

Staff and Patient Perceptions of Sleep Promotion in the Hospital Setting: A Quality Improvement Project

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Abstract

Background

Studies have shown that interventions such as education and sleep tools help reduce sleep disturbances in the hospital setting.

Methods

Researchers aimed to understand patient satisfaction and staff perceptions of the feasibility of implementing sleep hygiene interventions. Patients and staff from the neurological intensive care and step-down units in a level I trauma center were interviewed pre-and-post sleep hygiene intervention completed by a doctoral occupational therapy student and practitioner mentor. Inductive content analysis was used to categorize the qualitative data into themes.

Results

Pre-intervention interviews revealed three commonalities: 1) inconsistencies in sleep hygiene knowledge; 2) environmental barriers to sleep; and 3) importance of comfort. Post-intervention interviews revealed four themes: 1) patients' sleep hygiene needs were addressed; 2) external factors limiting sleep hygiene programming, 3) adaptability and patient-centered care, and 4) staff feasibility of implementation of sleep interventions.

Discussion

The positive outcomes of this quality of improvement project led to the integration of sleep hygiene as a standard practice within a level 1 trauma center hospital. Occupational therapy practitioners must continue to advance the profession by meeting the whole needs of our patients, including sleep hygiene. Future research is needed to determine the long-term compliance and perceptions of feasibility at this site and other hospitals.

Keywords: interventions, occupational therapy, qualitative, quality improvement, sleep hygiene

Background

Sleep deprivation in the hospital is pervasive as it disrupts the circadian rhythm and negatively affects recovery from illness (Dobing et al., 2016; Jakobsen et al., 2020; Kulpatcharapong et al., 2020; Pisani & D'Ambrosio, 2020). Improved sleep hygiene has been shown to reduce delirium in hospitalized patients (Gode et al., 2020; Tona et al., 2021). Barriers to sleep in the hospital are multifactorial due to the environment, treatments, and underlying illness (Dobing et al., 2016; Pisani & D'Ambrosio, 2020) and lead to poor sleep quality and satisfaction with care (Ferrehí et al., 2016). Evidence exists to support an interdisciplinary sleep hygiene intervention approach due to the overlap between multiple healthcare professions (Bolin & Sweetman, 2022).

Researchers have sought to better understand factors that negatively impact patients' sleep. In a literature review on interventions to improve sleep in the intensive care unit (ICU) and acute care settings, Aparício and Panin (2020) found that noise and sleep disturbances (including increased lighting during sleeping hours) remain the most critical sleep-inhibiting factors. When comparing biological versus environmental factors, Miranda-Ackerman et al. (2020) found that noise had the most significant impact on sleep quality. Czempik et al. (2020) found that sound levels above 57.9 dB were associated with shortened sleep duration, yet unavoidable sounds at this level were regularly recorded due to critical medical equipment.

Researchers conducted a literature search through PubMed and ProQuest in August-October 2021 for interventions to promote sleep in the hospital. Search terms included critical care, interventions, occupational therapy, quality improvement, sleep deprivation, and sleep hygiene. This search included research on ICU and step-down populations, though most research focused on the ICU. Jones et al. (2012) used pre-

and post-intervention service evaluation surveys to determine patient-reported factors for improving sleep. Their intervention group identified earplugs and eye masks as sleep-enhancing tools. These results have been replicated consistently (Antonio, 2020; Aparício & Panin, 2020; Locihová et al., 2018; Younis et al., 2019). The use of earplugs alone was shown to be beneficial. Litton et al. (2016) found that earplugs are associated with a significant reduction in ICU delirium. Interventions targeted at improving the lighting environment have not been studied thus far. However, the lighting in an environment is essential to note as it has a role in regulating circadian rhythm and melatonin levels (Pulak & Jensen, 2016). Engwall et al. (2015) used a cycled lighting system that replicated natural sunlight levels and found that patients reported improved sleep at night and overall improved mood. Lastly, patient education is a noteworthy intervention to improve sleep hygiene. Ferrehi et al. (2016) provided all patients in their study with sleep hygiene tools, with the experimental group also receiving targeted education on these tools. The researchers found that added education led to increased use of tools and improved self-reported fatigue.

Through reflection of OT practices at the site for this project, the unique role of OT in sleep hygiene was explored through case trials utilizing hospital sleep hygiene supplies in an ICU setting as a fellowship project. At that time, no OT practitioners on staff had created any specific protocols, educational in-services, or patient handouts addressing sleep hygiene practices. This gap led the primary site mentor for this study to further explore the literature on sleep hygiene in OT and ultimately pursue this quality improvement study.

Methodology

Researchers aimed to determine the potential impact on patient satisfaction and staff perceptions of the feasibility of implementing sleep hygiene interventions in standard practice. This project also aimed to use staff and patient feedback regarding sleep in the hospital setting to identify appropriate and feasible evidence-based interventions. This quality improvement project was developed and led by a team of occupational therapists (OT), as sleep intervention falls within the *Occupational Therapy Practice Framework: Domain and Process* (4th edition) as one of nine occupations essential to OT practice (American Occupational Therapy Association, 2020). An interdisciplinary approach, including nursing and hospital management personnel were used throughout the project. The Institutional Review Board determined that this project did not meet the definition of research and approved it as a quality improvement project (IRB# Pro00110126). Researchers received Informed consent verbally from all participants.

Prior to the intervention, a structured phenomenological interview was conducted with staff ($n = 17$) and patients ($n = 20$). The investigators aimed to understand patients' lived experiences with sleep in the hospital and understand staff members' perceptions of adding sleep hygiene to standard practice. Following the intervention, the investigators conducted another set of qualitative interviews with staff ($n = 8$) and patients ($n = 13$). This post-intervention phase sought to explore patient satisfaction and to understand staff perceptions of overall long-term feasibility.

Study Setting and Participants

This quality improvement project was completed at a Level 1 trauma center in the southeast region of the United States. Researchers implemented the intervention for

this project on the neurological intensive care and progressive care units from January through April 2022. The hospital provides comprehensive care for any critical illnesses or injuries in the region. The hospital has 957 beds, with 29 beds in the neurological ICU and 37 beds in the step-down or progressive care unit. The median length of stay at the site hospital's intensive care unit was 5.90 days. The median length of stay for patients receiving care in the progressive care or step-down unit is 3.90 days. Age-based demographics for patients receiving care in the two units were similar with ages ranging from 18 years of age to over 65 years old. Patients over the age of 65 years made up 40% of the populations served on this unit.

The staff sample for pre-intervention and post-intervention interviews utilized a convenience sampling of nurses ($n = 11$), occupational therapists ($n = 8$), nursing and therapy departmental managers ($n = 2$), physicians ($n = 2$), a physical therapist ($n = 1$), and a case manager ($n = 1$) with insight into patients' sleep, including both day and night shift workers. Researchers recruited staff through departmental emails and meetings. To be included in the sample, staff were required to be employees working on one of the neurological units. There were no exclusion criteria for the staff sample, as the goal was to gain a comprehensive understanding of patients' sleep patterns and needs. Post-intervention interview recruitment primarily targeted occupational therapists due to the nature of this program being led by their department in the future, so interviews sought to determine their particular level of support for the program. Additionally, one nurse selected from each of the two units of the project for post-intervention interviews were identified because their patients were receiving sleep interventions.

The patient sample for pre- and post-intervention interviews also used a purposive sampling of patients on the occupational therapy caseload. Patients eligible to participate were notified in person and provided the opportunity to opt in through their verbal informed consent. Inclusion criteria included: 1) admission to the neurological intensive care unit or progressive care unit for at least 24 hours, 2) ability to communicate verbally or legibly write/type responses to interview questions with or without the use of interpreter services, and/or, 3) Richmond Agitation Sedation Scale (RASS) score of -1 to +1 (indicating the patient is alert and following commands). The exclusion criteria for the project included: 1) positive score on the Confusion Assessment Method for the ICU (CAM-ICU) within the last 24 hours; 2) presence of aphasia or dysarthria impacting the patient's ability to communicate clearly with the therapist or healthcare professionals. Once pre-intervention interviews were completed and the sleep hygiene protocol was developed, all patients on the OT caseload received sleep hygiene intervention.

Intervention

All patients received earplugs, eye masks, and an educational pamphlet. Sessions were approximately 5-15 minutes long and adapted to each patient's reported concerns or needs. Family, caregivers, and nursing staff were invited to participate in sleep hygiene OT sessions when present. All sessions included education on the importance of sleep, education with demonstration on the use of the provided sleep tools (e.g., eye mask, earplugs, and access to relaxation music channels on the hospital television), education on the importance of a daily routine to reduce fragmented sleep, and tips to improve sleep. See Table 1 for details on the educational pamphlet content.

Table 1*Educational Pamphlet Content*

Section	Content
Background Information	• Sleep's connection to health • Risks associated with sleep deprivation relevant to hospitalized patients
Nighttime Tips for Improved Sleep Hygiene	• Pain management- discuss pain with your medical team • Avoid caffeine in the afternoon/evening • Prevent nighttime urgency- limit fluid intake in the afternoon • Relaxation techniques
Daytime Tips for Improved Sleep Hygiene	• Maintain/create routines • Increase sunlight exposure • Limit napping- aim for 1 nap a day, no longer than 90 minutes • Find activities to stimulate your mind during the day- order an activity kit provided by the hospital
Contact Your Occupational Therapist for More Information	• The role of occupational therapy practitioners and examples of how they can help • Contact information for further questions

The educational pamphlet and discussion provided to all patients were designed to meet the needs identified through the pre-intervention data analysis. Based on patients' self-reported barriers to sleep satisfaction, additional education or interventions were provided, such as guided progressive muscle relaxation, coordinating "do not disturb overnight" orders with nursing, and ordering activity kits to increase daytime engagement and reduce napping. See Appendix A for details on specific intervention strategies implemented by occupational therapy staff.

Data Collection and Analysis

Researchers analyzed the qualitative data from patient and staff interviews to describe the program outcomes. Researchers conducted Interviews using a structured

list of questions. A panel of experts reviewed these questions to establish face and content validity. Due to the structured format of interviews, follow-up questions were not asked. See Table 2 for the interview guide.

Interviews lasted approximately 10-30 minutes each and were audio recorded for accurate transcription for coding purposes. All interviews were conducted onsite via face-to-face format. Only the interviewer and interviewee were present unless patients specifically requested family or guests remain in the room for the interview. In these instances, family and guests did not participate in the interviews.

The principal investigator, an occupational therapy doctoral student at the time of the study, conducted the interviews. Before the interviews, training on conducting qualitative interviews was completed through entry-level doctoral occupational therapy coursework. The patient participants had no pre-existing relationship with the interviewer and only knew of her within the context of their brief intervention and follow-up interview sessions. The staff participants had professional, pre-existing relationships with the interviewer and understood her goals within the project. Qualitative data were obtained and analyzed until data saturation was met

Table 2

Interview Guide and Questions

Interview	Participant Type	Question #	Question
Pre-Intervention	Staff	1	What is your position?
		2	How long have you been working in this position?
		3	What is your current perception of patients' sleep in the hospital setting?
		4	Who on your team, if anyone, is consistently addressing sleep quality in the hospital setting?
		5	Do you (direct care providers), your staff (managers/clinical leads) currently implement any strategies, or specific interventions with patients to improve their sleep quality during their hospital stay? Can you tell me more about that?
		6	Who would you refer your patient to if they reported poor sleep?
		7	Do you think sleep in the hospital is important for recovery? Why or why not?
		8	Did you know that sleep falls within the scope of practice for occupational therapists? Tell me how you think we might partner to improve patient sleep hygiene.
		9	What do you think may help improve patients' sleep in the hospital?
		10	Is there anything else regarding sleep hygiene in the hospital that you would like to mention?
	Patients	1	How has your sleep been in the hospital so far? Is it significantly different from your typical sleep at home?
		2	Has anyone specifically talked to you about your sleep in the hospital?
		3	Do you think sleep in the hospital is important for your recovery? Why or why not?
		4	What do you feel like hospital staff could do differently to improve your satisfaction with sleep while in the hospital?
		5	Would you be open to an occupational therapist providing specific education and interventions to potentially improve your sleep while in the hospital?
		6	Is there anything else regarding sleep hygiene in the hospital that you would like to mention?
Post-Intervention	Staff	1	Do you think that providing specific and targeted sleep interventions and education to patients improved/has potential to improve their sleep?
		2	Do you think that providing specific and targeted sleep interventions and education to patients improved/has potential to improve their satisfaction with sleep?
		3	Do you think that implementing sleep interventions (sleep hygiene kits, sleep education materials, etc.) is feasible and sustainable in your practice?
		4	How likely are you to implement these sleep interventions into your standard of care?
		5	Is there anything else regarding sleep hygiene in the hospital that you would like to mention?
	Patients	1	Did you find the sleep education and interventions helpful? Did you use any of the interventions or suggestions provided to you by the occupational therapist?
		2	Do you feel that your sleep quality in the hospital was adequately addressed?
		3	Were you satisfied with your sleep in the hospital?
		4	What do you feel like hospital staff could do differently to improve your satisfaction with sleep while in the hospital?
		5	Is there anything else regarding sleep hygiene in the hospital that you would like to mention?

Using inductive content analysis, two investigators independently coded interview transcripts to categorize the data into themes. Age demographics for the two neurological units were similar, so they were analyzed together: under 18 years old (1%), 18-25 (3%), 26-35 (7%), 36-45 (12%), 46-55 (13%), 56-65 (24%), and over 65 (40%). After independent analysis, the researchers triangulated their findings until consensus was reached for the main themes. An audit trail was maintained throughout the qualitative analysis process to document the methods and decisions.

Trustworthiness

The investigators employed a variety of strategies to ensure trustworthiness. Member checks were completed with four staff members (two nurses and two OTs) following the analysis of pre-intervention data to increase credibility. Thick descriptions of the setting, purposive sampling, clear inclusion/exclusion criteria, and a heterogeneous sample were included to ensure transferability. An audit trail and researcher triangulation promoted dependability and confirmability.

Results

Pre-Intervention Findings

A total of 37 participants completed the pre-intervention interview. These themes were commonly discussed by both the staff ($n = 17$) and patients ($n = 20$). Pre-intervention interviews revealed three themes including 1) inconsistencies in knowledge; 2) environmental barriers to sleep; and 3) importance of comfort. Table 3 provides the overview of the findings from interviews conducted pre-and post-intervention.

Table 3

Pre and Post Intervention Commonalities

Timing	Commonalities
Pre-Intervention	1) Inconsistencies in sleep hygiene knowledge 2) Environmental barriers to sleep 3) Importance of comfort
Post-Intervention	1) Patients' sleep hygiene needs were addressed 2) External factors limiting sleep hygiene programming 3) Adaptability and patient-centered care 4) Staff feasibility of implementation of sleep interventions

Inconsistencies in Sleep Hygiene Knowledge

Inconsistencies in knowledge refer to the dichotomous reports from staff and patients regarding sleep hygiene and routines. Staff reported that the patients' sleep routines were unhealthy. In contrast, the patients endorsed differences from baseline but did not regard their frequent daytime naps as having a negative impact on their sleep patterns. For example, Staff Participant 1 stated, *"[Patient sleep is] pretty fragmented. Patients are not going through their... typical sleep cycles, their full sleep cycles,"* and Patient Participant 4 stated, *"When you're here all day like the best thing to do is sleep because you don't have anything better to do."* Staff were also consistently able to verbalize the importance of adequate sleep in the hospital to aid healing. In contrast, most patients believed sleep is essential for recovery but could not provide

concrete examples or reasoning behind this viewpoint. When asked if they felt sleep was important and why, Patient Participant 4 responded, *“yeah I think sleep is important to health and getting better.”* Patient Participant 12 reported, *“you need sleep to recover.”* Comparatively, Staff Participant 2 reported,

“Often, patients can get confused between days and nights, which is like delirium. Then that will keep them in the hospital longer, it will make them more confused. We might have to restrain them; we might have to add on more medications than they require.”

Environmental Barriers to Sleep

Environmental barriers to sleep included interruptions for nursing care, lighting, and sound, with interruptions for nursing care being the most reported. Patients and staff also agreed that even with all room blinds shut and lights off, the hospital environment can be overstimulating and not conducive to rest or sleep. For example, Staff Participant 1 stated, *“[We’re] always getting complaints about just the noise...Even with the door shut, even with everything [we do to help], it’s kind of inevitable for us not to be the most quiet unit because we have all these alarms.”* Patient Participant 14 concurred by stating, *“I wake up at night because of the noise, [the monitors] keep beeping, just the noise of beep beep-beep-beep all night long.”*

Importance of Comfort

Patients and staff discussed the importance of comfort to falling asleep, including both physical and emotional comfort. Pain, fear, and anxiety were reported as the cause of delayed onset of sleep. Staff Participant 11 stated, *“Sometimes they just can’t get*

comfortable... their body's moving differently than what it used to," while Patient Participant 8 reported, *"I have anxiety and depression that gets worse at night."*

Post-Intervention Findings

Sixty-four patients received sleep hygiene intervention, and a small sample from this group participated in data collection. Thirteen patients and eight staff members completed interviews post-intervention. The staff sample consisted of six occupational therapists and two nurses, intentionally focusing on OTs as they would be the group responsible for carrying out these interventions long-term. Post-intervention interviews revealed four themes: 1) patients' sleep hygiene needs were addressed; 2) external factors limiting sleep hygiene; 3) adaptability and patient-centered care; 4) staff feasibility of implementation of sleep interventions.

Patients' Sleep Hygiene Needs Addressed

Patients reported satisfaction with their sleep and verbalized an increased understanding of nighttime nursing care interruptions or other factors that limit sleep in the hospital following the interventions. For example, Patient Participant 4 reported, *"Yes, I found [the interventions] helpful, and I did use some of the interventions."* Patient Participant 2 reported, *"Well, you know they have to do their jobs. On this floor it seems like everyone's considerate of (sleep)."* Despite many patients being too medically unstable to qualify for bundled nursing care, by simply starting the conversation regarding sleep hygiene, patients felt staff were more responsive to their sleep needs.

External Factors Limiting Sleep Hygiene Programming

Although interventions in this project targeted a diverse range of common barriers to sleep hygiene in the hospital, patients and staff reported additional factors to

consider. These included pain, cognitive deficits limiting patient comprehension and carryover of learning, and the prioritization of medical stability. For instance, Patient Participant 3 stated, *“No, I wasn’t satisfied with my sleep. Pain makes it hard to sleep.”* Staff Participant 4 reported, *“In general, we always struggle with the balance of - you need sleep, but then you also have to have all your nursing care and things like that.”*

Adaptability and Patient-Centered Care

Staff and patients agreed the wide range of interventions included in this program was beneficial as it allowed for a customized, patient-centered experience. Most patients applied one or more of the interventions recommended to improve their sleep hygiene. No single intervention was applied more frequently than others; instead, there was roughly an equal distribution in using ear plugs, eye masks, relaxing music, daytime activities to promote wakefulness, and establishing routines to promote sleep hygiene.

Staff Feasibility of Implementation of Sleep Interventions

Despite the ongoing challenges posed by the hospital setting, staff all agreed that sleep interventions be prioritized and endorsed the interventions were simple enough to add to their regular practice without increasing their burden. This sentiment is evidenced by comments from Staff Participant 2 - *“Yes... this is something I could have in my toolbox and could pick and choose with a patient when they need it.”* and supported by Staff Participant 4 - *“Having some ideas of some additional interventions [than what I previously knew of/used] is really helpful.”*

Discussion

The findings of this project closely resemble findings from similar quality improvement projects related to impact of staff education and sleep menu interventions

for sleep promotions overnight (Antonio, 2020; Gode et al., 2020). Prior researchers found patients reported reduced sleep disturbance and that staff responded positively to implementing a sleep hygiene initiative, which led to hospital-wide plans to operationalize the program (Antonio, 2020; Gode et al., 2020). While Antonio (2020) and Gode et al. (2020) used an interdisciplinary team to address sleep hygiene, our project incorporated occupational therapists to address additional factors, such as daytime activity, by changing routines and education to patients regarding sleep hygiene.

Some notable differences between this project and similar projects include settings, outcome measures, and the inclusion of staff perceptions. This project is unique in that it studied the interventions' effects on critical care and step-down units, whereas Antonio (2020) and Gode et al. (2020) only studied step-down units. Antonio and Gode et al. (2020) used the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) surveys as outcome measures, unlike this project, which utilized a structured interview format. Antonio (2020) focused on patient satisfaction with nighttime sound levels, whereas Gode et al. (2020) used patient-reported quiet-at-night scores and hospital-reported delirium scores as outcome measures. Unlike this quality improvement project, neither Antonio nor Gode et al. studied healthcare staff perceptions outside of the team of researchers.

Since the conclusion of this project, nursing staff have increased awareness of OT's role in sleep hygiene and have invited OTs to collaborate on a nursing-driven unit-wide sleep initiative. During this initiative, nursing staff were educated about OT's role in sleep hygiene and opportunities for partnership. Each patient room on the unit now has

information regarding sleep hygiene posted for patient and caregiver reference. Additionally, the patient education materials created during this quality improvement project have been approved by the site's *Patient Education Governance Council* and uploaded as a clinical reference tool available to all staff for ongoing use. Staff education for occupational therapists continues to be available via online competency modules; however, further research is needed to determine compliance with implementation into standard practice. Further training is needed to ensure carryover and implementation on other hospital units.

Limitations

Despite the efforts to ensure trustworthiness, there are some limitations to highlight. Given that this project was conducted on neurological units, many of the patients eligible for interventions had communication or cognitive deficits, making them ineligible to participate in further analysis (interviews and quantitative data collection), so the results only represent a smaller subset of the sample population. The investigators also noted that some participants met the eligibility criteria but were still experiencing cognitive deficits and required increased nursing support to promote compliance and carryover. However, no compliance monitoring was conducted on nursing staff to determine their level of sleep hygiene promotion, and variances in nursing participation were likely. The data were not divided for further research between critical care and step-down patients, so two different populations were analyzed together and cannot be further analyzed for their similarities and differences. The data from staff interviews were anonymized to remove job titles, limiting the ability to identify similarities and differences between various professions. Lastly, due to staffing

pragmatics, the same investigator was responsible for providing intervention sessions and conducting post-intervention interviews, which increased the risk of response bias.

Future Considerations

To ensure program sustainability, future program expansions will also include staff educational opportunities. Specifically, OT staff will be educated on incorporating sleep hygiene into evaluations through patient education, reducing psychosocial barriers to sleep, and establishing routines. Nursing staff will be educated on bundling care, promoting daytime wakefulness, and reducing pain at night. Utilizing a multi-disciplinary team can reduce the burden of care placed on nursing staff and improve patient satisfaction with their care. Although a team of occupational therapists led this project, nursing staff are critical to long-term success. Daytime nursing staff will focus on daytime wakefulness and patient education to improve sleep-wake cycles and sleep hygiene. In contrast, nighttime nursing staff will promote an environment conducive to sleep and ensure nighttime pain management. ICU nursing staff will lead the patient care team in balancing the management of critical medical interventions with sleep hygiene, understanding the overall role of sleep in healing, and improving patient outcomes.

The researchers have identified many ways in which this project could be expanded through future research to increase the available knowledge on this subject. Most notably, there appears to be a gap in research focused on staff perceptions related to the long-term feasibility of implementing programs such as this into standard practice. A follow-up study at the original site to determine ongoing compliance and use of the interventions/educational materials could identify further room for improvement.

Additionally, a study comparing these results with another site or sample patient population could help determine the generalizability of these findings.

Implications for Occupational Therapy Practice

Nursing and occupational therapy staff agreed that this program was promising, providing the opportunity for improved patient experiences and outcomes through simple changes to standard practice. Both disciplines emphasized the importance of providing patient-centered care. Staff proposed that standard practice include educating all patients and allowing staff and patients to select interventions specific to each patient's needs collaboratively.

Sleep is often overlooked by OT practitioners in acute care for a variety of reasons. This project demonstrated that sleep hygiene can be addressed in standard practice through a variety of quick, free, and easy-to-implement interventions. OT practitioners must continue to advocate for the profession by practicing within the full scope of our training and licensure. Collaboration with other professions will improve patient outcomes and signal our expertise in the field of sleep hygiene.

Conclusion

Researchers completed a quality improvement project using an interdisciplinary approach that showed interventions targeted at establishing healthy routines, reducing negative emotions, and educating patients on the use of sleep tools can improve patients' reported sleep satisfaction. Staff believe these interventions are feasible and sustainable, and support the position that these interventions be a standard practice within hospital units. Future research to determine feasibility of a sleep hygiene

educational program within different hospital units and populations as well as across different medical institutions is needed.

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Appendix A

Intervention Strategies

Comfort		
	Pain	• Guided meditation • Guided progressive muscle relaxation • Notify nursing for pharmaceutical intervention • Therapeutic listening
	Positioning- general discomfort	• Patient, family, or staff education on bed positioning to improve comfort
	Positioning- patient prefers side-lying or prone	• Use of pillows and blankets to stimulate proprioceptive input
Nighttime Interruptions		
	Patient is not medically stable/interruptions cannot be avoided	• Keep charting light in room on throughout night to reduce reliance on overhead lighting during nursing care • Nursing education on bundling care • Patient education on use of eye mask and ear plugs to reduce arousal and decrease sleep onset time following interruptions • Patient education on use of music to increase relaxation and decrease sleep onset time following interruptions
	Patient medically stable/interruptions can be reduced	• Allow the patient to self-turn (if BMAT = 4) • Bundle nursing care • Request "do not disturb" orders from physician
Disruptions to Routines		
	Daytime routine not conducive to adequate sleep hygiene	• Educate patient on sleep architecture and the importance of limiting naps to 1 nap <90 minutes per day • Establish a daytime routine that requires their maximal physical and cognitive exertion • Order hospital arts and health activity kit for daytime engagement to reduce boredom and napping • Replicate baseline circadian rhythm • Turn on lights and open blinds during the day
	Nighttime routine	• Establish a nighttime routine with relaxing, preferred occupations
Environmental Barriers		
	Lighting	• Keep charting light in room on throughout night to reduce reliance on overhead lighting during nursing care • Maximize daytime lighting to increase variance from day and night lighting environment • Provide patient with eye mask and education to keep the eye mask on during nighttime nursing care
	Sound	• Patient education on use of music to reduce negative effects of sudden sounds in the room • Provide patient with ear plugs and education on their use
Emotional Barriers		
	Stress, fear, anxiety, or depression	• Guided meditation • Guided progressive muscle relaxation • Increase family visits or schedule a family video call • Order journal through hospital arts and health program • Referral to pastoral services • Referral to social work • Therapeutic listening