Improving the Patient Experience: A Quiet Time Campaign

By

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Abstract

Hospitals can be noisy because patients are being monitored 24 hours a day. Hospital staffs are constantly in-and-out of patient rooms checking vitals, drawing blood, or checking-in on the patient's well-being; consequently, the patient's sleep is at risk of being interrupted. The Centers for Medicare & Medicaid Services (CMS) has addressed quality issues, such as noise, by withholding 30% of Medicare payments owed to hospitals and then reimbursing the amount based on achievements or improvements made within four performance measures (CMS, 2016, 2017d). The performance measure of focus for this study was the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey.

As health care has shifted to patient centered care, quiet time campaigns (QTCs) have become of interest to health care administrators nationwide because QTCs aim to reduce noise and improve quality of care. The purpose of this research was to contribute to the pool of literature that looks at how QTCs affect HCAHPS survey scores. This was achieved by conducting a case study that involved implementing a QTC on a Medical/Surgical/Oncology Unit and analyzing HCAHPS survey scores pertaining to survey question nine, "During this hospital stay, how often was the area around your room quiet at night" (HCAHPS, 2018). The results of this study conclude that a QTC can reduce noise levels to meet best practice noise levels of 40 decibels; however, HCAHPS scores may not reflect those best practices.
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CHAPTER ONE

Introduction

Hospitals can be noisy because patients are being monitored 24 hours a day. Hospital staffs are constantly in-and-out of patient rooms checking vitals, drawing blood, or checking-in on the patient's well-being; consequently, the patient's sleep is at risk of being interrupted. The World Health Organization (WHO, 1999) published Guidelines of Community Noise, recognizing uninterrupted sleep as the forerunner to good mental and physiological health. The guidelines recommend hospitals maintain noise levels between 30 and 40 decibels (dB) at night. Because uninterrupted sleep is crucial to the patient's health, the Centers for Medicare & Medicaid Services (CMS) and the Agency for Healthcare Research and Quality incorporated a 'quiet at night' question into the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey. The 25-question survey is distributed by a CMS approved agency to a random sample of former hospital in-patients to measure quality of care and determine reimbursement for services delivered to Medicare patients (CMS, 2015b).

Due to the importance of reducing noise, quiet time campaigns (QTCs) have become of interest to health care administrators nationwide; however, few studies publish data showing the effects QTCs have on HCAHPS survey scores. The purpose of this research was to contribute to the pool of literature related to QTCs, specifically, how QTCs affect HCAHPS survey scores. This was achieved by conducting a case study that involved implementing QT on a Medical/Surgical/Oncology Unit and analyzing HCAHPS survey scores pertaining to question nine, "During this hospital stay, how often was the area around your room quiet at night" (HCAHPS, 2018). For the remainder of this study, question nine will be referred to as ‘quiet at night.’
**Problem Statement**

CMS withholds 30% of Medicare payments owed to hospitals and reimburses the amount based on achievements or improvements made upon performance measures within 4 domains: (a) safety, (b) clinical care, (c) efficiency and cost reduction, and (d) patient and caregiver-centered experience of care/care coordination; the HCAHPS survey makes up domain (d) (CMS, 2016, 2017d). CMS determines the score for each domain by establishing a benchmark and threshold based on the top 10% performing hospitals during a baseline period. As of January 2017, a 226-bed hospital’s HCAHPS 'quiet at night' score was in the 2nd percentile, meaning, approximately 98% of hospitals nationwide were quieter than this hospital (Press Ganey Associates, 2017). For hospitals to achieve maximum reimbursement from CMS and to exceed other hospitals in quality, the hospital administrators sought to implement a QTC to increase low ‘quiet at night’ scores. Although the literature review revealed many components of a QTC, few studies showed the impact of the QTC on HCAHPS survey scores.
CHAPTER TWO

Literature Review

The purpose of the literature review is to explore the relationship between hospital QTCs and HCAHPS survey scores using General Systems Theory, founded by Austrian Biologist, Ludwig von Bertalanffy. General Systems Theory is the study of systems by multiple specialized fields (Kast & Rosenzweig, 1972). A system is defined as an organized or complex whole, which is the combination of things or parts to form the whole. A system can be within the physical, biological and social world (Kast & Rosenzweig, 1972). Achieving a quiet environment involves focusing within the social world system of a hospital unit and drawing from the knowledge of multiple departments and literature to understand what contributes to noise. By understanding the multiple parts of the system, a QTC can be designed to adjust the system and improve the patient experience.

Current Value Paradigm

The healthcare industry has experienced a paradigm shift: volume-based to value-based. Volume-based refers to a fee-for-service reimbursement structure where providers are paid based on the number of patients seen, tests run, and procedures done (CMS, 2015a). The problem with a volume-based structure is the inability to assess the quality of care. Value-based is a fee-for-value reimbursement structure that pays providers based on the quality, total cost of care, and population health management (CMS, 2015a). The shift from volume to value was accelerated in 1999 when The National Academy Press published the Institute of Medicine (IOM, 1999) report, To Err is Human: Building a Safer Health System. The report revealed statistics and costs of preventable medical errors, such as, up to 98,000 people die per year due to preventable medical
errors (IOM, 1999). As a result, the IOM charged policy makers to create a safer health system and proposed six aims for quality improvement: safety, effectiveness, being patient-centered, timely, efficient, and equitable (IOM, 2001). Later, quality measures were included in The Patient Protection and Affordable Care Act (2010) which endorsed value-based programs to link provider quality performance to payment, such as the CMS HCAHPS survey. Of the six aims proposed by the IOM for quality improvement, this study addresses effectiveness with a focus on reducing night time noise levels.

**Quiet Time**

The adoption of Quiet Time (QT) in a healthcare setting stemmed from research revealing the negative effects noise pollution has on health. Noise is considered a sound that is undesired, disruptive, and can cause harm to life, nature, and property (Forstater, 2017). For example, Lusk, Gillespie, Hagerty, and Ziemba (2004) found that as noise levels increased in an auto assembly plant, systolic blood pressure, diastolic blood pressure, and heart rates amongst 46 workers increased. Similarly, increased levels of cortisol were reported in persons who were experimentally exposed to aircraft noise during sleep, noise of approximately 55-65 decibels (Maschke, Harder, Ising, Hecht, & Thierfelder, 2002). High levels of cortisol can lead to suppression of the immune and inflammatory systems and effect how the body fights off infections (Bowne, 2017). Causes of noise within a hospital can come from: nurse and visitor voice levels, cleaning efforts, machines beeping and late-night interruptions for lab tests. Knowing that noise can have a negative effect on health and healing, observing QT has become a practice implemented nationwide.

QT is an established set of hours which staff, patients, and visitors abide by in an aim to reduce noise. Boehm and Morast (2009) prepared QT by making sure patients were toileted,
given fresh water, and made comfortable prior to QT at 12:30pm. Boehm and Morast (2009) improved environmental awareness of QT by debriefing patients and family members, upon admission. In-patients at Brighton and Sussex University Hospitals complained of the level of noise at night and as a result, the hospital implemented a QTC by encouraging staff to wear soft soled shoes, change bin lids to soft-closing lids, and to continue suggesting other areas for improvements (Keogh, 2014). Of the many ways to implement a QTC, the intent is to improve the health and healing of patients.

**Patient Experience for Hospital Administrators**

QT not only benefits the patient, it benefits the hospital. Hospitals are rated based on survey scores and all ratings are made public on the CMS hospital compare website. Hospitals with a rating of 9 or 10, out of 10, perform better financially by having a greater net margin and return on assets (Balan-Cohen, Betts, Shukla, & Kumar, 2016). Between 2008 and 2014, hospitals with excellent patient ratings had a 4.7% net margin; hospitals with low patient ratings had a 1.8% net margin (Balan-Cohen, Betts, Shukla, & Kumar, 2016). As of January 1, 2017, the 'quiet at night' national average was 63%, meaning 63% of patients responded that the area around the room was "always" quiet at night (CMS, 2017d). For hospitals to achieve 100%, hospitals administrators can refine QT procedures to improve the hospital's overall financial performance and ranking.

**Patient Experience vs Patient Satisfaction**

The patient experience should not be confused with patient satisfaction. The HCAHPS survey contains questions that assess either the patient experience or patient satisfaction. The research found refers to both the patient experience and patient satisfaction. Patient experience
A QUIET TIME CAMPAIGN

focuses on the frequency or how often the patient experienced different aspects of care, for example, the cleanliness of the environment, communication with the doctor(s), and the coordination of healthcare needs (CMS, 2017a). Patient satisfaction focuses on patient opinions, emotions, and judgement of whether expectations were met. The HCAHPS 'quiet at night' question focuses on the domain of patient experience. The following sections review how the implementation of a QTC has affected survey scores and what remains unknown.

**Quiet Time Projects & Patient Satisfaction Scores**

QT projects have been successful in reporting an increase in patient satisfaction; however, increases were reported through data collection tools other than the HCAHPS survey. Fleischman and Lanciers (2011) implemented QT in the maternal infant services unit by alerting visitors of QT, dimming the lights, and lowering noise in the corridors. Due to QT efforts, the Press Ganey patient satisfaction question, "Noise levels in and around the room," increased from the 55th to the 65th percentile. Unfortunately, Press Ganey questions are informational only and not collected or scored by CMS (Press Ganey Associates, 2017). Davis-Maludy and Davidson (2016) measured the impact of QT in a 24 bed ICU unit by surveying the staff, tracking alarms, tracking decibel levels and gathering patient responses via the Richard's Campbell Sleep Questionnaire. Davis-Maludy and Davidson (2016) reported improvement in patient satisfaction scores and the questionnaire revealed patients thought the unit was quieter. This article did not reveal which survey was used or how much the score increased. The following studies relate QT Projects to HCAHPS scores.

Romine, Yukihiro, Hext, Klein, and Ortiz (2013) implemented QT in the Mother-Baby Unit between 2pm and 4pm. The researchers coordinated with clinical scheduling, mailed notification letters to physicians, educated the staff, created QT posters and posted QT on the
website. As a result, HCAHPS ‘quiet at night’ score increased from 70% in the 4th quarter of 2011 to 78% in the second quarter of 2012. Although the results were positive, it was not conclusive that QT caused the improvement because QT was implemented during the day.

Wilson, Whiteman, Stephens, Swanson-Biearman and LaBarba (2017) implemented QT throughout an acute care hospital that resulted in a slight improvement in the HCAHPS score. Upon admission, patients were surveyed regarding their preference of noise cancelation, such as, using ear plugs or closing the door at night. Decibel levels were tracked and technicians rounded with a nighttime cart stocked with light snacks and noise canceling supplies. Technicians helped with toileting and moving patients, and leadership rounded asking patients questions regarding nighttime noise to identify problem areas. Wilson et al. (2017) found that HCAHPS did not improve initially, September through December, but an increase was sustained, January through April. Although the results were not conclusive that QT improved the HCAHPS score, it showed a realistic view of QT techniques and outcomes. Further review of the literature revealed researchers using various tools, other than HCAHPS, to track patient satisfaction.

Other QT projects used unit surveys and testimonies to determine the effect QT had on patient satisfaction. Case et al. (2013) implemented QT within the Inpatient Medical Cardiology Unit and developed a unit survey to measure the patient's perception of noise. Posters were placed throughout the unit, a sound meter was installed to display noise levels to the staff, and a script was read to the patient to prep for a quiet night. Resultantly, survey scores increased by 15% over 6 months (Case et al., 2013). Bergner (2014) collected testimonies from patients, families, and staff regarding noise in an Adult Neuroscience Step Down Unit. QT was implemented between 2pm and 4pm hours, clinical scheduling was altered around QT, doors were offered to be closed, and lights were dimmed. The result of the study showed there was an
increase in satisfaction (Bergner, 2014). Although the results were positive, testimonies are considered anecdotal evidence and may be the result of personal preferences, depending on how the questions were asked. After a literature review of QTCs implemented at various hospitals, all articles aimed to improve the patient experience through various QT tools and methods. The following sections present which method and tools were chosen for the QTC campaign and the results of the campaign.
CHAPTER THREE

Method

Similar to the hospitals in the literature review, noise levels within the study hospital had a low HCAHPS score regarding the ‘quiet at night’ question, potentially due to the lack of having QT hours. A review of the literature found few studies linking QTCs to HCAHPS scores which inspired the research design of this study.

Case Study: A Southern San Joaquin Valley Hospital

The research design chosen for this study was a case study. A case study is an in-depth empirical investigation of a contemporary phenomenon within real world context (Yin, 2009). The empirical investigation was to implement, observe, measure and track the effect a QTC had on HCAHPS scores within the real-world context of a hospital unit. Because the researcher was operating within a real-world context, a case study was most appropriate for exploring the phenomenon of a QTC. Elements of the Lean Six Sigma Methodology was used to implement the QTC and a qualitative and quantitative approach was taken by documenting observations of sources of noise, measuring noise levels with a decibel meter, and tracking survey scores through the hospital's third-party HCAHPS survey monitoring agency. This case study aimed to derive knowledge from actual experience and to add strength to the limited field of research linking QTCs to HCAHPS.

Sample Frame & Sample

This case study took place in a 226-bed hospital. The medical unit chosen to implement the QTC was the Medical/Surgery/Oncology Unit due to their low scores. Medical/Surgery and Oncology are separated by double doors; however, together the two sections create the circular
setting of the Med/Surg/Onc Unit. Within the unit, there are 20 rooms encompassing a total of 27 beds. The types of patients that are treated in the unit are adults with acute illnesses, recovering from surgery, or with cancer. This sample group was chosen due to accessibility; the researcher worked for the hospital and was given permission by the Chief Operating Officer to implement a QTC. The 2017 QTC case study began February 10th and ended May 1st. The HCAHPS survey scores were reviewed and analyzed from October 2016 through November 2017.

Data Collection

The data collection tools used were observations on sources of noise, a decibel meter, and the third-party HCAHPS survey monitoring agency. Quiet Time, 8pm-7am, was implemented March 1, 2017. Two weeks prior to QT, the researcher observed sources of noise in the unit and used a decibel meter to measure noise levels in the morning and evening, to collect enough data to compare to noise levels after QT started. After the start of QT, most measurements were taken between 8pm-10pm. Decibel readings were taken at 10 locations; 8 locations were throughout the unit and 2 locations were nearby, see Appendix A. The HCAHPS survey scores were continuously being reviewed online by the hospital's third-party monitoring agency, a CMS certified distributor/collector of the HCAHPS survey.

Continuous Quality Improvement

Elements of Lean Six Sigma were used in this case study to guide the quality improvement Quiet Time Campaign. This case study used Lean Six Sigma’s data driven approach to analyze root causes of the noise problem and eliminate defects to improve the patient experience (Taghizadegan, 2006). The hospital organization has used the Lean Six Sigma approach for performance improvement in areas such as, costs, patient satisfaction, and quality.
Lean Six Sigma consists of the quality improvement cycle, Define-Measure-Analyze-Improve-Control (DMAIC) Cycle, see Figure 1.

Figure 1. The Lean Six Sigma DMAIC flow chart highlights the five concepts addressed in quality improvement, Define, Measure, Analyze, Improve, and Control. This cycle has become more popular amongst health care systems assisting in understanding a problem through the use of data and statistical analysis (Lighter, 2013). Adapted from Basics of Healthcare Performance Improvement: A Lean Six Sigma Approach (p. 15-212), by D. E. Lighter, 2013, Burlington, MA: Jones & Bartlett Learning. Copyright 2013 by Jones & Bartlett Learning, LLC, an Ascend Learning Company.

**Define.** This step defines the problem, goals and objectives of the QTC, see Table 1. The low HCAHPS score for ‘quiet at night’ was further discussed by the Patient Experience Committee to specify the goal and objectives of the QTC. The established goal was set to mirror the hospital’s goal for all patient satisfaction and patient experience scores to be within 75th
percentile by the year 2020. CMS determines the percentiles based on the scores of 4,179 hospitals throughout the nation (CMS, 2017).

**Table 1**

*A Quiet Time Campaign: Problem, Goals and Objectives Defined*

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem</td>
<td>Low HCAHPS survey 'quiet at night' score.</td>
</tr>
<tr>
<td>Goal</td>
<td>Increase the Med/Surg/Onc unit's HCAHPS 'quiet at night' score to the 75th percentile by 2020.</td>
</tr>
<tr>
<td>Objective 1</td>
<td>Implement &quot;Quiet Time&quot; from 8pm to 7am on March 1, 2017.</td>
</tr>
<tr>
<td>Objective 2</td>
<td>Maintain an average noise level of 40 decibels by measuring noise levels twice per week and reporting observations to the Patient Experience Committee.</td>
</tr>
<tr>
<td>Objective 3</td>
<td>Meet monthly with the Patient Experience Committee to adjust objectives as necessary.</td>
</tr>
</tbody>
</table>

**Measure.** The measurement tools used were a decibel meter and the HCAHPS survey. Decibel levels were collected and displayed in a run chart, see Figure 2. Twenty-three rounds were conducted on the Med/Surg/Onc Unit between February 10, 2017 and May 1, 2017. The "Quiet Time" hours were implemented and observed starting March 1, 2017. A 'round' consists of measuring decibel levels at 10 different locations in and around the unit. The x-axis reports the number of rounds completed throughout the study. The y-axis reports the average decibel level for each round. Over time, the average decibel level decreased and maintained an average of 48 decibels.
Figure 2. The figure displays the decibel level average for each round conducted.

The HCAHPS survey scores were extracted from the hospital's third-party agency and displayed in a run chart, see Figure 3. The third figure compares the unit’s “always” quiet at night response percentage to the national average response percentage of 63% and the hospital’s 2020 response percentage goal of 69%. The Figure 3 x-axis reports the discharge month, for example, if a patient was discharged in the month of March, regardless of when the patient survey was returned, the survey response would be categorized in the month of March. The y-axis reports the percentage of surveys that responded "always" to the 'quiet at night' question. The white line does not indicate a positive or negative trend, according the Six Sigma methodology, a trend is identified as 6 or 7 increasing or decreasing consecutive points.
Figure 3. The Med/Surg/Onc Unit's monthly “Always” HCAHPS responses.

Analyze. Two weeks prior to the go-live date of QT, the researcher observed sources of loud noise and how often each noise occurred, see Figure 4. After the occurrences had been tallied, the Patient Experience Committee analyzed each source to determine which sources could be fixed before the go-live date of QT on March 1, 2017. The noise source that occurred the most was the opening/closing of the handicap double doors, occurring 7 times. Following, the housekeeping trash cart, nurse station conversation, and the carts rolling over the expansion joints occurred 3 times each. Lastly, the opening/closing of binder clips and the stairwell door occurred 2 times each.
**Figure 4.** The clustered bar graph displays the noise sources observed and number of occurrences before QT began March 1, 2017.

**Improve.** During this phase, the Plan-Do-Study-Act cycle was used for continuous quality improvement of applied changes. The "Plan" identified environmental noises, established quiet hours, created QT signage to post in the unit, and created a Quiet Time Nurse Script. The "Do" implemented the quiet hour March 1st, noise levels were measured, the QT script was provided to nurses, and lights were dimmed at 8pm. The "Study" involved ongoing observations of noise on the unit and continuously reviewing the HCAHPS scores to assess the progress of the QTC and determine areas for improvement. Noise sources were tallied after QT started, see Figure 5. Lastly, the "Act" involved implementing changes as needed based on the findings from the study. The Plan-Do-Study-Act cycle was repeated as necessary to continue reducing noise levels.
Figure 5. The clustered bar graph displays the noise sources observed and number of noise occurrences after QT began. This data was collected to gain insight on causes of noise for continuous quality improvement.

**Control.** Controlling improvements over the course of the study was important in maintaining positive changes, instead of reverting back to old noisy habits. It was important that the unit manager conduct unannounced check-ins on the unit during the quiet time hours. Nurse leaders controlled improvement by reminding nurses, during daily unit huddles, the goal of quiet time and the expectations. Feedback from the nurse leadership staff was welcomed to understand other barriers to quietness that were not observed by the researcher.

**Institutional Review Board Approval**

During the Fall Semester of 2016, the researcher passed the Human Subjects Protection Training Exam which taught the researcher how to protect human subjects during research, if the research involved human subjects. The researcher then took the 'Is My Project Human Subjects Research' assessment provided by the CSUB Institutional Review Board to which it concluded...
the researcher was not engaging in human subject research and was instructed by the assessment that no further documentation or steps were needed to be completed to continue research, see Appendix B.

Limitations

Influences that the researcher could not control during the time of the QTC were: the electronic health record implementation, noise created by patients, and nurse behavior. The electronic health record went live one month after the start of QT, which may have impacted the significance of the QTC to others at that time. The patients were another limitation; the researcher was unable to control noise created by patients, for example, screams from pain or uncontrolled behaviors, which may have influenced the decibel readings from time to time. Nurses may have adjusted their voices and noisy behaviors in the presence of the researcher. Lastly, nurses had behavioral habits that could not be controlled directly by this case study, for example, conversing loudly as if it were daytime, having personal conversations directly outside of patient rooms, and greeting other nurses loudly as they passed through the unit on their way home.
CHAPTER FOUR

Results

Observations on the unit served as the initial qualitative data collection method to explore the noise problem further and understand the barriers to quietness. By understanding what was making noise, barriers to quietness could be addressed and fixed to improve the level of noise. Decibel levels and HCAHPS survey scores were tracked and served as the quantitative data collection method to review the impact of the QTC on the HCAHPS score. A short summary of the results can be viewed in the DMAIC Cycle, see Figure 6.

Figure 6. The Lean Six Sigma DMAIC flow chart highlights the five phases addressed in the QTC implemented in the Med/Surg/Onc unit. Each phase in the cycle indicates what was found or addressed during that phase.
Observations

Prior to the commencement of QT, the researcher rounded on the Med/Surg/Onc unit to measure decibel levels and observe causes of noise. Although the WHO recommends hospitals maintain noise levels between 30 and 40 dBs, the Med/Surg/Onc unit was averaging 63 dB; the equivalent of having a restaurant conversation or being in an office (WHO, 1999). The most frequent causes were: when the handicap fire double doors clanked opened and slammed shut when used by visitors and staff, the housekeeping trashcans and dietary carts rattled loudly while moving, and the fire stairwell door slammed shut after use by staff. All observations were reported to the Patient Experience Committee and the following actions occurred: engineering minimized the door noise by installing a door silencer type mechanism and the cart noise was addressed by managers to the staff managing the carts to proceed slowly through the unit and over the expansion joints.

After the implementation of the QT, barriers to quietness became: Personal Protective Equipment (PPE) cabinets slamming shut, opening and closing binders, overhead paging, the nurse station phone ringing, and nurse station and housekeeping staff conversations. The observations were reported to the Patient Experience Committee and the following resulted: engineering attempted but could not add a door silencer to PPE cabinets because the doors would not shut properly to abide by the fire code; the binders went unfixed because they were to be phased out upon the transition to the electronic health record; overhead paging became restricted to emergencies only; nurses were advised to use work cell phones on vibrate; the nurse station phone ringer was turned to the lowest setting; the nurse and housekeeping staff were debriefed on QT and advised to lower voices and minimize conversations outside of patient rooms.
Decibel Levels

Figure 2 shows a negative trend line over the course of the study, indicating the level of noise decreased, from 63 average decibels to 48 average decibels. The noisiest areas were around rooms located by the double doors that frequently opened and closed by visitors and staff passing through. The researcher found the level of noise reduced sooner over time, specifically, at the start of the QTC; noise on the unit reached low decibel levels at approximately 10:00 p.m. and by the end of the study, decibel levels as low as 41 were reached as early as 8:00 p.m. New low levels of noise were controlled by daily night huddles on the unit, random manager rounds on the unit at night or in the morning, and fixing new causes of noise.

HCAHPS Survey Scores

The QTC did not have a notable impact on the HCAHPS Survey Scores over time, see Figure 3. The run chart displays survey scores from October 2016 – November 2017. Prior to the implementation of QT, the survey decreased through February. After QT began, the survey score increased and capped out at 56% in July 2017. Afterwards, the unit experienced a slow decline in scores, reaching 30% and 40.9%, similar to the scores at the beginning of the case study.

Discussion

The Lean Six Sigma methodology applied, using General Systems Theory, improved the level of noise but did not improve the HCAHPS score over time. The noise observations revealed that the greatest noise contributors were the handicap fire double-doors that gave entrance to the unit, the housekeeping and dietary carts, and the stairwell fire door. With the help of a variety of specialized fields, such as, environmental services, dietary, patient experience, engineering, nursing, and operations, most sources of noise were identified and improved. Two weeks prior to the start date of QT, recorded decibel levels were as high as 65. By the end of the QTC, the
average decibel level was 48, which nears the WHO's best practice recommendation of 40 dB. As the noise levels decreased, the HCAHPS score increased by 3.9% in March. However, as the noise levels continued to decrease through April, the HCAHPS score decreased by 5.2%.

Although the decibel readings stopped May 1st, the repercussions of the QTC were tracked through the most up-to-date month, November 2017. There was a gradual survey score increase from May through July but then scores started to decrease inconsistently from August through November. The data collected suggests that the QTC had no impact on HCAHPS scores because the increase in scores were not sustained over time. General Systems Theory allowed the Patient Experience Committee to understand and discuss noise sources impacting the patient experience and found positive results through the application of Lean Six Sigma.
CHAPTER 5

Summary and Recommendations

The results of this study conclude that a QTC can reduce noise levels close to best practice noise levels of 40 decibels; however, HCAHPS scores may not reflect those best practices. It was during the month of April that the Med/Surg/Onc unit had the lowest noise levels but the HCAHPS score decreased. That meant that more patients thought the area around their room was not always quiet. The following recommendations detail improvements for a QTC and future research.

Quiet Time Campaign Recommendations

**Quiet time monitoring.** A “Quiet Environment Committee” should be created to be the eyes and ears on the units. To promote a quiet environment, committee members can help to drive the quiet campaign amongst the staff by increasing staff awareness and identifying opportunities for improvement. A "Secret Shopper" might benefit the campaign by appointing a random staff member to round on the unit and observe areas for improvement, for example staff noises, noisy equipment, overhead pages, monitors, or doors.

**Patient interaction.** Periodically, the Quiet Environment Committee could recruit a staff member to be a patient for a night. As a "patient" the staff member would be able to experience what the patient experiences at night. Afterwards, the staff member who was the "patient" could report observations to the Quiet Environment Committee to discuss areas for improvement. If leaders are conducting day rounds, leaders should incorporate a rounding question pertaining to the level of noise at night.

**Soft wheels on all new equipment.** If the trash and housekeeping carts do not already have soft wheels, the Quiet Environment Committee should consider the transition. Options for
headphones and earplugs should be made available to patients to reduce exposure to noise. Either patients can be encouraged to bring their own music, or the hospital can provide the option to listen to music, such as a healing or relaxation channel. Music can be used as a process to distract patients from unpleasant sensations and empower the patient with the ability to heal from within. Soothing music and pictures of oceans, forests, lakes, rivers and other natural locations can have a very calming and relaxing effect on patients. Consider the use of a “Yacker Tracker” - a self-monitoring traffic light sound meter. It appears like a traffic sign but it is a decibel tracking device that alerts staff when the noise level gets above 45 decibels.

**Future Research Recommendations**

Future researchers and Hospital Administrators should consider that perhaps the patient's interpretation of "quiet" encompasses more than noise, such as, lights or medically needed interruptions. When patients receive the survey at home and are asked how often the room was quiet at night, they may be comparing their hospital experience to the quietness of their home. Home noise levels can range from living in the city to rural areas. Future research on the patient's interpretation of quiet time should be studied using qualitative methods, such as interviews and testimonies. Because HCAHPS survey scores affect hospital ratings and financial performance, patient interpretations of HCAHPS questions should be studied further to adjust campaign methods or propose revisions of survey questions to CMS in an effort to assess quality more accurately.
References


Keogh, K. (2014) Night time should be a quiet time. *Nursing Standard, 28*(29), 11. doi:10.7748/ns2014.03.28.29.11.s13


### Table A1

Decibel Level Readings

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Institutional Review Board for Human Subjects Research

Date: 25 October 2017

To: Brandie Vigil, Student, Health Care Administration
BJ Moore, Faculty Advisor, Public Administration Program

From: Isabel Sumaya, University Research Ethics Review Coordinator

cc: Nate Olson, Interim IRB Chair

Subject: Master’s Thesis Project M17-18: Not Human Subjects Research

Thank you for bringing your Master’s Thesis Project M17-18, “How Quiet Time Can Improve Your Patient Experience Scores,” to the attention of the IRB/HSR. On the form “Not Human Subjects Research Acknowledgement Form” you indicated the following:

I want to interview, survey, systematically observe, or collect other data from human subjects, for example, students in the educational setting. NO

I want to access data about specific persons that have already been collected by others [such as test scores or demographic information]. Those data can be linked to specific persons [regardless of whether I will link data and persons in my research or reveal anyone’s identities]. NO

Given this, your proposed project will not constitute human subjects research. Therefore, it does not fall within the purview of the CSUB IRB/HSR. Good luck with your project.

If you have any questions, or there are any changes that might bring these activities within the purview of the IRB/HSR, please notify me immediately at (661) 654-2381.

Thank you.

Isabel Sumaya, University Research Ethics Review Coordinator