

## FEATURE ARTICLE

# Impact of Shift Work on the Health and Safety of Nurses and Patients

Ann M. Berger, PhD, RN, AOCN<sup>®</sup>, FAAN, and Barbara B. Hobbs, PhD, RN, CNAA, BC

Shift work generally is defined as work hours that are scheduled outside of daylight. Shift work disrupts the synchronous relationship between the body's internal clock and the environment. The disruption often results in problems such as sleep disturbances, increased accidents and injuries, and social isolation. Physiologic effects include changes in rhythms of core temperature, various hormonal levels, immune functioning, and activity-rest cycles. Adaptation to shift work is promoted by reentrainment of the internally regulated functions and adjustment of activity-rest and social patterns. Nurses working various shifts can improve shift-work tolerance when they understand and adopt counter measures to reduce the feelings of jet lag. By learning how to adjust internal rhythms to the same phase as working time, nurses can improve daytime sleep and family functioning and reduce sleepiness and work-related errors. Modifying external factors such as the direction of the rotation pattern, the number of consecutive night shifts worked, and food and beverage intake patterns can help to reduce the negative health effects of shift work. Nurses can adopt counter measures such as power napping, eliminating overtime on 12-hour shifts, and completing challenging tasks before 4 am to reduce patient care errors.

Shift work is prevalent in service industries, such as hospitals, that provide 24-hour coverage. Shift work affects about 16.8% of full-time wage and salary workers and 24.6% of healthcare professionals, including RNs (Beers, 2000; Bureau of Labor Statistics, 2005). Shift workers most frequently cite the "nature of the job" (54.6%) as the reason for working alternative shifts (Bureau of Labor Statistics). Although no commonly accepted definition exists, shift work usually is classified as work hours that are scheduled outside daylight (6 am–6 pm) hours (Hughes & Stone, 2004). Shift-work start times and lengths vary and may include working part or all of the evening (2 pm–12 am) or night (9 pm–8 am) (Alward & Monk, 1993). Shift-work assignments are classified as permanent or rotating.

Since the 1960s, scientists have been examining the effect of working conditions such as air travel and shift work on biologic functions, activity, and rest. Because the body's internal clock is cued by the light and dark cycle, shift work disrupts the synchronous relationship between the body's internal clock system and the environment and has been linked to sleep disturbances (Drake, Roehrs, Richardson, Walsh, & Roth, 2004). The proportion of shift workers who report severely reduced sleep or alertness has been estimated to exceed 50% (Akerstedt, 2005). Furthermore, shift work and associated sleep disturbances are considered risk factors for human health (Kogi, 2005), injuries (Folkard, Lombardi, & Tucker, 2005), and medical consequences (Caruso, Lusk, & Gillespie, 2004; Folkard et al.; Rohr & Von Essen, 2003). Nurses, by virtue of their hospital and healthcare positions, work on shifts. As a result,

### At a Glance

- ◆ Shift work disrupts biologic rhythms that fluctuate with the light and dark cycle.
- ◆ Desynchronized rhythms alter nurses' sleep-wake patterns, levels of alertness and sleepiness, and ability to perform demanding tasks.
- ◆ Patient safety is threatened when nurses work long and unpredictable hours, especially when the duration of prior waking increases beyond 17 hours.

nurses need to clearly understand the implications of working various shifts and consider countermeasures to improve shift-work tolerance. Such measures may help to reduce problems related to shift work, including sleep disturbances, accidents, and injuries to nurses and patients. The most common sleep

Ann M. Berger, PhD, RN, AOCN<sup>®</sup>, FAAN, is a Niedfelt professor and advanced practice nurse in the College of Nursing at the University of Nebraska Medical Center in Omaha, and Barbara B. Hobbs, PhD, RN, CNAA, BC, is an assistant professor and West River department head in the College of Nursing at South Dakota State University in Rapid City. No significant financial relationship to disclose. (Submitted September 2005. Accepted for publication October 30, 2005.)

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