleep-Deprived Nation

The American Academy of Sleep Medicine recommends that adults get 7 to 8 hours of nightly sleep<sup>2</sup> and the National Sleep Foundation (NSF) recommends 7 to 9 hours per night.<sup>3</sup> In its 2008 *Sleep in America* poll,<sup>3</sup> however, the NSF found that the average American worker sleeps for only

Numerous studies have confirmed the relationship between health care staff fatigue and impaired cognitive, psychomotor, and clinical performance.

6 hours and 40 minutes on workday nights, despite long work weeks (54% work 40-49 hours per week, 17% work 50-59 hours, 13% work 60 or more hours weekly) and commuting for 46 minutes each workday. Perhaps even more importantly, 32% of that random sampling of 1000 Americans reported that they “had a good night’s sleep” as infrequently as only a few nights or fewer per month. Because 70% of these average American workers had a marital status of married/partnered, 42% had children at home, and an average age of 47 years, their sleep deficits can manifest in a wide range of subtle to terrifying ways.

### Consequences of Sleep Deficits

Fatigue takes a huge toll on our functional capabilities, leaving us not only physically weary, but cognitively and socially less responsive to people, situations, and events. These consequences of sleep deficits can be categorized as functional, physiologic, neuropsychologic, and safety.

Some of the functional sequelae of sleep deprivation include 29% of Americans reporting that they fell asleep at work in the past month and 12% admitting they were late for work in the last month because of sleepiness.<sup>3</sup>

Some of the highly undesirable physiologic effects of sleep deprivation include the following<sup>4</sup>:

- Heightened appetite and hunger, thought to contribute to obesity
- Diminished respiratory muscle endurance
- Depressed ventilatory responses to hypoxia and hypercapnia
- Impaired immunity marked by increased tumor necrosis factor and interleukin 6
- Possible enhanced risk of cardiovascular disease, insulin resistance, diabetes, and certain cancers

In addition to these systemic changes associated with sleep deprivation, the following quantifiable neuropsychological deficits become apparent, making us more prone to oversights, performance errors, and accidents<sup>4</sup>:

- Significant cumulative, dose-dependent deficits in all cognitive performance tasks
- Erosions in short-term memory and impaired attention
- Diminished motor skills and cognitive information processing
- Changes in mental status that resemble those associated with depression/anxiety
- Diminished reported quality of life

The potential for harm posed by the detrimental effects of extreme fatigue are not infrequently illustrated in reports of fatal car accidents involving drivers who fall asleep at the wheel. The latest NSF *Sleep in America* poll<sup>3</sup> found that among that sample of 1000 workers, 32% admitted that they had driven while drowsy at least once per month during the past year and 2% had experienced an accident or near accident because of driving drowsy.

Health care personnel are not immune to these perils:

- A period of only 20 to 25 hours without sleep diminishes psychomotor performance to a level comparable to someone with a blood alcohol concentration of 0.10%, above the legal limit in many countries.<sup>5-8</sup>
- Physicians who work 24 hours or longer more than double their risk of being involved in a motor vehicle crash on their drive home compared with those working fewer hours.<sup>9</sup>
- The likelihood of being involved in a motor vehicle crash driving home is also greater for physicians coming off a night shift compared with other shifts.<sup>10</sup>

When the sleep-deprived person is also a health care provider, his or her impaired functioning has the potential to hurt more than work productivity; sleep-deficient health care staff pose harm both to themselves (eg, needlesticks) and to their patients. As the Institute of Medicine's report<sup>11</sup> on medical errors reported nearly a decade ago, a majority of these errors are preventable and some portion are likely attributable to health care staff fatigue precipitating or contributing to adverse outcomes, including the following<sup>12</sup>:

- Administering the wrong drug or drug dosage
- Failure to recognize relevant clinical findings
- Misinterpretations of clinical data
- Mishandling of sharps or other dangerous objects
- Misdiagnosis of patient conditions
- Neglecting to initiate warranted interventions
- Using less than strict infection control practices

Numerous studies have confirmed the relationship between health care staff fatigue and impaired cognitive, psychomotor, and clinical performance.<sup>13-20</sup> Some of the cumulative effect of this work has been reflected in limitations on the number of hours that medical residents in the United States can work (maximum of 30 consecutive work hours, 80 weekly work hours, and 1 day in 7 must be free of all duties)<sup>21-22</sup> and recommendations for countering these problems. One of the proposed antidotes for sleep deficits among physicians in training is institution of naps before and during overnight shifts.<sup>23-24</sup>

## Benefits of Naps

The functional, physiological, and recuperative benefits of naps have been anecdotally recognized for centuries and more systematically and scientifically confirmed for decades.<sup>25</sup> The National Sleep Foundation identifies the benefits of napping as follows<sup>26</sup>:

- Restores alertness, directly following the nap and usually for some hours later
- Enhances performance
- Reduces mistakes and accidents
- Affords relaxation and rejuvenation

More than a decade ago, NASA studies on sleepy military pilots and astronauts found that a 40-minute nap improved performance by 34% and alertness by 54% that lasted 2 to 3 hours.<sup>27</sup> Even a very short (maximum 6 minutes) period of sleep is effective in enhancing memory.<sup>28</sup> Daytime (during the afternoon) naps of less than 30 minutes—even those as brief as 10 minutes—restore wakefulness and promote performance and learning.<sup>29</sup> Naps lasting more than 30 minutes, however, appear to be associated with a period of impaired alertness (sleep inertia) immediately after awakening that takes some time to dissipate before wakefulness and performance improve.<sup>26,30</sup>

In order to maximize these beneficial effects and avoid the performance dip associated with longer periods of sleep, many nap advocates prefer the shorter, so-called “power nap.” Before jumping to any premature conclusions regarding the sweet spot for nap duration, however, readers need to be aware that comparably excellent results (fewer performance lapses, less fatigue, less sleepiness, greater vigor, more efficient clinical performance on a simulated venipuncture, and safer performance in a simulated driving test) have been achieved with emergency department physicians and nurses using a nap duration of 40 minutes.<sup>31</sup> In addition, a recently released study of 23 681 healthy Greek men and women between the ages of 20 and 86 found that those who took naps of more than 30 minutes 3 or more times per week had a 37% lower risk of dying from heart disease than those who did not take afternoon naps and those who took naps of any frequency and of any duration demonstrated a 34% lower risk of dying from heart disease.<sup>32</sup>

## Naps at Night

Since we typically sleep at night, much of the literature related to naps refers to brief periods of sleep that occur

during daytime or afternoon hours. So would naps occurring during nighttime hours help those who work at that time? As you may recall from descriptions of circadian cycles, the suprachiasmatic nuclei in the hypothalamus functions as an endogenous circadian pacemaker, driving roughly 24-hour cycles of alertness during the day and sleepiness at night via a myriad of physiological processes including those for body temperature, hormone synthesis, and wakefulness. These rhythms, strongly influenced by natural cycles of daylight and darkness, stimulate release of melatonin from the pineal gland, which lowers alertness and readies the body for sleep. Working the night shift requires considerable effort to overcome these natural circadian cycles, especially when sleeping during the daytime fails to fully compensate for the number of hours of night sleep lost, thereby creating a sleep debt that is cumulative in nature and protracted in duration.<sup>23,24</sup>

For health care staff who work the night shift, naps are effective both before and during the shift.<sup>23,24,33</sup>

- a prophylactic afternoon nap (1-2 hours) before the shift starts to take advantage of the natural dip in circadian rhythm and to “bank” sleep against sleep debt, and
- a brief (10-15 minutes) nap during the night shift to maintain alertness, vigilance, and performance and to reduce errors and accidents.

## So Napping at Work Is OK Now?

Not exactly. When asked if they ever took a nap at work, nearly 90% of *Sleep in America* poll respondents said “No.” However, messages about the beneficial effects of napping are being disseminated and heard across the country. The general population, as well as US businesses and health care industry, are listening and beginning to heed those appeals for instituting naps. In the 2008 sleep poll,<sup>3</sup> 34% of respondents indicated that their employer allows them to take naps during breaks, although only 24% of workers in public services, safety, or health-related positions and 16% of all workers reported that their employer provided a location to nap. When asked whether they would take naps if their employer allowed it, 26% of those whose employer does not allow it (or those who did not know whether they were allowed to take naps) indicated that they would take naps.

Many big corporate names such as Nike, Ben & Jerry’s Ice Cream, and Deloitte Consulting offer employees the opportunity and some dedicated space to nap, but some

of the early pioneers and believers in sleeping on the job have been small, local businesses who viewed their employees as valuable assets. One noteworthy example can be found at Yarde Metals, a metal processing and distribution plant in Connecticut. Craig Yarde, who founded the company in 1976, began using nap rooms around 1997. Shortly thereafter, the Associated Press<sup>34</sup> disseminated the early story of this business practice somewhat tongue-in-cheek, but when the *New York Times*<sup>35</sup> followed up 8 years later Mr Yarde reported that his napping program has proven good for morale, productivity, and his workers' health. Since its launch in Yarde's basement, the company has expanded to include a new corporate headquarters and multiple buildings in the nearby town of Southington, as well as 7 facilities throughout the East Coast, and international operations. During that growth, the original sofa and easy chairs in the nap room have transformed into a high-tech, computer-controlled Z-lounge, complete with a virtual relaxation system that provides frazzled workers with soothing sounds, vibrations, and visual images of rain forests, waterfalls, and babbling brooks. Perhaps more important than vibrating chairs, however, the business philosophy at Yarde incorporates a management style called Corporate Leveling, which comprises respect and equality, financial transparency, profit-sharing, and "wowing the associates" with lifestyle amenities and some fun.<sup>36</sup> It may well be that the naps and high-tech niceties are actually less important than the respect for and investment in his workers these perks and this business philosophy reflect.

So if taking naps at work is already possible at one-third of work sites, it should not be surprising to hear about interest in this practice in our workplace, especially for night shift staff.

## Napping Night Nurses

At the 2008 annual meeting of the Associated Professional Sleep Societies (APSS), nurse faculty from the University of Manitoba in Winnipeg, Canada, presented a research abstract<sup>37</sup> that described the results of a qualitative study they had recently completed with a group of 13 critical care nurses. Researchers used tape-recorded, semistructured interviews with each nurse to gather data related to the experiences, barriers, and napping preferences of night shift critical care nurses. Barriers the nurses identified to being able to take a nap included unstable patients, emergency situations, and staffing shortages.

Some nurses reported feeling tired but feared taking a nap. Many nurses who took 20- to 30-minute naps described feeling reenergized, though others felt disoriented. Nurses who were deprived of naps, by contrast, reported severe fatigue, nausea, irritability, diminished alertness, foggy thinking, and less certainty about calculations and decisions, prompting a need to triple check preparations<sup>38</sup> and leading to concerns for both the nurse's health as well as patient safety. The abstract notes that napping strategies need to be developed to assist critical care nurses in combating sleep deprivation.

Planned naps for physicians during the night shift have been reported as early as 1987<sup>33</sup> and other studies involving physicians,<sup>39</sup> nurses,<sup>40</sup> and both nurses and physicians<sup>31</sup> have reported results comparable to studies examining afternoon naps, that is, that brief naps (10-15 minutes) can improve alertness directly after awakening without the detrimental effects of sleep inertia associated with longer naps.<sup>24</sup>

Both our nursing and medical colleagues enjoin us to consider the benefits of napping on the night shift for the sake of both the health of the health care provider as well as the safety of their patients. I encourage you to do so as well. Although admitting to the possibility of a geographic bias on this issue, I believe there is more than sufficient evidence to give it some serious consideration. You don't need to be hasty. Sleep on it awhile. Then revisit the issue refreshed. CCN



Grif Alspach, RN, MSN, EdD  
Editor

## References

1. Tammelleo AD. PA: watchman 'sleeping on job' terminated: UI benefits awarded over hospital's objection. Hospital Law's Regan Report, November 2006. <http://www.entrepreneur.com/tradejournals/article/print/155751484.html>. Accessed October 7, 2008.
2. American Academy of Sleep Medicine. <http://www.aasmnet.org/Print.aspx>. Accessed October 9, 2008.
3. National Sleep Foundation. *2008 Sleep in America Poll: Summary of Findings*. Washington, DC: National Sleep Foundation; 2008. <http://www.sleepfoundation.org/site/c.huXXJM0lxF/b.3933533>. Accessed October 9, 2008.
4. Van Dongen HP, Maislin G, Mullington JM, Dinges DF. The cumulative cost of additional wakefulness: dose-response effects on neurobehavioral functions and sleep physiology from chronic sleep restriction and total sleep deprivation. *Sleep*. 2003;26(2):117-126.
5. Arnedt JT, Owens J, Crouch M, Stahl J, Carskadon MA. Neurobehavioral performance of residents after heavy night call vs after alcohol ingestion. *JAMA*. 2005;294:1025-1033.
6. Dawson D, Reid K. Fatigue and alcohol performance impairment. *Nature*. 1997;388:235.
7. Lamond N, Dawson D. Quantifying the performance impairment associated with fatigue. *J Sleep Res*. 1999;8:255-262.



8. Williamson AM, Feyer A-M. Moderate sleep deprivation produces impairments in cognitive and motor performance equivalent to legally prescribed levels of alcohol intoxication. *Occup Environ Med.* 2000; 57:649-655.
9. Barger LK, Cade BE, Ayas N, et al. Extended work shifts and the risk of motor vehicle crashes among interns. *N Engl J Med.* 2005;352:125-134.
10. Steele MT, Ma OJ, Watson WA, Thomas HA Jr, Muellemann RL. The occupational risk of motor vehicle collisions for emergency medicine residents. *Acad Emerg Med.* 1999;6:1050-1053.
11. Institute of Medicine, Committee on Quality of Health Care in America. In: Kohn LT, Corrigan JM, Donaldson MS, eds. *To Err Is Human: Building a Safer Health System.* Washington, DC: National Academy Press; 1999.
12. Agency for Healthcare Research and Quality. Medical errors: the scope of the problem. Publication No. AHRQ 00-P037. <http://www.ahrq.gov/qual/errback.htm>. Accessed October 9, 2008.
13. American College of Gynecology, ACOG Committee on Patient Safety. ACOG committee opinion number 398: fatigue and patient safety. *Obstet Gynecol.* 2008;111(2 pt 1):471-474.
14. Eastridge BJ, Hamilton EC, O'Keefe GE, et al. Effect of sleep deprivation on the performance of simulated laparoscopic surgical skill. *Am J Surg.* 2003;186:169-174.
15. Friedman RC, Bigger JT, Kornfeld DS. The intern and sleep loss. *N Engl J Med.* 1971;285:201-203.
16. Grantcharov TP, Bardram L, Funch-Jensen P, Rosenberg J. Laparoscopic performance after one night on-call in a surgical department: prospective study. *BMJ.* 2001;323:1222-1223.
17. Kahol K, Leyba MJ, Deka M, et al. Effect of fatigue on psychomotor and cognitive skills. *Am J Surg.* 2008;195(2):195-204.
18. Landrigan CP, Rothschild JM, Cronin JW, et al. Effect of reducing interns' work hours on serious medical errors among interns in intensive care units. *N Engl J Med.* 2004;351:1838-1848.
19. Lockley SW, Cronin JW, Evans EE, et al. Effect of reducing interns' weekly work hours on sleep and attentional failures. *N Engl J Med.* 2004;351: 1829-1837.
20. Parshuram CS, To T, Setao W, et al. Systematic evaluation of errors occurring during the preparation of intravenous medication. *CMAJ.* 2008;178(1):42-48.
21. Accreditation Council for Graduate Medical Education. Common program requirements—duty hour requirements. [http://www.acgme.org/acWebsite/dutyHours/dh\\_dutyHoursCommonPR.pdf](http://www.acgme.org/acWebsite/dutyHours/dh_dutyHoursCommonPR.pdf). Accessed October 9, 2008.
22. Ahmed-Little Y. Implications of shift work for junior doctors. *BMJ.* 2007;334:777-778.
23. Horrocks N, Pounder R. Working the night shift: preparation, survival and recovery. A guide for junior doctors. London: Royal College of Physicians of London; 2006. <http://www.rcplondon.ac.uk/pubs/books/nightshift/index.asp>. Accessed October 9, 2008.
24. McEvoy RD, Lack LL. Medical staff working the night shift: can naps help? *Med J Aust.* 2006;185(7):349-350.
25. Dinges DF, Broughton RJ, eds. *Sleep and Alertness: Chronobiological, Behavioral, and Medical Aspects of Napping.* New York, NY: Raven Press; 1989.
26. National Sleep Foundation. Short story on napping. [http://www.sleepfoundation.org/site/c.huIXKjM0IxF/b.2419153/k.8430/The\\_Short\\_Story\\_on\\_Napping.htm](http://www.sleepfoundation.org/site/c.huIXKjM0IxF/b.2419153/k.8430/The_Short_Story_on_Napping.htm). Accessed October 7, 2008.
27. Rosekind MR, Neri DF, Miller DL, Gregory KB, Webbon LL, Oyung RL. Crew fatigue research focusing on developmental and use of effective countermeasures. *ICAO J.* 1997;52:20-22.
28. Lahl O, Wispel C, Willigens B, et al. An ultra short episode of sleep is sufficient to promote declarative memory performance. *J Sleep Res.* 2008;17(1):3-10.
29. Dhand R, Sohal H. Good sleep, bad sleep! The role of daytime naps in healthy adults. *Curr Opin Pulmonol Med.* 2006;12(6):379-382.
30. Brooks A, Lack L. A brief afternoon nap following nocturnal sleep restriction: which nap duration is most recuperative? *Sleep.* 2006;29(6): 831-840.
31. Smith-Coggins R, Howard SK, Mac DT, et al. Improving alertness and performance in emergency department physicians and nurses: the use of planned naps. *Ann Emerg Med.* 2006;48(5):596-604.
32. Naska A, Oikonomou E, Trichopoulou A, et al. Siesta in healthy adults and coronary mortality in the general population. *Arch Intern Med.* 2007;16(3):296-301.
33. Dinges DF, Orme MT, Whitehouse WG, Orme EC. Temporal placement of a nap for alertness: contribution of circadian phase and prior wakefulness. *Sleep.* 1987;10:313-329.
34. McShane L. Sleeping on the job. *SouthCoast Today.* March 29, 1999. <http://archive.southcoasttoday.com/daily/03-99/03-29-99/c01i1074.htm>. Accessed October 8, 2008.
35. Hochswender W. Behind this office door, the napping chair. *New York Times.* March 25, 2007. <http://nytimes.com/2007/03/25/nyregion/nyregionspecial2/25CTcol.html?ei=5124&e>. Accessed October 10, 2008.
36. Yarde C. The Yarde Metal Philosophy. 2007. <http://www.yarde.com/philosophy.html>. Accessed October 10, 2008.
37. American Academy of Sleep Medicine. McMillan D, Fallis W, Edwards M. Nurses working overnight support the need for a restorative nap during the night shift. <http://aasmnet.org/Articles.aspx?id=876>. Accessed October 7, 2008.
38. Beattie L. Study finds nurses need their naps. <http://www.nursezone.com/Nursing-News-Events/more-news.aspx?ID=18132>. Accessed October 7, 2008.
39. Arora V, Dunphy C, Chang VY, et al. The effects of on-duty napping on intern sleep time and fatigue. *Ann Intern Med.* 2006;144:792-798.
40. Takahashi M, Arito H, Fukuda H. Nurses' workload associated with 16-h night shifts. II: effects of a nap taken during the shifts. *Psychiatr Clin Neurosci.* 1999;53:223-225.

## Editor's Note

The survey "Educational Support for Preceptors" is now available at the CCN Web site. Please access this survey at <http://ccn.aacnjournals.org> and click on the red link at the top of the page. This survey is open between November 1, 2008, and January 31, 2009.