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THE IMPACT OF CLUSTERED CARE ON PATIENT PERCEPTION OF SLEEP QUALITY AND NOISE LEVELS IN A HOSPITAL SETTING

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THE IMPACT OF CLUSTERED CARE ON PATIENT PERCEPTION OF SLEEP QUALITY AND NOISE LEVELS IN A HOSPITAL SETTING

by

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Lastly, I would like to thank my family. My parents have always given me unconditional love and support, as well as the encouragement to pursue the unimaginable. I'd also like to thank my brother Derek for always showing me a different perspective and my dog of 11 years, Rascal.

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ABSTRACT

THE IMPACT OF CLUSTERED CARE ON PATIENT PERCEPTION OF SLEEP QUALITY AND NOISE LEVELS IN A HOSPITAL SETTING

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The University of Texas at Arlington, 2018

Faculty Mentor: Deborah Behan

The aims of this study are to identify the effects of the changes made to the environment in the hospital setting and to observe the patient's perception of noise levels. Other aims include to identify whether or not patients are receiving adequate rest and which activities are preventing them to do so. Ultimately, the goal is to identify whether or not clustering care provided by the lab, nurses and respiratory improve a patient's perception of their quality of rest. Rounding is done every two hours instead of the usual one hour between the times of 2200 and 0600 when a patient is stable and can have care clustered.

Many factors may contribute to a patient's lack of sleep. In a hospital setting there are lights, noise and other uncomfortable conditions that deprive patients from the adequate

rest needed to heal. All of these factors can interfere with their ability to perceive sleep quality, pain and overall mood. The design being used is an interventional design where all care will be clustered unless there is a need for hourly rounding. Data was collected from a total of 200 patients admitted to a hospital in the south-central United States. Surveying was done the following morning after the clustered care intervention by asking a series of five questions.

The majority of patients reported the noise levels as okay and reported the most disturbing noise as being outside of their room or their IV machines. The third most commonly reported disturbing noise was hourly rounding. Patients also listed hourly rounding and people coming in and out of their room as the most interruptive factor during their sleep. These findings are important as we begin to challenge common methods of practice in healthcare and look for ways to improve patient satisfaction and quality of rest.

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CHAPTER 1

LITERATURE REVIEW

1.1 Noise and Sleep

A current issue in the clinical setting that many do not consider is the quality of sleep and rest in hospitalized patients (Ye, Keane, Johnson & Dykes, 2013). Vital signs are typically taken routinely at one to four hours and fluorescent lights are on for a majority of the night. Further, with healthcare workers completing tasks throughout the night it is inevitable that there is constant background noise, which prevents patients from rest and sleep. These factors all contribute to what is referred to as fragmentation of sleep, which can then lead to a cascade of increased physical risk factors, which impede healing (Ye, Keane, Johnson & Dykes, 2013). Studies suggest more research needs to be done on both the reasons for loss of sleep and interventions for improvement of sleep (Fillary et al. 2015).

As a whole, healthcare providers fail to recognize the effects of sleep deprivation on patients because they are focused on treatments, medications and other tasks that need to be completed for the patient. They are not focused on how they might be depriving patients of rest and sleep. The primary focus of healthcare is giving medications and treating the origin of admission with intentions to fix the root problem. In a study by Saconi de Almeida, Barbosa da Silva, Oliveira de Souza and da Silva Magro (2016), only 36.7% of healthcare professionals in the intensive care unit reported receiving knowledge on sleep during their basic education. The issue at hand is understanding what factors in the hospital

are most likely to disturb patients when resting or sleeping and determining which can be manipulated to provide better outcomes.

It has been reported by Davy (2014) that rest and sleep are essential for recovery and overall wellbeing. Patients in the hospital are there for a reason and are more often than not at an increased risk for infection or other complications if not allowed to heal properly. Sleep loss not only contributes to this risk but can decrease emotional health as well (Fillary et al., 2015). Personally, when not feeling well it helps to get some sleep and rest to allow healing. When adequate rest or sleep is hindered or interrupted, the body is not allowed to recover, and as a result there is a possibility of prolonged sickness and possible complications. Rae et al. (2017) supports this claim when comparing cyclists' recovery from a single bout of high-intensity interval training (HIIT). Participants were given either a normal night of sleep or half of their usual time in bed. Cyclists reported feeling sleepier and less motivated to train during the 24-hour recovery phase when they had only half their usual time in bed.

Along with current research on effects of interrupted sleep and rest, it is important to identify the variables themselves. Hinds et al. (2007) studied the relationship between nocturnal awakenings, sleep environment interruptions, sleep duration and fatigue in children and adolescents with cancer who were hospitalized for two to four days. Their findings showed that the median number of nocturnal awakenings per night was 14. The study also tracked entry into and out of patient rooms throughout the night and found an average of three to 22 times when rooms were entered, which would awaken the patients. This data is significant as it is a current contribution to reasons for a patient's poor sleep and rest quality in hospitals today.

A similar study by Vicensi et al. (2016) focused on nursing interventions to promote sleep in hospitalized patients as well as identifying which intervention patients preferred. The study found that the biggest factors affecting sleep and rest were healthcare professionals entering and exiting the room, vital sign checks during the night, and pain patients experienced. The most popular and preferred nursing interventions in this study included giving patients the option to listen to music and to wear sleep masks over their eyes, which promoted sleep and rest.

Outside of provider interruptions, Bernhofer, Higgins, Daly, Burant and Hornick (2016) performed a study to identify light exposure, sleep-wake patterns, and mood and pain in patients who are hospitalized and the relationships between these variables. The conclusion of this study was that light exposure was inversely related to fatigue and mood disturbance in patients with pain. This is important because it shows the relationship between environment in the hospital and its effects on patient healing as well as their satisfaction. Lights may cause patients to have sleepless unrestful hours. If a patient is used to no noise and no lights while sleeping and resting at home, then it is important for them to have hours of rest and sleep in the same kind of environment while in the hospital to improve healing.

Dennis (2010) identified the benefits of altering specific interruptions through a term called quiet time (QT) for neuro (ICU) patients. During QT, lights were either turned off or reduced in intensity at the nursing station, hallways, and patient rooms. Telephone volumes were also reduced, and staff did not enter patient rooms unless necessary. Additionally, during those hours there were no overhead announcements by the hospital operator. Staff were also expected to interact quietly. During the day shift, there was a

mean reduction of average noise levels by 10 decibels. Day shift also reported patients were 1.6 times more likely to be found asleep during this time.

Similar to QT interventions, Kamdar et al. (2013) looked at the effects of a quality improvement (QI) intervention on cognition in a medical ICU. The QI included decreasing sleep disruptions, minimizing overhead pages and announcements, and dimming hallway lights in the evening. Earplugs, eye masks and soothing music were also offered to eligible patients. Results showed that perceived nighttime noise was significantly improved along with a lower incidence of delirium among those patients who became confused without proper rest.

1.2 Significance

In a hospital in the south-central USA, a director of the unit for medical-surgical patients felt that patients would benefit from more sleep and wanted to facilitate healing and early discharge by measuring decibels of noise and disturbances of sleep (D. Behan, personal communication, 2017). A study was completed that found noise from large carts outside the room at night caused the most disturbing noise to subjects and prevented nighttime rest and sleep. Cart wheels were changed to quieter moving wheels and hourly rounding by nurses was reduced to every two-hour rounding starting at ten in the evening until six in the morning. The director then wanted to start clustered care during those hours and conduct a new research study to see if sleep and rest were improved.

Cluster care in this setting allows multiple team members to care for one patient at a time. Normally, sleep is interrupted many times by different disciplines entering the room. For example, respiratory therapy may enter a room to provide a treatment, and after leaving the room a nurse may enter to give medications, and after the nurse leaves the room

lab personnel may enter to take a blood specimen. When that happens, the patient is awakened several times. If care is clustered all three healthcare personnel enter the room together and perform their tasks so that the patient has less interrupted sleep. By recognizing modifiable sleep disruptions in the healthcare setting we can promote and aid in bettering the quality of rest patients are able to receive, improve healing, and improve patient satisfaction. This could potentially lead to an easier recovery, faster healing and decreased risk factors in developing delirium (Ye, Keane, Johnson & Dykes, 2013). Therefore, the purpose of this study was to replicate the previous study done by the director of the medical-surgical unit and add clustered care to see if it would improve patient sleep and rest.

CHAPTER 2

METHODOLOGY

The south-central USA hospital where the study is being conducted is currently using hourly rounding during daytime hours. Hourly rounding consists of the patient care technician (PCT) or the nurse open the door and see if the patient needs anything or is resting. For example, they may ask if the patient needs to go to the bathroom, or needs pain medication, or anything else. The patient may awaken when the door is opened, without the nurse or PCT saying a word, which then interrupts sleep. Some patients may not require hourly rounding, and with the intent to provide more rest and sleep this one unit at the hospital has decided to provide clustered care from ten at night until six in the morning. Clustered care consists of the laboratory personnel, the nurse, and the respiratory therapist all enter the room at the same time to get things done so that the patient will then have a couple of hours to rest and sleep without interruptions.

The study is an interventional design with convenience sampling. The study has been approved, and the author will be joining as a co-investigator (see appendix A). The intervention is to cluster care with two-hour rounding from ten at night to six in the morning; therefore, decreasing the amount of interruptions to the patient's sleep and rest. Subjects on two-hour rounding and clustered care will be determined by the charge nurse when the patient is stable enough to be on that schedule. Once the charge nurse provides the list to the researcher there will be random selection of subjects. Once determined which patients to ask by random selection they will be informed of the study and asked to provide

verbal consent to participate in the study. If they agree, they will be asked about noise levels and quality of rest. Their responses will be recorded. See the log for recording in appendix B. The verbal consent (Appendix C) includes the five questions to be asked when the patient consents to be in the study.

2.1 Potential Risks to Subjects

Each subject will have the right to refuse to answer or participate in the study. There are no potential risks anticipated because subjects will be receiving more rest and the same care as usual. No patient information will be required, and no identifiable information will be present. All data will be stored in a locked cabinet in the Nurse Scientist office behind a locked door. Only researchers will have access to this data which does not contain any patient identifiers.

CHAPTER 3

RESULTS

The purpose of this study was to see if clustered care would improve sleep and rest for the patients on one unit. The following questions were asked to each randomly surveyed patient who had received clustered care:

1. Is the level of noise okay with you?
2. What would you say is the most disturbing noise during your hospital stay?
3. On a scale of zero to ten with zero being the best and ten being the worst, how would you rate the overall quality of your sleep while in the hospital?
4. What interrupted your sleep the most?
5. Is there anything else you want to tell us about the noise levels, or quality of sleep that you have experienced?

Of the 200 patients interviewed, data showed that 94% stated the noise levels were okay with them. When asked what the most disturbing noise was during their hospital stay, 17% reported it was the beeping on their IV machine and another 17.5% stated it was noise outside of their room in the hall. The third most disturbing noise reported by patients was hourly rounding (10.5%).

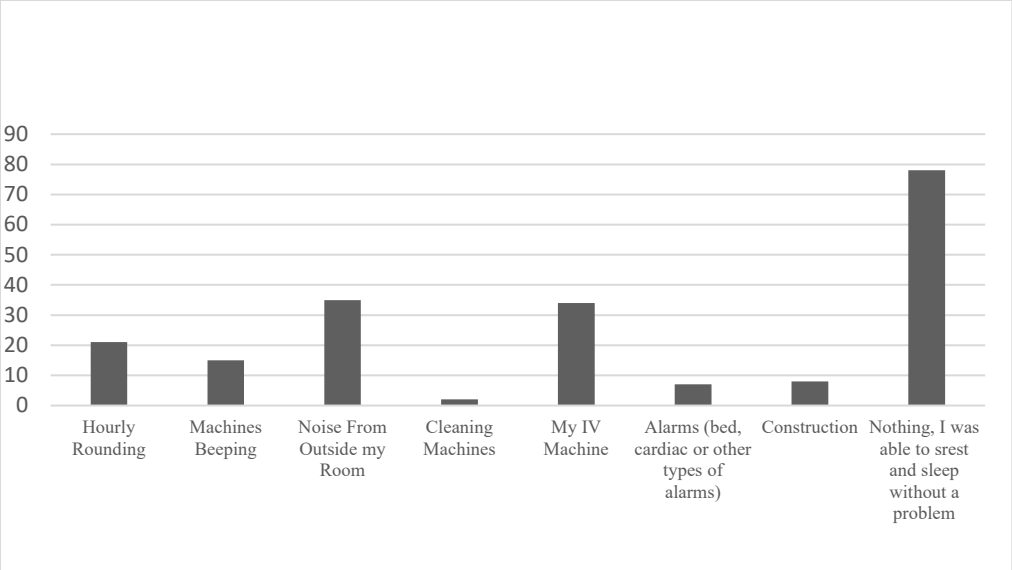

Figure 3.1: Patient Reported Most Disturbing Noises During Their Hospital Stay

When given a scale of zero to ten with zero being the best and ten being the worst, patients were asked to rank their sleep quality in the hospital. Twenty-four percent of patients rated their sleep quality as greater than five, 50% rated their sleep quality being less than five, and 26% rated their sleep quality in the middle at five. When asked what interrupted their sleep the most the top two interruptions were people coming in and out of the room (nurse, lab, respiratory, vital signs) and hourly rounding equating to 55.5% of patient answers. The next common report being patient's own illness or their pain, which totaled 17.5 percent.

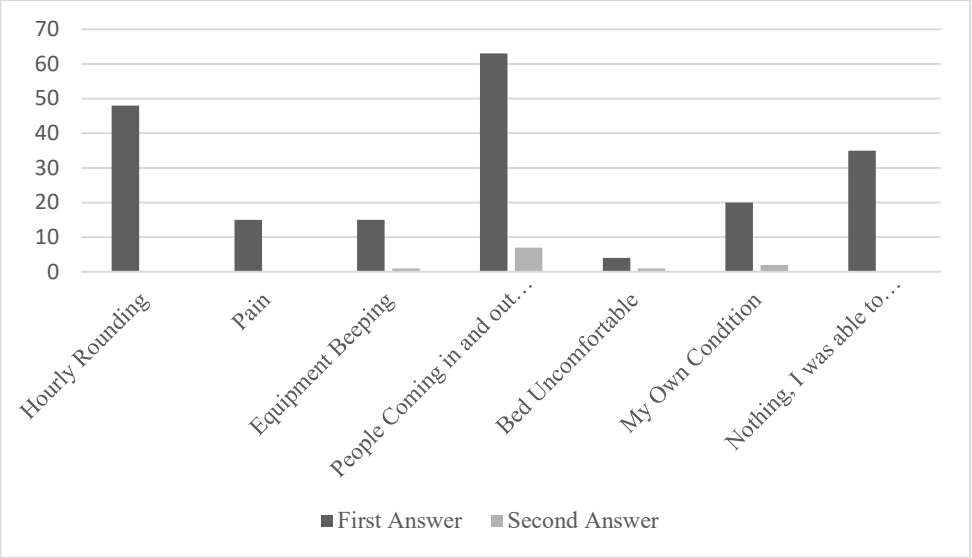

Figure 3.2: Most Common Sleep Interruptions During Hospital Stay

The last surveyed question that patients were asked was an open-ended question regarding noise levels and the quality of sleep that was experienced. Many patients stated they had trouble toileting on their own, causing them to wake up throughout the night. Medications that were given to patients prior to sleep such as laxatives or diuretics were also reported to interfere with their ability to rest. Patients also reported lack of care from staff to close the doors completely when leaving the room or forgetting to turn the light off as a contributor to fragmented sleep. However, a majority of patients reported having no other input and stated their satisfaction with the noise levels.

CHAPTER 4

DISCUSSION

The purpose of this study was to identify the cause and effect relationship between clustered care and patient perception of noise levels during their time of sleep and rest. Each question asked was designed to interpret patient perception on their sleep and rest quality and noise levels in the hospital during the hours of ten at night to six in the morning.

When asking the patients if the noise levels were okay with them 94% reported they were. Previously, a study was conducted on this same unit where the complaint of noise levels was found to be from large carts rolling down the hall at night. The director of the unit replaced all the wheels on the large carts so that they would be less noisy (Lyle, 2014). Therefore, it is no surprise that patients were okay with the current noise levels since on this unit they have already put interventions into place that creates an environment for less noise at night. Patients were asked to identify the most disturbing noise during their hospital stay and while the most frequently reported noises were their IV machine, noise from outside their room and hourly rounding, 39% of patients reported that they were able to rest and sleep without a problem. The fact that subjects complained about their IV machine, noise outside the closed door of their room, and hourly rounding suggests that maybe IV machines need to be set at a lower alarm sound, other sounds outside the room need to be investigated, and clustered care should be implemented to allow for longer rest

periods. Along with this data, 50% of patients rated their quality of sleep as less than five on a scale of zero to ten with zero being the best and ten being the worst.

Question four addressed what interrupted patient sleep the most; some patients gave more than one answer and the results ended up revealing people coming in and out of their room posed the greatest disturbance. The second most reported interruption was hourly rounding. However, 17.5% reported that nothing interrupted their sleep at all. This study was consistent with the findings of Vicensi et al. (2016) which came to the conclusion that patients perceived the biggest factors affecting their sleep to be the healthcare team entering and exiting the room, vital sign checks and pain they were experiencing due to their illness. Again, this indicates that clustered care might help to reduce interruptions to sleep and rest for stable patients who do not need hourly rounding.

Another article that supports findings in the current study includes past nursing interventions that have focused primarily on the patient's environment, such as quiet time in the neuro ICU by Dennis (2010). In this study, the lights were dimmed and the volumes on telephones were lowered. However, nurses were not cognizant of closing doors and making sure they were quiet enough for patients to rest. Further, Ye, Keane, Johnson and Dykes (2013) identified that clinicians do not assess for patient sleep nor do they obtain proper education over the importance of rest for their patient. By informing clinicians of the importance of rest and by educating them on clustered care, patients will have better outcomes of rest and sleep and possibly prevent risk of further complications. The importance of this study in regard to the literature is that while previous studies acknowledge patient's fragmented rest, few have addressed this directly with the them.

4.1 Implications for Nursing Practice

4.1.1 Clinical Bedside Nursing

Implications for nursing practice by utilizing this intervention are a cost effective and non-pharmaceutical way for healthcare providers to intervene and improve patient healing by allowing them to rest and sleep for longer periods of time. It is an opportunity to improve patient satisfaction as patients are allowed adequate time to heal. Healthcare providers at the bedside can take this knowledge and implement practices to better the resources available in the hospital. The IV machines and alarms may need to be improved. New technology can be suggested so patients do not have to hear them. Instead, these alarms can be tailored to alerting only the nurses and not everyone within hearing range.

4.1.2 Implications for Academia

These findings can also be applied to current academia and the deficit in provider knowledge on sleep disruptions in hospitals. With this study, patients have now been able to voice their opinions on what they perceive as the most disruptive and disturbing noises. By giving patients a direct voice in their care, we are able to see the direct impact of clustered care, which can provide longer sleep and rest periods and improve healing. In the classroom educators can provide information to students regarding clustered care. Additionally, they can provide information about the importance of rest and sleep. Students need to understand how important it is to make sure doors are shut, care is clustered and quiet time is provided. It should also be emphasized that two-hour rounding helps to provide rest periods and reduce complications and healing. By including these results in academia, students will have a foundation in their approach of practice as they begin patient care.

4.1.3 Implications for Future Research

This was a replication study of noise and the addition of information regarding rest and sleep. Future research might include new interventions, or possibly more than two-hour rounding along with clustered care. Some patients may be able to go four hours without being awakened. For example, it is possible that women who have delivered a baby could rest for four hours without interruption instead of one or two hours. Another future study could be on nurse's perception of noises heard by patients outside the room. Further, an observation study of noises outside the patient rooms in hallways, and nurse stations. Maybe they could identify those noises outside the patient room that are loud enough at night to awaken a patient behind the closed door. Additionally, maybe the room location makes a difference in noises. For example, if a room is located close to an elevator, are the sounds of traffic on the elevator loud enough to awaken patients?

4.2 Limitations

Limitations of this study could be that not all patients will qualify for clustered care. Many of the patients who were selected had to meet certain criteria to be deemed as stable enough to have two-hour care, and not be cited as in critical condition. This could be seen as counterproductive as the most critical patients are usually those who need quality sleep most. Another limitation of this study would be that nurses consistently needed to be reminded and mindful of which patients are included in clustered care. An argument could be made that certain noise levels cannot currently be changed, such as an IV pump, in which alarms are required to be set at a certain level to be heard by the Joint Commission. The Joint Commission is the accrediting body for hospitals. Every hospital wants to be accredited for financial purposes. Technology has not made the advancements necessary

to reduce IV alarm volumes for patients. Therefore, the volume on these machines often cannot be adjusted and often times nurses do not hear the alarms go off immediately, especially if it is behind a closed door.

CHAPTER 5

CONCLUSION

In regard to low risk patients, clustered care is a cost-effective option to increase patient satisfaction and decrease perception of noise levels and sleep/rest interruption. Nurses are able to participate and improve patient care by allowing them to rest.

The findings of this study confirm the efficacy of clustered care on noise level perception and sleep quality. With a majority of patients marking the noise levels as okay and 50% marking their sleep quality as less than five, clustered care proves to be a successful approach. Patients verbalized their satisfaction with the last question of the survey which asked*: Is there anything else you want to tell us about the noise levels, or quality of sleep that you have experienced?* A majority of the patients reported "No." Other patients reported positive remarks regarding the facility and staff such as "The noise levels here are fine" and "Everything is nice and quiet." Along with this, the study can be used as ground for finding solutions to the most reported disturbing noises (e.g. nurses coming in and out of the room, IV machines, and noise outside of the patient room).

Clustered care can be safely utilized under appropriate circumstances to maximize patient satisfaction. Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) is an evaluation tool used for all hospitals in the United States. The use of clustered care can not only benefit the patient and their noise level perception but contribute to HCAHPS in future studies. The findings of this study support the theory of giving patients adequate time to rest. Limitations will need to be identified and addressed in order

to implement this care. This can be done through adequate knowledge and training on clustered care.

APPENDIX A

TEXAS HEALTH RESOURCES IRB APPROVAL FORM

Texas Health Resources®

DATE:	December 29, 2017
TO:	Deborah Behan, PhD
FROM:	Texas Health Resources IRB
PROJECT TITLE:	[854046-3] Noise and Sleep
REFERENCE #:	Pro1603
SUBMISSION TYPE:	Amendment/Modification
ACTION:	APPROVED
APPROVAL DATE:	December 29, 2017
REVIEW TYPE:	Administrative Review
	This study continues to quality for a Waiver of Documentation of Consent since the research meets the criteria outlined under 45 CFR 46.116 (d).

Thank you for your submission of Amendment/Modification materials for this project. The Texas Health Resources IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Administrative Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require that each participant receives a copy of the consent document.

If your study involves waiving the HIPAA privacy authorization, please print out the approved study application and IRB approved HIPAA waiver and present it along with your approval letter when requesting access to protected health information (PHI).

The research may not continue beyond the end of the new approval period, as indicated by the expiration date above. In order for the research to continue beyond that date, the IRB must first conduct continuing review and designate a new approval period.

The IRB will send you a continuing review notice at least 30-60 days before the expiration date listed above. If not completely filled out, received, reviewed and approved by the IRB before the end of the expiration date above, enrollment of new subjects in the research must cease until IRB approval can be obtained. Continued involvement in the research of previously enrolled subjects may not continue unless explicitly approved by the IRB to prevent harm to subjects.

Based on human research regulations and THR human subject research policies, the IRB emphasizes the following requirements in granting approval for this research project:

1. Any changes, modifications, or amendments to any facet of the research must be reviewed and approved by the IRB before they can be initiated.
2. All reportable adverse events and unanticipated problems involving risks to subjects or others must be reported to the IRB according to THR IRB policy requirements. This includes reporting to this

Committee any death or serious reactions(s) resulting from this study. Please consult the THR IRB Policy and Procedure Manual for specific definitions and reporting time-frames and requirements.

3. It is required to submit annual and terminal progress reports to the IRB and to receive continuing review of your activity annually by the IRB.

Failure to submit the above reports may result in severe sanctions being placed on Texas Health Resources. All research-related records and documentation may be inspected by the IRB for the purposes of ensuring compliance with THR policies and procedures and federal regulations governing the protection of human subjects. The IRB has the right and authority to suspend or terminate its approval if THR and Federal requirements are not strictly adhered to by all study personnel.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

The JCAHO standards related to patients taking part in research require that they be informed about the benefits, risks, alternative treatments, research procedures and refusal to participate. This information is contained in each approved research consent form. All in-patients and out-patients that are actively taking part in clinical research must have a copy of their signed consent form on their open medical records.

If you have any questions or concerns, please contact the IRB Office at IRB@TexasHealth.org. The IRB thanks you for your continued commitment to the protection of human subjects in THR research.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Texas Health Resource's records.

APPENDIX B

DATA COLLECTION LOG

Subject	Q1 Yes=1 No=0	Q2	Q3 0-10	Q4	Q5 Comments
001					

APPENDIX C

SCRIPT FOR VERBAL INFORMED CONSENT

Noise and Sleep in the Hospital
Script for Verbal Consent

Principal Investigator: Deborah Behan PhD, RN-BC 940-367-4758 (cell)

I am an honors student at UTA working as a research assistant for the Nurse Scientist at Texas Health Resources Hurst-Euless-Bedford. We are conducting a research study on noise levels and sleep while in the hospital.

I would like to ask you five questions about your perception of the current noise levels and the most bothersome source of noise to you as well as the sleep and rest you have had while at this hospital. This should take just a few minutes of your time.

There are minimal risks associated with this study. Your responses will be anonymous, as your name will not be recorded or reported.

Participation is purely voluntary and you may stop at any time. This study has been reviewed and approved by the Texas Health Resources Institutional Review Board (IRB). The primary purpose of the IRB is to protect the rights and welfare of human subjects involved in research activities.

Are you interested in participating in this study by answering my five questions?

1. Is the level of noise okay with you? 2. What would you say is the most disturbing noise during your hospital stay? 3. On a scale of 0-10 with 0 being the best and 10 being the worst how would you rate the overall quality of your sleep while in the hospital? 4. What interrupted your sleep the most? 5. Is there anything else you want to tell us about the noise levels, or quality of sleep that you have experienced?

REFERENCES

Bernhofer E.I., Higgins P.A., Daly B.J., Burant C.J. & Hornick T.R. (2014) Hospital lighting and its association with sleep, mood and pain in medical inpatients. *Journal of Advanced Nursing* 70(5), 1164–1173. doi: 10.1111/jan.12282

Davy, J. (2014). Good sleep, good health, good performance. it's obvious, or is it? the importance of education programmes in general fatigue management. Ergonomics SA, 26(1), 64-73. Retrieved from https://login.ezproxy.uta.edu/login?url=https://search-proquest-com.ezproxy.uta.edu/docview/1558357242?accountid=7117

Dennis, Christina M (2010). "Benefits of quiet time for neuro-intensive care patients.". *The Journal of neuroscience nursing* (0888-0395), 42 (4), p. 217.

Fillary, J., Chaplin, H., Jones, G., Thompson, A., Holme, A., & Wilson, P. (2015). Noise at night in hospital general wards: a mapping of the literature. *British Journal of Nursing*, 24(10), 536-540. doi:10.12968/bjon.2015.24.10.536

Hinds, P., Hockenberry, M., Rai, S., Zhang, L., Razzouk, B., McCarthy, K., & ... Rodriguez-Galindo, C. (2007). Nocturnal awakenings, sleep environment interruptions, and fatigue in hospitalized children with cancer. *Oncology Nursing Forum*, *34*(2), 393-402. doi:10.1188/07.ONF.393-402

Kamdar, B. B., King, L. M., Collop, N. A., Sakamuri, S., Colantuoni, E., Neufeld, K. J., . . . Needham, D. M. (2013). The Effect of a Quality Improvement Intervention on Perceived Sleep Quality and Cognition in a Medical ICU*. *Critical Care Medicine*, 41(3), 800-809. doi:10.1097/ccm.0b013e3182746442

Lyle, R., (2014). Measured noise levels in the hospital with correlating patient perception. Retrieved from http://pulse.uta.edu/vwebv/fullHoldingsInfo?searchId=826&recPointer=0&recCount=20&searchType=0&bibId=2038982

Rae, D. E., Chin, T., Dikgomo, K., Hill, L., Mckune, A. J., Kohn, T. A., & Roden, L. C. (2017). One night of partial sleep deprivation impairs recovery from a single exercise training session. *European Journal of Applied Physiology*, 117(4), 699-712. doi:10.1007/s00421-017-3565-5

Saconi de Almeida, B. R., Barbosa da Silva, P., Oliveira de Souza, J. M., & da Silva Magro, M. C. (2016). SLEEP AS A BASIC HUMAN NEED IN THE SCENARIO OF A CRITICAL PATIENT. *Journal of Nursing UFPE / Revista De Enfermagem UFPE*, 10(12), 4494-4500. doi:10.5205/reuol.9978-88449-6-ED1012201609

Ye, L., Keane, K., Johnson, S. H., & Dykes, P. C. (2013). How Do Clinicians Assess, Communicate About, and Manage Patient Sleep in the Hospital? *JONA: The Journal of Nursing Administration*, 43(6), 342-347. doi:10.1097/nna.0b013e3182942c8

BIOGRAPHICAL INFORMATION

Christina was born and raised in Fort Worth, Texas. She attended Tarrant County College for two years and obtained her Associate of Arts before transferring to The University of Texas at Arlington. Upon transfer, she applied to the College of Nursing and was accepted in the Fall of 2016. Her research journey started the fall semester of her junior year where she began collaborating with Dr. Deborah Behan. From here, Christina joined the sleep study as a co-investigator and collected data in the Summer of 2018 at Texas Health Resources – Hurst/Euless/Bedford (HEB). Her research interests include bettering the care of patients and improving their satisfaction in the hospital setting. She is grateful for the opportunities the Honors College has given her and will begin working for Texas Health Resources in the Spring of 2019 as a registered nurse.