



Health care worker attitudes and identified barriers to patient sleep in the medical intensive care unit



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ABSTRACT

Objective: To identify barriers to sleep for intensive care unit (ICU) patients.

Design: A qualitative study using semi-structured interviews.

Subjects: Nurses and physicians who had experience working the night shift.

Interventions: None.

Measurements and main results: Multiple environmental barriers to sleep in the ICU were identified when participants were directly asked about factors affecting sleep. Responses highlighted healthcare system-based barriers related to hospital/ICU policy and workflow. Implicit barriers to sleep were found when participants responded to open-ended questions. These included attitudinal barriers such as the uncertainty about the significance of sleep, the tension between providing protocol-driven ICU care and allowing uninterrupted patient sleep, and lack of consensus regarding interventions to promote sleep. **Conclusions:** This qualitative study suggests that health care worker attitudes, methods of sleep promotion, hospital institutional policies and workflow may contribute to sleep disruption in the ICU. These barriers provide additional targets for intervention in studies designed to improve sleep in the ICU.

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Background

Studies of critically ill patients demonstrate poor sleep in the intensive care unit (ICU).¹ Those who have survived to hospital discharge from the ICU recall insomnia and fragmented sleep during their stay, promoting fatigue and heightening fear and anxiety.² Studies of stressors affecting patients during ICU stays consistently identify difficulty sleeping as a common cause of distress for ICU patients.^{3,4} Patients attribute their poor sleep quality and quantity to the potentially modifiable factors of environmental noise, light, and difficulty in distinguishing night from day.^{5–7}

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Objective data using both polysomnography to measure sleep and patient and nursing questionnaires support that patients sleep poorly in the ICU. Twenty-four hour polysomnographic studies reveal that critically ill patients have fragmented sleep, with multiple arousals, a lack of or absence of phases of restorative sleep, and loss of circadian rhythm.^{8–10} Studies of environmental causes of sleep deprivation in the ICU find that high levels of noise, frequent interruptions by staff, light, mechanical ventilation, medications, and the patient's underlying disease contribute to this problem.¹¹

In what has been called a “cultural shift” in the care of the critically ill patient, interest in long-term outcomes of ICU survivors and in improving the quality of life of patients recovering in the ICU is increasing.¹² Many investigators have identified patient sleep in the ICU as a priority for clinical research in ICU survivor outcomes.^{11,13} Efforts to improve patient sleep in the ICU require identification of all modifiable barriers. The experiences of nurses and physicians working night shifts in the ICU may be an important source of information regarding barriers to sleep beyond the environmental ones identified in prior studies, but little is known about the views of these clinicians. This qualitative study of health care providers who have worked night shifts in the ICU sought to ascertain the perspectives of ICU health care workers regarding sleep in the ICU, in order to identify potentially modifiable barriers to patients' sleep.

Methods

We used qualitative methodology in order to identify barriers to sleep in the ICU that may not have been previously described in the literature. By asking participants to speak generally about their experiences with patient sleep in the ICU, we were able to examine their responses for attitudes and practices that may serve as barriers even if not recognized directly as such by participants.

Participants and setting

Nurses, advanced practice nurses, physician assistants, and physicians who worked in the medical intensive care unit (MICU) at Yale-New Haven Hospital (YNHH) were recruited for participation in this study. The MICU at YNHH has 36 beds and close to 3000 admissions per year. YNHH has separate intensive care units for coronary care, surgical care, neurointensive care, and cardiothoracic surgery. Interviews were not conducted in these intensive care units. The MICU at YNHH is designed in a racetrack format with all the rooms having windows which face outward. All data were collected over a two-month time period in 2009 and no medical ICU sleep protocols or trials were ongoing at the time of the study. Out of 21 clinicians approached, 19 agreed to participate in the study. We used purposive sampling, in order to identify knowledgeable participants who would provide the greatest insight into the research question.¹⁴ We targeted nurses who had current or past experience working night shifts in the intensive care unit. All intern and resident physicians recruited into the study had an interest in critical care, as they were most likely to have reflected on the patient experience in the ICU at night. In addition, we aimed for sufficient representation of perspectives of both genders, different roles in the ICU, and level of experience working in the ICU.

Potential participants were approached for recruitment on an individual basis, often after change of shift, when the health care workers had time for an interview. The Yale Human Investigation Committee approved this research protocol.

Data collection

A single interviewer (KH) conducted the interviews. One-on-one in depth interviews were performed using a standardized discussion guide. The interview guide was designed to obtain health care workers' perceptions of and attitudes regarding patient sleep in the ICU. The guide began with open-ended questions, followed by probes to elicit detailed responses. Participants were initially asked to describe a typical night in the ICU, the environment of the ICU at night, and how they thought the environment of the ICU impacted patients during the night shift. Participants were then asked about what factors (other than the patient's primary illness) may prevent patients from clinically improving in the ICU. They were asked open-ended questions about patient sleep in the ICU and hospital, allowing the opportunity to bring up factors affecting sleep and attitudes toward patient sleep. Participants were then asked about specific barriers to patient sleep that exist in the ICU.

Each interview was recorded on an electronic audio recorder and transcribed by an experienced transcriptionist. There was no time limit to the interview and it continued until all the questions were answered and the participant was had finished expressing their thoughts. The interviewer continued to recruit new participants until thematic saturation of the data was reached, when additional interviews did not generate new information.

Analysis

All of the text derived from the interviews was analyzed. Content analysis was performed on sections of text in which participants provided responses to direct questions about barriers to sleep in the ICU in order to develop a taxonomy of explicitly recognized barriers to patient sleep in the ICU. The study authors independently read three transcripts and identified, or coded, specific barriers to patient sleep found within the text. We then refined the coding guide by reviewing and discussing additional transcripts until we reached consensus and formed a uniform coding schema. The rest of the interviews were then coded according to the coding guide.

Grounded theory analysis was performed to analyze the sections of text where participants answered open-ended questions about sleep. This was done in order to identify attitudes or practices that represented barriers to sleep but were not explicitly recognized as such by participants. In grounded theory, investigators also identify key concepts, or codes, in the textual data but compare and categorize these codes across the data to form larger abstract themes. This is done in an iterative process, as subsequent interview data is compared and contrasted with previous data.¹⁴ We identified recurring concepts related to sleep in the ICU, not isolated to barriers to sleep, and met together to categorize these concepts. We then met again to discuss and reach consensus on broad themes related to patient sleep in the ICU. An audit trail of the coded data and the coding process was maintained. The quality of this qualitative work was heightened by the use of systematic data collection and analysis.¹⁵

Based on the above methodology we separated our results into "explicit" barriers to sleep in the ICU, which were expressed by the participants without any vagueness or implication and "implicit" barriers to sleep, which were inferred but not directly stated. Barriers to sleep were also defined as "extrinsic", or factors external to the patient or "intrinsic", which were factors related to the patient or their illness.

Results

Our study population was a convenience sample of ICU practitioners. Participant characteristics are shown in [Table 1](#). Experience level of the participants ranged from interns who were one-year out of medical school to nurses who had 20 years of ICU experience. Participants provided multiple responses to the direct question asking them about barriers to patient sleep in the ICU. The explicitly identified barriers were generally due to extrinsic characteristics of ICU care or intrinsic patient characteristics and are listed in [Table 2](#) as well as summarized in the text below. Participants' responses to open ended questions that allowed participants to express their perception and opinions

Table 1
Subject characteristics.

Subject characteristics	Number (N = 19)
Gender	
Male	9
Female	10
Role in ICU	
Nurse	6
Advanced practice nurse	1
Intern physician	3
Resident physician	3
Fellow physician	3
Attending physician	3

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