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Proposal of a Clinical Practice Guideline for a Non-Pharmacologic Music Listening Complementary Pain Therapy

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**Proposal of a Clinical Practice Guideline for a
Non-Pharmacologic Music Listening Complementary Pain Therapy**

by

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Doctor of Nursing Practice Final Scholarly Project

In Partial Fulfillment of the Requirements for the Degree

Doctor of Nursing Practice

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DNP Final Scholarly Project Team:



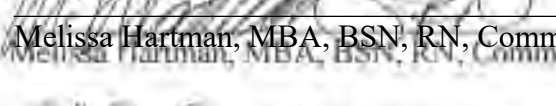
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Executive Summary

Background: As many as 65% of post-surgical patients experience moderate to severe pain. Post-surgical pain is associated with a variety of negative physical and psychological consequences for patients. Currently, medical treatments for postoperative pain rely heavily on pharmaceuticals which can cause adverse side effects. Opioid analgesics, most notably, cause hypoventilation, apnea, and in some cases, dependence and addiction. In 2017, in response to state and national opioid prescription reduction programs, The Joint Commission (TJC) began requiring healthcare institutions to provide patients with non-pharmacologic pain treatment modalities. These pain treatment modalities, also known as complementary therapies, include music listening interventions, which have been shown to safely decrease pain in postoperative patients. The analgesic benefits of music have been measured in numerous controlled trials and meta-analyses.

Problem: The culmination of over 30 stakeholder reports and direct observations by the project team revealed that a midwestern level-1 trauma medical center has been unable to meet TJC's requirement to provide postoperative patients with the required non-pharmacologic pain therapies. This inspired a policy search at the healthcare facility of interest which revealed that no policy currently exists that dictates the provision of non-pharmacologic complementary therapy to patients.

Purpose: The ultimate purpose of this project is to identify, adapt, and recommend an evidence-based clinical practice guideline for a postoperative music listening intervention to meet TJC's requirement for the provision of non-pharmacologic pain treatment modalities at the healthcare facility of interest. Project leaders gathered valuable data and developed recommendations for

the leadership groups which have the authority to mitigate, monitor, and sustain non-pharmacological modalities such as music listening at the healthcare facility of interest.

Methods: The following objectives and methods are framed using the Plan-Do-Check-Act (PDCA) cycle, also known as the Deming cycle. 1) The project team has reviewed and synthesized evidence from the literature, hospital policy, and TJC accreditation requirements for hospitals to aid in the identification of a guideline for non-pharmacologic complementary pain therapy for patients. The planning phase also included a SWOT analysis discussion with stakeholders and personnel directly caring for patients in the PACU. 2) Members of the project team identified and modified an evidence-based clinical practice guideline from current literature incorporating feedback from the SWOT analysis for future proposal to the healthcare facility of interest. 3) The project team then collaborated with and incorporated feedback on proposed clinical practice guideline from preoperative and PACU leadership, nurses, and other stakeholders involved in the care of postoperative patients. 4) Lastly, the project team presented project findings and the modified evidence-based guideline recommendations to key stakeholders.

Implications: This scholarly project can serve as a beginning point towards improving post-surgical patient pain and the medical center's compliance with TJC requirement for healthcare facilities to provide non-pharmacologic pain treatment modalities by recommending an evidence-based clinical practice guideline for a music listening intervention in the PACU. This project is significant because it can assist the healthcare facility of interest in complying with TJC requirements. The findings of the scholarly project can also assist other departments within the healthcare system in implementing non-pharmacological pain therapy, specifically music listening interventions.

Proposal of a Clinical Practice Guideline for a Non-Pharmacologic Music Listening Complementary Pain Therapy

Introduction

Background

Moderate to severe postoperative pain is reported by 40-65% of surgical patients and is associated with numerous sequela (Kühlmann et al., 2018). Postoperative pain leads to impaired sleep, hypoventilation, metabolic derangement, and delayed patient recovery (Lin et al., 2020). Pain can also have a negative impact on postoperative patient indicators, including increased hospital readmissions and decreased patient satisfaction scores (Beaussier et al., 2016).

Despite improved surgical techniques, multimodal pain therapies, and increased utilization of opioid analgesics for pain control starting in the 1990s, postoperative patients continue to experience significant pain (Lin et al., 2020; *What is the U.S. Opioid Epidemic?*, 2019). Opioid medications are current medicine's most powerful analgesics (Nagelhout & Elisha, 2018). Unfortunately, these medications are associated with many adverse side effects, including nausea, vomiting, sedation, hypoventilation, apnea, and dependence (Nagelhout & Elisha, 2018).

As healthcare providers and government agencies push to limit the use of opioid analgesics due to the risk of dependence, the use of non-opioid analgesic medications is making a resurgence in the care of postoperative patients (Kasarla, 2017). Fortunately, non-opioid analgesics have been shown to provide pain relief and are not associated with physical dependence (Kasarla, 2017). Non-opioid analgesics include non-steroidal anti-inflammatory drugs (NSAIDs), acetaminophen, aspirin, cyclooxygenase-2 inhibitors, and magnesium (Nagelhout & Elisha, 2018). While far less commonly abused than opioid analgesics, these

medications are also associated with side effects, including delayed bone healing, liver dysfunction, bleeding, blood clots, and muscle weakness (Nagelhout & Elisha, 2018).

With the high rate of patients experiencing postoperative pain and limitations to current pharmacologic pain management, non-pharmacologic interventions need to be utilized. In 2017, The Joint Commission (TJC), a national healthcare credentialing organization, released their pain management requirements. The requirements include the use of nonpharmacologic pain treatment modalities, also known as complementary pain therapies (The Joint Commission, 2017).

An identified complementary therapy for postoperative pain management is music listening interventions. Music interventions have been utilized as analgesic adjuncts by cultures worldwide for hundreds of years, and Florence Nightingale even employed music's calming effects in the care of her patients (Schneider, 2016). Today, the American Music Therapy Association (AMTA) is the foremost leader in advancing music in the medical setting and establishing standards of treatment (American Music Therapy Association [AMTA], n.d.-a).

There is evidence from systematic review and meta-analysis with low risk of bias in the current research literature that non-pharmacologic complementary therapies, specifically music listening, are beneficial in today's nursing practice and may improve patient outcomes. One of the most persuasive and largest pieces of evidence supporting the use of music listening for reducing patient-reported pain scores was established by Martin-Saavedra et al. (2018). This comprehensive review incorporated findings from six meta-analyses. It concluded the benefit of music for reducing postoperative pain, combined with the excellent safety profile of the intervention, made music a clinically effective therapy for treating patient pain (Martin-Saavedra et al., 2018). While some studies do not find a statistically significant decrease in pain following

music listening interventions, the overall body of evidence supports the use of music as a safe and potentially beneficial intervention for reducing pain scores.

The inclusion of complementary pain therapy has proven benefits for patients and may also benefit nurses. Hall et al. (2017) found nurses who were able to employ complementary therapies in the care of their patients reported higher job satisfaction. Many of the nurses surveyed also reported organizational, cultural, and time barriers which limited their use of complementary therapies (Hall et al., 2017). Additionally, the study found nurses desired more education on complementary therapies to improve their practice (Hall et al., 2017).

Problem

Substantial evidence from the literature supports non-pharmacological complementary therapies such as music listening in helping patients control pain. TJC's 2017 Pain Assessment and Management Standards for Hospitals requires that accredited healthcare facilities provide non-pharmacologic pain treatment modalities to patients (The Joint Commission, 2017). Despite this accreditation requirement, recent stakeholder reports and direct observations by the project team revealed that a midwestern level-1 trauma medical center has difficulty meeting TJC's requirement to provide postoperative patients with non-pharmacologic complementary pain therapies. Additionally, there have been several posters promoting nursing knowledge on complementary therapy services available in the hospital. When asked, nurses caring for patients in the perioperative area could not verbalize any knowledge of such complementary services or how to access complementary services.

While a current complementary therapy policy exists at the healthcare facility of interest, it does not align with the requirement of TJC. The current policy, "Complementary Therapies" (2018) defines complementary health approaches, physician ordering requirements, minimum

credentialing requirements, and identifies the need for patient consent. The policy's statement of purpose claims to provide guidelines for using complementary health approaches. However, the policy is vague and lacks specific steps needed to implement complementary therapies in the clinical setting. Additionally, no policies were found specifically related to the provision of non-pharmacologic pain treatment modalities.

Project Purpose

The ultimate purpose of this project is to identify, adapt, and recommend a music listening clinical practice guideline to align with TJC requirement for the provision of non-pharmacologic pain management at the healthcare facility of interest. Project leaders gathered valuable data and developed recommendations for the leadership groups which have the authority to mitigate, monitor, and sustain non-pharmacologic modalities such as music listening at the healthcare facility of interest.

Review of the Literature

PICO Question and Search Terms

A PICO question directed this project's literature search. PICO questions help to guide projects by providing a framework for a literature search to answer a specific question related to a problem (Melnyk & Fineout-Overholt, 2019). The four components of the PICO question include population (P), intervention (I), comparison (C), and outcome (O) of interest.

For this project, the population of interest is adult postoperative patients in the PACU. The intervention of interest is a non-pharmacologic complementary therapeutic music listening clinical practice guideline. The comparison is to current practice standards for complementary therapies. The rate of non-pharmacologic pain therapy utilization is the outcome of interest. The PICO question is as follows: [P] In adult PACU patients, how does the [I] recommendation of

music listening clinical practice guidelines for pain [C] compared to current practice [O] impact the utilization of non-pharmacologic complementary pain therapy in the PACU?

Literature Search Strategy

A literature search was performed using key search terms derived from the previously described problem-focused PICO question. Several databases are included in the literature search. The searched databases included Cochrane, CINAHL (EBSCO), Medline, PubMed, and ProQuest. The PICO-derived keywords used in this literature search included search terms for each PICO element. For the patient population and clinical problem [P], the following search terms were used: post-operative, postoperative, post-surgical, post-anesthesia, post-anesthesia care, PACU, recovery room, recovery, acute pain, pain management, and opioid medications, use. To investigate the intervention [I], search terms included non-pharmacologic therapy, complementary therapy, alternative medicine, music, music therapy, music medicine, music intervention, music protocol, and clinical practice guidelines were used. The outcome [O] search terms included: pain, pain management, pain reduction, pain relief, and pain control. Boolean operators “and” or “or” were used with the keywords to explore the relevant journal articles and narrow down the search. This search yielded numerous randomized controlled trials, meta-analyses, and systematic reviews on complementary pain therapies. The inclusion criteria included full-text articles, peer-reviewed articles, articles written in the English language and published within six years. A brief review of studies identified as contributing to the field of knowledge with a high level of evidence regarding non-pharmacologic complementary music listening interventions is provided.

Music listening interventions were identified as optimal non-pharmacological pain intervention for use in the PACU because of a proven level of safety, little need for human

resources or capital expenditure, and a high likelihood of intervention sustainability following project conclusion. A literature summary table (Appendix A) describes articles selected for review based on inclusion criteria and similarities with key search terms. Additionally, synthesis and summary of the studies with the highest level of evidence follows below.

Synthesis of the Literature

Music Listening for Postoperative Pain

A systematic review and meta-analysis conducted by Hole et al. (2015) found perioperative music is a beneficial intervention which significantly reduces pain, analgesic use, and anxiety while increasing patient satisfaction. The authors measured pain using the visual analog scale and pain was reduced by 23mm on a 100mm scale (Hole et al., 2015). Patient anxiety was also reduced by 6.4 points on a 60-point scale (Hole et al., 2015). This study incorporated quantitative data from 72 randomized controlled trials (RCT), which included a total of 6,920 patients (Hole et al., 2015). No adverse side effects were reported for the music intervention; however, the authors did suggest the potential for music interventions to interfere with patient communication (Hole et al., 2015). According to Melnyk and Fineout-Overholt (2019), this meta-analysis by Hole et al. (2015) provides the highest level, level I, evidence to support music listening interventions for pain treatment. Along with the impact a level I study may have on a body of evidence, this study also incorporates a large number of RCTs, a large sample size, no reported biases or conflicts of interest, and a statistically significant decrease in pain scores.

Kühlmann et al. (2018) conducted a meta-analysis that provides additional supporting data for the use of music interventions in the perioperative area to address patient pain and anxiety. This meta-analysis assessed the results of 55 randomized controlled trials which

evaluated the effects of a music listening intervention on anxiety and 46 trials that evaluated the effects of a music listening intervention on pain (Kühlmann et al., 2018). Of the studies that evaluated pain, 64% utilized one music listening intervention to reduce pain, but a greater decrease in pain scores was noted when researchers enabled multiple music interventions (Kühlmann et al., 2018). This study also found postoperative music listening was most impactful for reducing reported pain scores, but preoperative music reduced both anxiety and postoperative pain (Kühlmann et al., 2018). Lastly, the researchers found pain mitigating effects of music interventions were not related to a single type or genre of music (Kühlmann et al., 2018). The study by Kühlmann et al. (2018) supports the use of music listening interventions for pain reduction in the postoperative period. Through meta-analysis of 46 RCTs, this study also meets the Melnyk and Fineout-Overholt (2019) requirements for a level I study. The authors report no conflicts of interest and report the funders of the study had no role in study design, execution, or outcomes. One potential weakness of this study is the authors report significant heterogeneity amongst the included RCTs due to varying anesthesia practices and surgical types (Kühlmann et al., 2018). A more homogenous group of RCTs may allow for a better understanding of the impact of a specific music intervention for a particular post-surgical patient population.

Another sizeable systematic review and meta-analysis was conducted by Lee (2016), which included RCTs on both music medicine and music therapy. Music medicine occurs when a clinician plays pre-recorded music, while music therapy requires a trained music therapist to guide the patient through a therapeutic process (Lee, 2016). This systematic review included 87 randomized controlled trials focused on music medicine and 10 controlled trials that focused on music therapy with a total of 9,184 participants (Lee, 2016). Fifty-five of the included music medicine studies allowed patients to choose music from pre-recorded lists of music, 22 of studies

exposed patients to researcher-selected music, and 10 studies utilized patient chosen music (Lee, 2016). Both music therapy and music medicine were shown to reduce patient pain scores, and almost all studies included only one music listening session (Lee, 2016). Music therapy reduced patient-reported pain scores by a standardized mean difference of 1.5, while music medicine decreased patient pain scores by a standardized mean difference of 1.08 (Lee, 2016). The researchers also found music interventions reduced patient's emotional distress from pain by 10.83 on a 100-point scale and reported a small decrease in opioid and non-opioid analgesic use following medical procedures with concurrent music interventions (Lee, 2016).

Lee (2016) also provides level I evidence for the use of music listening to treat postoperative patient pain (Melnyk & Fineout-Overholt, 2019). While the study by Lee (2016) strongly supports music interventions for pain, it is slightly weakened due to heterogeneity. Amongst the included trials was significant variation with regard to the duration of the interventions lasting anywhere from one to 180 minutes with a mean of 37.8 minutes and mode of 30 minutes, and all but three studies included only one music session. Lee (2016) assessed bias using a funnel plot and did not find evidence of bias. This systematic review and meta-analysis helps support the use of a single postoperative music listening intervention to reduce patient pain, emotional distress, and analgesic medication requirements (Lee, 2016).

Lin et al. (2020) conducted a meta-analysis and systematic review of the impact of music medicine and music therapy, specifically on postoperative orthopedic patient pain scores. Nine randomized controlled trials with a total of 534 participants were included (Lin et al., 2020). The results support the findings that music therapy and music medicine interventions as short as twenty minutes can effectively reduce postoperative orthopedic patient pain scores (Lin et al., 2020). Pain scores were decreased by a standardized mean difference of -.41 for music medicine

and $-.31$ for music therapy (Lin et al., 2020). Interestingly, the authors noted a greater decrease in pain scores when the patients selected their own music, with a SMD of $-.56$ for the music medicine group (Lin et al., 2020). The authors of this study concluded music is a safe, inexpensive, and effective intervention to help reduce postoperative orthopedic patient pain (Lin et al., 2020).

While this study meets the requirements for level I evidence, this study is not quite as strong as the previously mentioned meta-analyses due to the limited number of included RCTs and participants. All included RCTs in Lin et al. (2020) evaluated and met the Melnyk and Fineout-Overholt (2019) level II evidence for a well-designed RCT (Lin et al., 2020). Lin et al. (2020) do not report any conflicts of interest and disclose that no funds were provided by commercial, public, or non-profit entities. While less impactful than previously described evidence, this meta-analysis still makes a significant contribution to the body of knowledge regarding the use of music listening interventions to reduce patient-reported pain scores.

A 2018 umbrella study was conducted by Martin-Saavedra and colleagues to analyze and assess the level of evidence found in systematic reviews and meta-analyses focused on the use of music in pain management. This study evaluated six meta-analyses and seven systematic reviews (Martin-Saavedra et al., 2018). Five of the six meta-analyses performed found a significant decrease in pain for patients who were exposed to a music listening intervention. Martin-Saavedra et al. (2018) conducted subgroup analyses and found no difference in pain reduction when music was selected by the patient or selected by the researcher. Based on review of the included studies, Martin-Saavedra et al. (2018) concluded that the benefit of music on patient pain was strong enough, and the safety sufficient, to consider music as a clinically significant acute pain intervention. While the researchers support the use of a music intervention, they also

state that incomplete reporting of music protocols is limiting study reproducibility and may be impeding broader acceptance and application of music interventions (Martin-Saavedra et al., 2018).

While the authors of this umbrella study found music to be beneficial, they do report some weaknesses in the RCTs, including an inadequate description of musical characteristics such as tempo, mode, and consonance (Martin-Saavedra et al., 2018). The lack of reporting musical differences makes study replication difficult. The authors also mention the complexities of the pain response, limiting the reproducibility of study results (Martin-Saavedra et al., 2018). The authors report no funding, conflicts of interest, or bias influence on the study. An umbrella study makes for powerful level I evidence supporting music listening to decrease patient pain. Additionally, Martin-Saavedra et al. (2018) note the study has some limitations, including the fact that the work is an umbrella review which is a newer approach to analyzing literature.

The five studies reviewed above provide robust support for the use of music intervention as a complementary postoperative pain management tool. While many individual randomized controlled trials exist, many are included in the above meta-analyses and systematic reviews. Music listening interventions have the potential to provide patients with safe, cost-effective, individualized, nurse-driven protocols that are shown to reduce patient pain.

Scaffolding the Project

Quality Improvement Model

Plan-Do-Check-Act (PDCA) Cycle

The Plan-Do-Check-Act (PDCA) model, also known as the Deming Cycle, has been used as the framework for this quality improvement project (Agency for Healthcare Research and Quality [AHRQ], n.d.). The PDCA cycle allows for continuous process improvement, problem-

solving, and the implementation of change through four distinct steps for healthcare quality improvement. The PDCA cycle was chosen as the framework of this project due to its ease of use, systematic approach, and the ability for cyclical refinement of interventions. By combining the four steps of the PDCA cycle with external evidence that supports the practice change, an effective intervention has been developed to meet TJC requirements and provide non-pharmacologic pain therapy (Melnik & Fineout-Overholt, 2019).

PDCA Cycle: Plan

The first step in the PDCA model (Plan) involves the identification of a problem and collection of information to ultimately identify the root cause of the issue (Agency for Healthcare Research and Quality [AHRQ], n.d.). The initial inquiry from a culmination of recent stakeholder reports and direct observations by the project team revealed that a midwestern level-1 trauma medical center is often unable to meet TJC's requirement to provide non-pharmacologic complementary pain therapies in the post-anesthesia care unit (PACU). Additionally, the project team observed several posters, which promote complementary therapy services throughout the hospital. However, when asked, department nurses could not verbalize knowledge of such complementary services or related policies within their workspaces, which would meet TJC non-pharmacologic requirements. This lack of service is rooted in the absence of a guideline or policy for the provision of non-pharmacologic pain therapy.

To further investigate the identified problem, an in-depth literature search was completed. This literature search identified an opportunity to address the lack of policy with the identification of a music listening clinical practice guideline. A SWOT analysis was conducted to gather further data on the current state of non-pharmacologic pain therapies at the healthcare

facility of interest. The SWOT analysis was used to gather information from key stakeholders and utilized to adapt the clinical practice guideline.

PDCA Cycle: Do

The second step of the PDCA cycle, “Do” focuses on developing a solution (Agency for Healthcare Research and Quality [AHRQ], n.d.). The project leaders identified and adapted an evidence-based clinical practice guideline for non-pharmacologic pain therapy for this project. This clinical practice guideline incorporated stakeholder feedback from the first SWOT analysis meeting.

PDCA Cycle: Check

The next step of the PDCA cycle, “Check” involves gathering information on the proposed solution (Agency for Healthcare Research and Quality [AHRQ], n.d.). For this project, the clinical practice guideline was reviewed with key stakeholders for additional feedback on feasibility and sustainability at the healthcare facility of interest. Feedback from this meeting was incorporated into the modified clinical practice guidelines to provide non-pharmacologic pain therapy that meets the specific needs of the PACU staff and patient population.

PDCA Cycle: Act

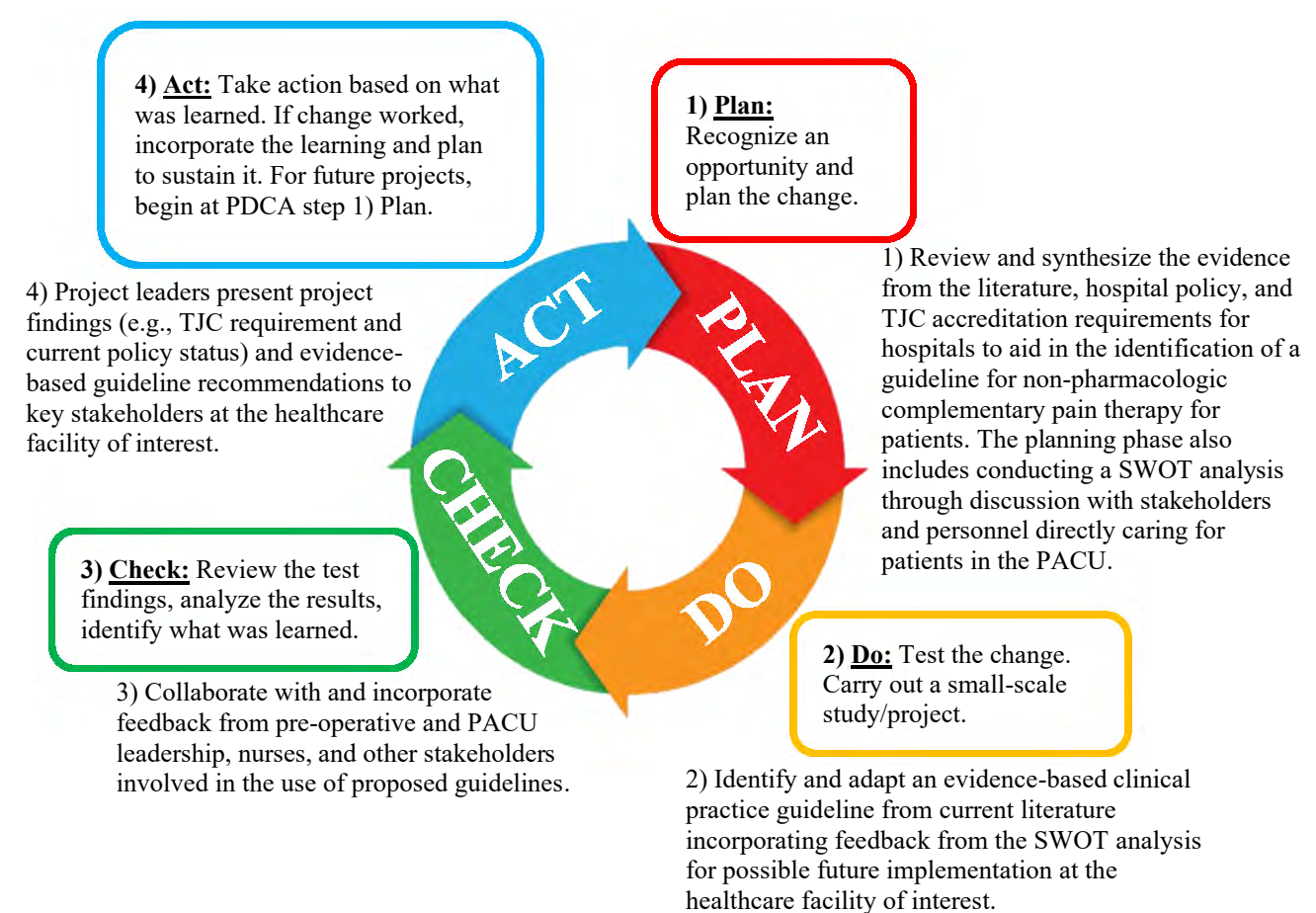
The final step of the PDCA cycle, “Act” involves making recommendations for the future (Agency for Healthcare Research and Quality [AHRQ], n.d.). Project leaders developed recommendations and a modified clinical practice guideline for the healthcare facility of interest. Presentation of recommendations and the modified clinical practice guideline will represent one cycle of the PDCA model. Due to the cyclical nature of the PDCA model, this project has the potential for future QI projects to make modifications for ongoing improvement and adaptation to other areas of the hospital (Agency for Healthcare Research and Quality [AHRQ], n.d.).

Project Objectives

The following objectives and methods are framed using the PDCA QI model and have been established to achieve the project’s overall aim of providing a clinical practice guideline for a non-pharmacologic music listening intervention and are shown in Figure 1:

Figure 1

Plan-Do-Check-Act Quality Improvement Framework with Project Objectives



Methods

Project Design

The purpose of this project is to propose a music listening clinical practice guideline to assist the healthcare facility of interest in meeting TJC requirements for non-pharmacologic complementary pain management. Quality improvement (QI) is a systematic, formal approach to the analysis of practice performance as well as efforts to improve performance (American Academy of Family Physicians, 2017). This QI DNP project has been carried out using the PDCA model outlined above, which directs the methods to follow. When conducting QI projects, PDCA is often utilized by healthcare systems to evaluate processes and improve outcomes for specific patient populations (Melnik & Fineout-Overholt, 2019). This methods section includes planning through the acting phases of the PDCA model culminating in the presentation and recommendation of a modified clinical practice guideline. This proposal section contains descriptions of the following items: clinical setting and population of interest, project plans, procedures, barriers, stakeholders, as well as a project timeline and budget.

Clinical Setting and Population of Interest

The setting for this project is a large, urban, 434 bed level-1 trauma medical center located in the Midwest that also houses an outpatient orthopedic surgery center, each of which performs thousands of surgeries annually. There is significant evidence that pain is a problem for postoperative patients (Hole et al., 2015; Kühlmann et al., 2018; Lee, 2016; Lin et al., 2020; Martin-Saavedra et al., 2018). Thus, the target population of interest for this project centers on adult post-operative patients in the postoperative care unit (PACU).

Project Plan

The overall aim of this project is to propose a non-pharmacologic music listening clinical practice guideline within the PACU setting and make recommendations to the leadership groups at the healthcare facility of interest. This DNP QI project investigates the current state of complementary therapies within the literature, within the healthcare facility of interest, and the policy database of the healthcare facility. Meetings occurred weekly among the three project team leaders to discuss project progress and updates. Being a team project, the open line of communication facilitated by these meetings allowed for continuity of a shared vision, common goals, and shared knowledge, which ultimately creates an environment for a successful partnership (Moran et al., 2020).

This project proposal was reviewed by the Nursing Evidence-Based Practice Review Committee (NEBPRC) and the University Institutional Review Board (IRB) to facilitate the protection of the human subjects involved throughout the project. Following bi-organizational approval, the project team conducted SWOT analyses to gather information on the current and ideal state of non-pharmacologic pain therapies. Findings during SWOT analyses conducted with stakeholders facilitated discussions in an attempt to identify any additional barriers/needs/lessons learned that may help to explain contributing reasons for the previously reported and observed lack of compliance with TJC accreditation requirements. Based on findings from SWOT analyses, literature review, and identification of a clinical practice guideline, a facility-specific clinical practice guideline was proposed. This proposed clinical practice guideline was then checked and refined with key stakeholder input through SWOT analysis. Lastly, the presentation of findings by the project team provided a modified clinical practice guideline and recommendations for non-pharmacologic pain therapy.

Procedures

PDCA Cycle: Plan

Following the PDCA QI model, the project team initiated the first step “Plan” due to stakeholder reports regarding a lack of provision of non-pharmacologic complementary pain therapies. This spurred an investigation into the healthcare facility's policy database for non-pharmacologic pain management. This search revealed only one policy regarding complementary therapies, and this policy was found to be inadequate in meeting TJC requirements for the provision of non-pharmacologic pain management. Further investigation into the identified problem and a literature review revealed music listening proved to be a well-researched complementary therapy that is a non-invasive, safe, cost-effective intervention that is easy to deliver and can be nurse-driven (Hole et al., 2015). Based on the discrepancy between TJC requirement and ineffective current hospital policy, the opportunity for the integration of a clinical practice guideline for music listening intervention is apparent.

Strengths, Weaknesses, Opportunities, and Threats Analysis (SWOT).

A SWOT analysis briefing format (Appendix B) was used during individual stakeholder meetings to help the project team understand the status of non-pharmacologic therapy. A SWOT analysis is a process of identifying a company's Strengths, Weaknesses, Opportunities, and Threats (Moran et al., 2020). The strength (S) components focused on the benefits of the TJC requirements for the project site to provide non-pharmacologic complementary therapies like music listening to patients in helping them to manage their pain. Additionally, a brief discussion of the evidence from the literature was provided as part of the (S) in the SWOT brief to further highlight the benefits of non-pharmacologic complementary therapies. The weakness (W) component also investigates the current identified barriers, which were obtained through interactive discussions during SWOT meetings and discussions with leadership and stakeholders.

Identified barriers obtained from several meetings with stakeholders were also added to the (W) section of the SWOT, which was used as part of the final presentation with stakeholders. The opportunity (O) component further explores the desired state. This helps address identified barriers and recommend ways to overcome barriers/weaknesses to improve TJC compliance. The threat (T) component addresses implications and vulnerabilities to current hospital policy compliance and clinical practice. The SWOT analysis helps develop a full awareness of all the factors involved and described within this project proposal surrounding the hospital's lack of compliance with the established requirement from TJC.

Four SWOT analyses were conducted with the various stakeholders. The SWOT analysis contributors were approached in the clinical environment and assessed for willingness to participate in a brief meeting. Meetings lasted approximately fifteen minutes. Communication amongst project team leaders ensured that the participants were not approached more than once and that all identified key stakeholders were met with. Keywords from conversations with stakeholders were recorded by the project leaders and by meeting participants in the corresponding color-coded quadrant of Appendix B. Only the clinical role of the participants was collected. De-identified information from SWOT analysis was recorded on Appendix B handouts, transcribed onto, and maintained on a password-protected digital device held by team leaders.

PDCA Cycle: Do

The second step of the PDCA cycle, "Do", consists of developing and implementing a solution (Agency for Healthcare Research and Quality [AHRQ], n.d.). For this project, team leaders identified an appropriate clinical practice guideline for a complementary pain management music listening intervention. This identified clinical practice guideline was then

modified to incorporate feedback from SWOT analyses to ensure maximum feasibility at the healthcare facility of interest.

Clinical Practice Guidelines (CPGs).

Clinical practice guidelines are developed from thorough systematic reviews of current evidence-based literature and are used to help assist practitioners in decision-making in the care of patients (NIH, n.d.). Clinical practice guidelines offer guidance to clinicians but are not a strict protocol (NIH, n.d.). Adopting a clinical practice guideline tailored to the needs of the healthcare facility will help close the gap between TJC requirement for non-pharmacologic pain management and current practice. Adoption and modification of an up-to-date, high-quality clinical practice guideline has been shown to be best practice when compared to creating entirely unique guidelines (McCaul et al., 2019).

PDCA Cycle: Check

The modified clinical practice guideline was reviewed with key stakeholders via a subsequent second set of SWOT analyses. The purpose of conducting a second SWOT analysis was to obtain additional feedback to optimize feasibility and sustainability of the proposed clinical practice guideline at the healthcare facility of interest. The second round of SWOT analyses followed the previously described methods but asked stakeholders for feedback on the proposed clinical practice guideline. Any feedback received was incorporated into a final, facility-specific music listening guideline when applicable.

PDCA Cycle: Act

The last phase of the PDCA cycle involves the presentation of findings and recommendations. The project team finalized and delivered a presentation of findings and recommendations as a method of dissemination to all stakeholders. The presentation was also

distributed to perioperative quality improvement department leaders, as well as nursing leadership within the Nurse Anesthesia Program. Project leaders presented outcomes from the two-phase SWOT analyses and recommended a facility-specific music listening guideline.

Key Personnel and Stakeholders.

Key personnel for this project included the preoperative and PACU nursing staff, managers, perioperative nurse educators, quality improvement leaders, and the project team's committee members. The project's committee chair served as the project's Principal Investigator (PI) and guided the DNP student Associate Investigators (AIs) throughout the project. Stakeholders are those individuals or groups who will play a role in the music listening intervention.

This project has the potential to positively impact stakeholders at the project site, including perioperative staff, anesthesia providers, PACU nurses, and most importantly, patients. Patients may benefit from decreased postoperative pain secondary to the intervention as an adjunct to the standard care in the PACU. Consequently, after being introduced to the music listening guideline developed by this project, nurses may use it as a simple intervention to minimize their patient's pain in the future.

Outcome Analysis Plan

Instruments, Data Collection, Data Analysis, and Storage

Outcomes from SWOT analysis meetings were recorded using the document found in Appendix B. Keywords and themes have been assessed for frequency and are displayed on a bar graph. Findings related to observed/identified barriers, lessons learned, and needs resulting from SWOT analysis discussions were incorporated into the modified music listening guideline and the project findings presentation.

Personal identifiers and personal information were not recorded or included while gathering information. Confidential health information such as names or unique patient/staff identifiers was not requested, collected, or stored. All collected information was fully de-identified prior to storage into a password-protected device, and all physical data was locked in file drawers. Only de-identified aggregate data was shared outside of the healthcare facility of interest with the University Nursing Department faculty and students as part of the dissemination of the project presentation (in partial fulfillment of the requirements for the degree).

Descriptive statistics were used to analyze and summarize data from SWOT analyses. Descriptive statistics allow the project team to examine and provide basic summary information about stakeholder perceptions of current and proposed complementary pain practices. These findings helped the project team evaluate stakeholders' various opinions and incorporate them into the final music intervention guideline.

Results

After multiple coordination attempts with the nursing staff at the outpatient and inpatient surgical centers, SWOT meetings were finally held in November 2021. Prior to successfully scheduling these meetings, the project team identified a robust music listening clinical practice guideline. Ultimately, nurse managers responded to the project team with opportunities for the project team to meet during pre-scheduled unit meetings. Due to the challenges of scheduling individual meetings, the early identification of a CPG, and an opportunity to increase perioperative staff participation, the project team decided to streamline the SWOT meetings.

Two rounds of SWOT analysis were conducted during one scheduled meeting at each respective inpatient and outpatient facility. The first half of meetings focused on SWOT analysis of the current state of complementary therapies and was integral in the “Plan” phase of the

PDCA cycle. Next, the identified music listening CPG was presented. Identifying this CPG within the literature represents the “Do” phase. The “Check” phase occurred when the CPG was assessed through a subsequent round of SWOT analyses.

SWOT Analysis: Outpatient Surgical Center

The SWOT analysis meeting for the outpatient surgical center was held on November 11th, 2021. This meeting consisted of the project leaders, the pre-op and PACU nursing manager, and five perioperative nurses. The meeting lasted approximately forty minutes and was integral in the “Plan” phase of the PDCA cycle.

Part I

The project team started the meeting with a discussion of the current state of complementary pain management at the healthcare facility of interest and project goals. A brief review of the evidence supporting the use of complementary pain therapies, specifically music listening, was presented to those in attendance. A description of the methods and goals of SWOT analysis was provided. Participants in the meeting received physical copies of the current policy, TJC Pain Assessment and Management Standards for Hospitals R3 Report, and the SWOT analysis grid found in Appendix B.

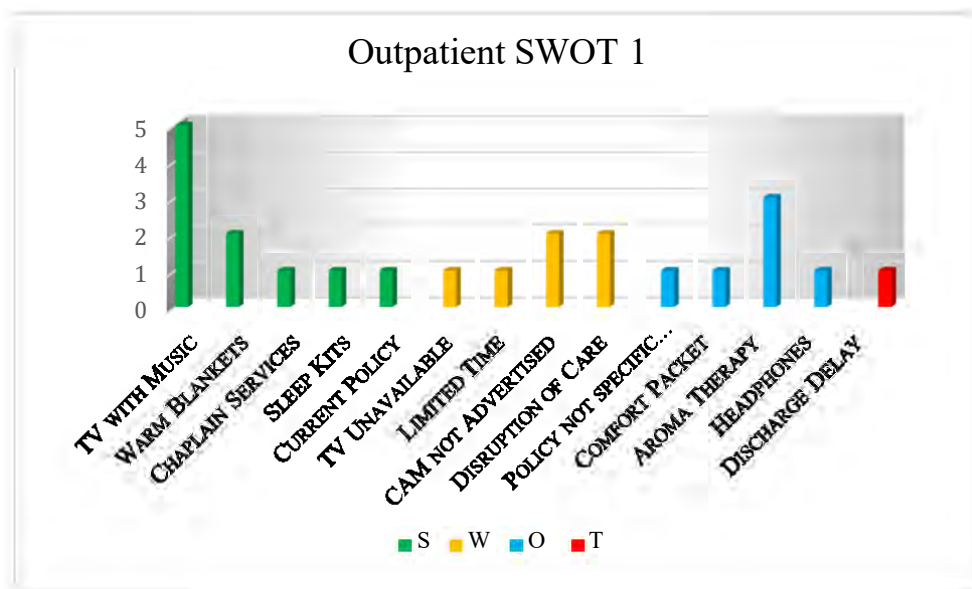
Participant Findings: Part I.

Meeting participants were asked to provide feedback on their perception of strengths, weaknesses, opportunities, and threats of the current state of complementary therapy. An open and lively conversation ensued regarding experiences with attempts to implement complementary therapies. Each participant recorded their thoughts in the corresponding quadrants of Appendix B. Additionally, project team leaders recorded general themes and observations from the dialogue.

A review of the completed Appendix B forms by the project team noted some consistent responses among the nursing staff. Five of the attendees described having access to televisions in the PACU with hospital-provided music channels as a key strength to current practice. Conversely, one of the participants noted the inconsistent availability of these music channels as a weakness. Additionally, nurses noted weakness in providing complementary pain therapies due to insufficient time and resources. Several participants felt there was an opportunity to use aromatherapy as a pain adjunct. Informational packets were also noted as an opportunity to help educate patients about available pain therapies. The only recorded threat to the current program was slower patient discharge times. Despite providing copies of TJC Pain Assessment and Management Standards for Hospitals R3 Report, this was not listed as a threat by anyone in attendance.

Figure 2

Outpatient SWOT 1 Results



Part II

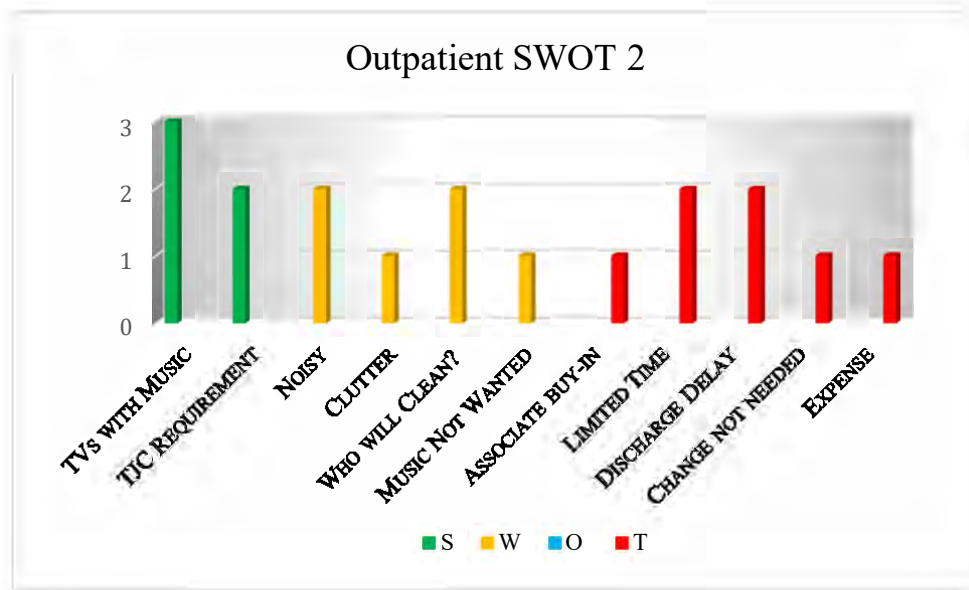
Following the presentation of the identified music listening CPG, the nurse manager and staff were asked to complete another SWOT analysis. Key stakeholders engaged in a conversation about the CPG with the project team. This conversation highlighted both positive and negative experiences with complementary therapies and the proposed CPG. Participants were given a second SWOT analysis briefing form (Appendix B) to record their thoughts. Much of the conversation was based on experiences and concerns about the usability and sustainability of the proposed CPG.

Participant Findings: Part II.

The most common strengths noted by key stakeholders include access to music listening through televisions located in the outpatient PACU bays. This was indicated by three stakeholders as it may help with the implementation of the proposed CPG. Weaknesses described by stakeholders were focused on disturbances to the perioperative area from noise and cleaning requirements for music listening equipment. No opportunities were noted by the stakeholders when assessing the CPG. Lastly, the nursing team commonly listed threats as the time requirement of the music listening intervention, discharge delays, and associate buy-in.

Figure 3

Outpatient SWOT 2 Results



SWOT Analysis: Inpatient Surgical Center

The inpatient SWOT analysis meeting was held on November 17th, 2021. This meeting consisted of the project leaders, the pre-op and PACU nursing manager, and twelve perioperative nurses. The meeting lasted approximately forty-five minutes.

Part I

Following the same format as the outpatient SWOT meeting, conducted one week prior, the meeting began with a description of the current state of complementary pain therapies and project goals. A brief review of evidence and music listening interventions was presented. Next, SWOT analysis was described. The current policy, TJC Pain Assessment and Management Standards for Hospitals R3 Report, and the SWOT analysis grid found in Appendix B were distributed to those in attendance.

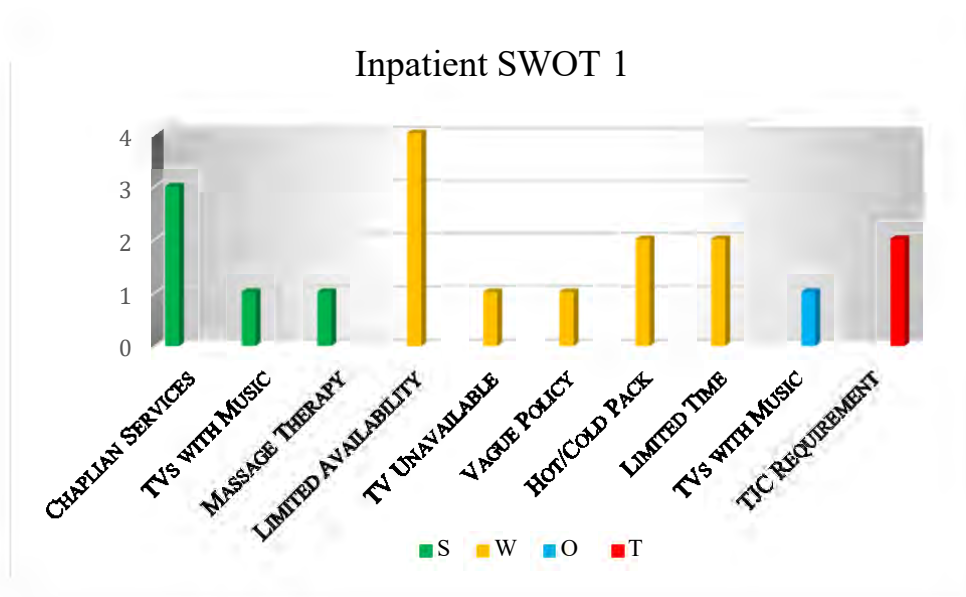
Participant Findings: Part I.

Similar to the outpatient SWOT meeting, this inpatient meeting quickly turned into an open dialogue. Strengths of the current state of complementary therapy in the inpatient setting included the availability of the chaplain and massage therapists. While these were noted as a

strength, limited availability of these resources was noted as a weakness. Additionally, listed weaknesses also included the vagueness of the current policy and time limitations. Opportunities highlighted by the stakeholders focused on the universal availability of televisions in all PACU bays. Assessment by the project team revealed that only seven of the seventeen bays were equipped with televisions, and those with televisions did not have a remote for patient use. The most common threat discussed was not adhering to TJC's requirements for the provision of non-pharmacologic complementary pain therapy.

Figure 4

Inpatient SWOT 1 Results



Part II

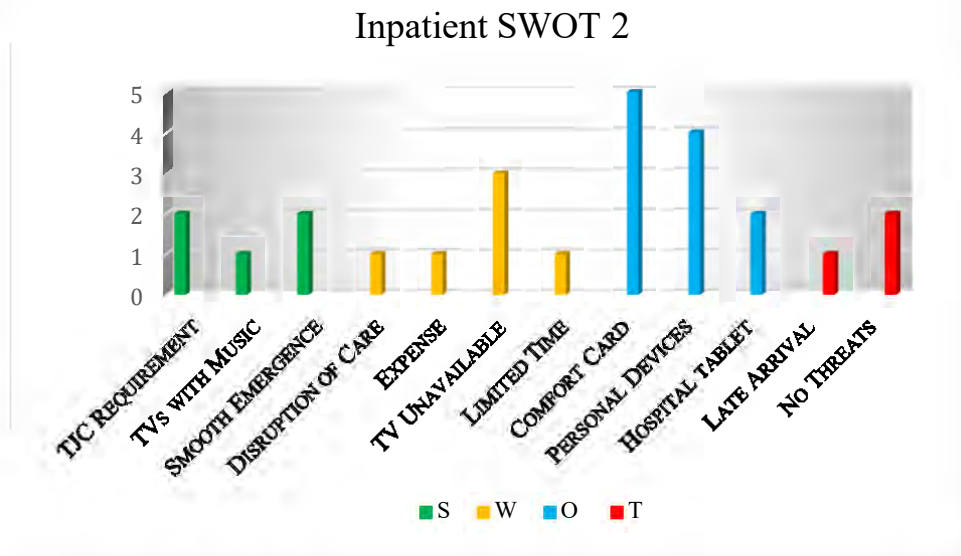
Participant Findings: Part II.

After the presentation of the CPG, the inpatient nursing staff highlighted similar concerns to those described by the outpatient nursing staff. Strengths of the CPG were noted as meeting TJC requirements, smoothing patient emergence from anesthesia, and availability of televisions in select PACU bays. A noted weakness is that time is limited in the PACU area, the expense of

new equipment, and a music listening intervention could interfere with care, prolonging the postoperative discharge/transfer process. Numerous opportunities were noted, including adding music preference to the existing comfort card, having patients supply their own headphones, and utilizing existing hospital-owned mobile music listening devices. One participant expressed concerns with CPG implementation with late patient arrivals.

Figure 5

Inpatient SWOT 2 Results



Clinical Practice Guideline

During the literature search, a clinical practice guideline (CPG) for music listening was identified as a component of the “Do” phase of the PDCA cycle. This CPG was developed by the American Music Therapy Association (AMTA). This non-profit organization’s mission is to increase access to quality music interventions through education, training, professional standards, and research (American Music Therapy Association [AMTA], n.d.-a).

The American Music Therapy Association Music Listening Guidelines (Appendix C) is specifically meant for addressing the physiologic needs of patients in and out of the hospital

setting (American Music Therapy Association [AMTA], n.d.-b). Areas specifically addressed in AMTAs CPG include auditory safety, infection control safety, music content considerations, health considerations, music listening safety considerations, music listening frequency and delivery, and music preference and playlist recommendations. Due to the comprehensive nature of the AMTAs CPG, the project team feels that the AMTAs CPG is an ideal tool to guide music listening in the perioperative area. This CPG was presented for review and critique by the key stakeholders in the second round of SWOT analyses as part of the “Check” phase of the PDCA cycle.

Clinical Practice Guideline Modifications

Compared to creating an entirely new CPG, evidence has been shown that adoption and modification of a high-quality CPG is best practice (McCaul et al., 2019). Modifications made to this CPG were based on direct feedback received from perioperative staff and stakeholders during SWOT analyses. To avoid deviation from the original CPG, only facility-specific modifications were made to enhance nursing usability and application.

Nursing concerns regarding a cacophony in the post-operative care unit prompted the modification of the CPG to empower nurses to limit volume and disruption of the patient care environment. Additionally, music listening preferences will be obtained during the routine pre-op phone call, along with the option for the patient to bring in their headphones if desired. Stakeholder concerns over the sanitization of music listening equipment were addressed by including the specific disinfectant wipes already available at the respective inpatient and outpatient healthcare facilities. The modified CPG can be seen in Appendix C.

Project Facilitators

A study by Hall et al. (2017) found that nurses are often enthusiastic about complementary therapy utilization as the interventions are nurse-driven, patient-centered, and may help patients when conventional medicine fails, particularly regarding patient pain. Complementary pain interventions can also help create a more relaxing and calming environment for patients and by extension, improve the working conditions for nurses (McClurkin & Smith, 2016). Positive aspects of complementary therapy interventions have aided in generating productive conversations amongst nursing staff, key stakeholders, and the project team leaders. Nurse managers welcomed the project team into their staff meeting to conduct SWOT analyses, and nurses were generally open-minded and supportive of the project goals. In addition to these facilitators, this project benefited from the dedication of the project leaders. Lastly, frequent communication and supportive feedback from project advisors made this project possible.

Project Barriers

Barriers included challenges organizing SWOT analysis meetings with stakeholders and nursing staff during the global pandemic and associated restrictions. The project team struggled to schedule individual meetings as planned and instead utilized a small portion of the previously scheduled perioperative Shared Governance meetings. While the group meetings deviated from the initial project plan, the group meetings did allow for a greater number of SWOT analysis participants than initially anticipated.

Due to the limited experience of the project team with leading SWOT analysis, the project team had moderate difficulty maintaining nursing staff attention and focus on each step of the SWOT analysis. The project's team lack of experience led to some confusion over where responses should be recorded, and a small number of responses may have been recorded in an

inappropriate quadrant of the SWOT template. Lessons learned from the first meeting were incorporated into the second SWOT analysis, and overall dynamics were improved.

An anticipated barrier, which was later confirmed during SWOT analysis meetings, was that some nurses feel that they are already providing adequate complementary pain therapy in accordance with TJC requirements. This belief may have led nurses to be hesitant to fully participate in the SWOT analysis. The group setting for the meetings with the nurse managers may have further limited input from bedside nurses due to reluctance to challenge current patient care practices.

Project Timeline and Budget

Timeline

On July 8th, 2021, the project proposal was approved by the NEBPRC (Appendix D). Following this approval, the project was submitted to the University IRB and was again approved on July 22nd, 2021 (Appendix E). After IRB approval, the project team identified an appropriate clinical practice guideline in September 2021. The project's SWOT analysis meetings were conducted in November 2021. Clinical practice guideline modifications and final scholarly manuscript were composed from December 2021 to January 2022. Finally, by April 2022, the project will be presented and disseminated in an open forum to the Nursing Department faculty and students at the University. Once the final written report is approved by the Committee Chair, the final report will be submitted to the University Department of Nursing for published archiving no later than April 29th, 2022.

Budget

The budget for this project was funded by the project team leaders and did not exceed \$50.00. Designated funds were used for printing and paper costs for the final poster board

presentation. Additionally, personal time was donated by the project team investigators. The time spent by the project's key investigators consisted of conducting and facilitating SWOT meetings, reaching out to key stakeholders for new viewpoints and project support, data analysis, and writing the final scholarly report document (average 10-16 hours per week). Time was budgeted equitably between the project team leaders to ensure all duties were completed within a timely manner and by specified deadlines listed above.

Ethical Considerations/Protection of Human Subjects

The ethical consideration in the project involves protecting the participants. Potential risks associated with the proposed music listening guideline are evidenced in the literature as minimal to none, and to also be no greater than potential risks in receiving the standard of care measures typically experienced by postsurgical patients recovering in the PACU (Hole et al., 2015). Additionally, no personal information was collected from stakeholders. All responses from the participants during SWOT analysis meetings were provided voluntarily. The final project manuscript will be submitted to the NEBPRC for record-keeping. No confidential information will be requested, collected, or stored.

Recommendations

Based on the effectiveness of music listening to reduce patient pain, the project team recommends the implementation of the proposed clinical practice guideline with continued observation and assessment. An effective roll-out of the proposed CPG would be best completed by a future project team conducting a QI and potentially a DNP scholarly project. Additional music listening equipment may be required in PACU areas not equipped to provide personalized music listening. This subsequent project team should consider equipment specifications, procurement, storage, and maintenance. Future project teams would be well served to utilize the

PDCA project framework to guide implementation, monitor project success, and ensure sustainability.

During the SWOT analyses, PACU nurses mentioned several other complementary pain therapies worth additional inquiry. Future scholarly projects could focus on reviewing the literature on the effectiveness of aromatherapy, massage, and healing touch. If available, identification and adoption of clinical practice guidelines for these therapies may also benefit patients in the PACU. Additionally, the application of complementary therapies could be explored in other healthcare settings outside of the perioperative area.

Revision of Existing Policy

As suggested by the NEBPRC advising committee, the project team has proposed a revision to the existing Complementary Therapies Policy. The current policy is vague, offering little guidance for nurses providing complementary therapies. To address the ambiguity of the current policy, the project team revised the policy to include the aforementioned modified clinical practice guideline, which can be found in Appendix F. This proposed policy could be adopted system-wide following future demonstration of the CPG's success in the perioperative setting. This will help align practice and policy with the requirements of The Joint Commission.

Conclusion

Substantial evidence in the literature has shown non-pharmacologic complementary pain therapies such as music listening can safely reduce patients' postoperative pain. In 2017, in response to state and national opioid prescription reduction programs, TJC began requiring healthcare institutions to provide patients with non-pharmacologic pain treatment modalities (The Joint Commission, 2017). Despite the analgesic benefits of music listening shown in numerous controlled trials and meta-analyses in the literature, the culmination of stakeholder

reports and direct observations by the project team revealed that a midwestern level-1 trauma medical center has difficulty in meeting TJC's requirement to provide post-operative patients with non-pharmacologic therapeutics such as complementary pain therapies.

Specific reasons for the reported and observed lack of compliance with TJC accreditation requirements mandating the provision of complementary therapies were identified through an initial round of SWOT analyses. This analysis identified barriers including time constraints, awareness of, and access to currently available resources. Concurrently, the project team identified a CPG for a music listening complementary pain therapy intervention that was nurse-driven, time-efficient, and rooted in evidence. The AMTA CPG fit those needs and was modified to incorporate stakeholder feedback from subsequent SWOT analyses for optimal implementation at the healthcare facility of interest.

This scholarly project serves as a beginning point towards improving post-surgical patient pain and the medical center's compliance with TJC's requirements. The findings of this scholarly project lay the foundation for future projects to evaluate the impact and effectiveness of the CPG in the PACU. Additionally, this project has the potential to assist other departments within the healthcare system in understanding the importance of evidence-based practices and complementary pain therapies.

Acknowledgments

The project team would like to thank advisors Dr. Kacy Ballard and Dr. Brian Garrett for their guidance and support throughout the project. We would also like to thank the inpatient and outpatient nursing staff and management for their time and participation in the project. Lastly, we would like to thank Dr. Vorachai Sribanditmongkol for helping to refine the project focus and setting us on a path to success.

Conflicts of Interest

The project team declares no competing interests.

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Appendix A

EBP Literature Summary Table

Study	Conceptual Framework	Design/Method	Sampling Criteria	Participants (N)	Assessment Tool	Major Variables	Outcome	Data Analysis		Level of Evidence	Quality of Evidence
								p Value	Statistical Test		
Hole, J., Hirsch, M., Ball, E., & Meads, C. (2015). Music as an aid for postoperative recovery in adults: A systematic review and meta-analysis. <i>The Lancet</i> , 386(10004), 1659–1671. https://doi.org/10.1016/s0140-6736(15)60169-6	Non-Evident	Metanalysis and systematic review to evaluate music’s effect on post0-operative recovery.	72 RCTs were included in the study which included outcomes of post-operative pain, analgesia required, anxiety, and satisfaction with care.	72 RCTs, with n=6902 subjects	Standardize d mean differences were measured and were used to back transform into VAS - Pain and State- trait anxiety index	Studies compared patients who received a music intervention to those that received standard care, headphones with no music, white noise, or bedrest.	Post-operative pain SMD -0.77, VAS - 23mm, Anxiety SMD - 0.68, STAI - 6.4 units, Analgesic Use SMD - 0.37 Patient satisfaction SMD +1.09	Not reported	Standard Mean Difference, VAS and STAI were back calculated from the SMD using Excel 2007	I - Quantitative Systematic Review	This study found that perioperative music is effective for reducing pain, anxiety and analgesic medication use while improving patient satisfaction. This is one of the largest meta-analysis studies conducted to date measuring the benefits of perioperative music.
K hlmann, A., Rooij, A., Kroese, L., Dijk, M. V., Hunink, M., & Jeekel,H. (2018). Meta- analysis evaluating music interventions for anxiety and pain in surgery. <i>British Journal of Surgery</i> . doi: 10.1002/bjs.10853	Non-Evident	Metanalysis and systematic review to evaluate music’s effect on perioperative anxiety and pain scores.	Inclusion Criteria: Full-text article of an RCT investigating the effects of music on pain and anxiety in adult patients. The studies were performed in a hospital or outpatient surgical clinic, but all participants underwent an invasive procedure. Music was	92 articles in systematic review, 81 included in meta-analysis.	Studies on anxiety utilized the STAI or VAS scores, studies of pain used VAS or numeric rating scale.	Music offered before surgery, during surgery or after surgery and the number of music interventions that were conducted. 67% of studies on anxiety utilized only one interventio	Mean difference of pain scores decreased by -.5 indicating a moderate effect of music. Post-operative music had the greatest effect on reducing pain.	P<.001	VAS scales for both pain and anxiety were used. The STAI was also used for anxiety, and numeric pain scale was used for pain.	I - Quantitative Systematic Review	This metanalysis found that post-operative music is the most beneficial for reducing patient pain.

			provided by a researcher or music therapist.			n, while 64% of the studies on pain utilized only one intervention.					
Lee, J. (2016). The effects of music on pain: A meta-analysis. <i>Journal of Music Therapy</i> , 53(4), 430–477. https://doi.org/10.1093/jmt/thw012	Non-Evident	Metanalysis and systematic review on the effects of music medicine vs music therapy on patient's pain scores.	Included randomized controlled trials that examined the effects of music on pain vs a control group.	Study included 87 RCTs that examined music medicine and 10 that studied music therapy with a total of 9184 participants .	Visual analog scale, faces scale, numeric rating scale. Emotional stress was rated on a 100mm visual analog scale.	63% of trials utilized patient preferred music, 10.3% utilized patient chosen music, 25% used researcher chosen music. Duration of intervention ranged from 1 minute to 180 minutes. Mode of 30min.	Most studies examined the impact of one music listening session. Music group showed a 1.13 (on 0-10 scale) decrease in pain in the music group vs the non-music group. -10.83 on 100 pt scale for emotional distress. MT was slightly more effective (-1.5) than Music medicine (-1.08)	p<.00001 p<.0008 P<.00001	Effect size and p values were calculated using the Refman statistical software.	I - Quantitative Systematic Review	Music medicine was shown to decrease pain scores by an average of 1.08 on a 0-10 scale. Both music medicine and music therapy are effective at reducing pain and emotional distress. Small to moderate effect on decreasing opioid and non-opioid use after medical intervention.

<p>Lin, C., Hwang, S., Jiang, P., & Hsiung, N. (2020). Effect of music therapy on pain after orthopedic surgery—a systematic review and meta-analysis. <i>Pain Practice</i>, 20(4), 422–436.</p> <p>https://doi.org/10.1111/papr.12864</p>	<p>Theory of Holistic Comfort</p>	<p>Systematic review of the effects of a music intervention on post-operative orthopedic pain.</p>	<p>Inclusion criteria included RTC, adult orthopedic patients, Music therapy or music medicine intervention, pain score assessment, no mental illness.</p>	<p>9 RCTs were included in the final study which captured data from 534 patients.</p>	<p>VAS and numeric rating scale were utilized as pain scales. These were normalized using SMD.</p>	<p>Patients exposed to a music listening protocol were compared to patients receiving standard care. Music medicine and music therapy were compared.</p>	<p>Both music medicine and music therapy were shown to reduce patient pain. (MM -.41, MT, -.31). Music chosen by participants significantly reduced pain in both MM and MT populations.</p>	<p>P=.002 p=.02</p>	<p>Standard mean difference and 95% confidence intervals were calculated. Review manager software version 5.3.</p>	<p>I - Quantitative Systematic Review</p>	<p>Music medicine and music therapy are both effective for reducing post-operative orthopedic pain. Patients who chose their own music appear to receive the greatest benefit.</p>
<p>Martin-Saavedra, J., Vergara-Mendez, L., & Talero-Gutiérrez, C. (2018). Music is an effective intervention for the management of pain: An umbrella review. <i>Complementary Therapies in Clinical Practice</i>, 32, 103–114.</p> <p>https://doi.org/10.1016/j.ctcp.2018.06.004</p>	<p>Non-Evident</p>	<p>Umbrella review of systematic reviews</p>	<p>Studies that included clinical trials, systematic reviews or meta-analysis, examining the effects of music on pain were included in the study. Studies that included interventions other than music were eliminated.</p>	<p>13 Meta-analyses and systematic reviews included.</p>	<p>Pain measurement was not reported in this umbrella review</p>	<p>Patients in the various studies were exposed to music before, during and after procedures. All were reported to reduce pain, but pre-operative music is reported to produce the largest reduction in pain.</p>	<p>No difference was found when the researchers picked the music vs when patients picked the music. Music interventions ranged from 5 min to 4hrs.</p>	<p>no p values reported.</p>	<p>AMSTAR checklist was used to evaluate studies. A third researcher was included when disparity was found between the two primary investigators.</p>	<p>I - Quantitative Systematic Review</p>	<p>This umbrella review found support for utilizing music as an effective complementary therapy for acute, procedural and chronic pain.</p>

Appendix B**SWOT Analysis Briefing Format (Example)**

Strengths: “Internal attributes or traits that are helpful to the program and have a positive influence on program outcome” (Moran et al., 2020)	Weakness: “Internal traits that could be harmful to the program by disrupting the program and potentially interfering with the ability of the program to meet its objectives.” (Moran et al., 2020)
Opportunities: “Extrinsic factors that could help the program.” (Moran et al., 2020)	Threats: “External factors that may threaten or potentially harm the program, interfering with the programs ability to achieve objectives.” (Moran et al., 2020)

Appendix C

Perioperative Music Listening Clinical Practice Guideline

These modified AMTA Music Listening Guidelines are intended to provide guidance to individuals engaging or assisting others in regular music listening to address physiological, psychological, communicative, behavioral, educational, and/or wellness needs. The recommendations below should always be used in consultation with the listener's health team, including but not limited to physicians, psychologists, psychiatrists, counselors, audiologists and music therapists.

It is important to note the difference between Personalized Music Listening (PML), Background Music Listening (BML), Leisure Music Listening (LML) and Music Listening (ML). For the purposes of this document:

- PML is defined as music selections chosen from an individual listener's preferences and life experiences. PML is designed to support the individualized needs of the listener.
 - BML is defined as music listening intended as an unobtrusive accompaniment to some activity such as eating or to help facilitate a type of atmosphere.
 - LML is defined as engaging in music listening as an activity for leisure and/or entertainment.
 - ML is defined as any music listening experience and includes PML, BML and LML.
1. Auditory Safety
 - a. ML should be delivered at a volume controlled at 65dB or lower.
 - ML should not interfere with nursing care or disrupt the patient care environment, volume may be adjusted accordingly by the caregiver, not to exceed 65 dB.
 - b. When ML is to be delivered via headphones, the style of headphones should be selected based upon the listener's comfort and safety.
 - Patients can be asked to bring their preferred headphones during the pre-op phone call.
 - c. Bluetooth headphones are recommended for listeners whose safety could be at risk and/or music listening experience could be interrupted by becoming entangled in headphone wires.
 - d. Listeners with hearing aids and/or hearing impairments should have a consultation with their audiologist prior to beginning a regular music listening program.
 2. Infection Control Safety
 - a. For cleaning and disinfecting, use EPA-registered, disposable disinfectant wipes, ultraviolet-C disinfection wands, or follow any other sanitary procedures provided by a person's physician or facility infection control staff.
 - For use at this inpatient/outpatient healthcare facility, the PDI Sani-Cloth® AF3 Germicidal Disposable Wipes may be used.
 - b. Cleaning and disinfecting is recommended:
 - when visibly soiled,
 - before and after each use if person has an infection and/or is on infection control precautions,
 - when equipment is being transferred between individuals for use,
 - when a person has been traveling with their equipment, and,
 - when it may have come into contact with contagious diseases.
 3. Music Content Considerations
 - a. Song selections for ML, especially PML, should take into consideration lyric content that may promote or suppress healthy behaviors and information should be obtained on any songs, lyrics, subjects that should be avoided and note any negative reactions to song lyrics should they occur.
 - Appropriate music listening channels are available in many of the PACU bays.
 - Patients can be asked about their music preferences during the pre-op phone call.
 - b. Individuals with a history and/or predisposition for addictions and/or unhealthy behaviors, or who have a history of trauma, should consult with their physicians, counselors, music therapists and other treatment team members and practice caution when selecting ML, and especially PML, songs associated with and/or containing lyrics pertaining to those addictions, behaviors or memories.

- c. Use of ML songs, especially PML songs, known or likely to cause intense emotional and cognitive responses are not recommended for use outside of a treatment plan with a qualified healthcare professional.
 4. Health Considerations
 - a. Physiological Considerations
 - Individuals with cardio-pulmonary health concerns should consult their physician prior to using a PML program in conjunction with a physical exercise regimen to determine ideal tempos for their heart and respiration.
 - Individuals with physical disabilities or injuries should consult their physical therapist, occupational therapist, music therapist and/or physician to determine PML tempos/beats per minute, rhythms and other music elements appropriate for engaging in specific motor repetition for habilitation or rehabilitation.
 - b. Psychological Considerations
 - Generally it is recommended that individuals with mental health diagnoses consult with their treatment team and music therapist (when possible) when planning to begin PML.
 - An individual experiencing strong and unpleasant thoughts or feelings from certain songs, genres, or artists should cease listening to music that elicits these reactions or responses and/or seek the help of a professional music therapist.
 - While selecting music to match an individual's current mood can be effective, it is important that the music not prohibit the individual from changing moods and experiencing the full spectrum of feelings and emotions.
 - Individuals with mental health diagnoses that present with hyperactivity and/or mania should avoid selecting songs or playlists of songs that only express and elicit fast-paced sound and activity, high energy and/or excitement.
 - ML, whether individually or in groups, may be accompanied by other experiences (such as art composition, moving, story composition, or lyric discussion) designed to give form to thoughts, impressions, or emotions generated by the music.
 - c. Cognitive, Communicative and Sensory Considerations
 - Individuals with cognitive and sensory processing deficits should have PML delivered in consideration of their environmental stimuli, physiological stimuli and their ability to neurologically process the music stimuli within their current state of recovery from injury or disease.
 - An individual experiencing severe and/or chronic pain may demonstrate hypersensitivity to music stimuli and therefore may require frequent adaptations in delivery of music stimuli in order to meet their changing ability to process varying amounts and types of stimuli and to benefit from PML.
 - Individuals with seizure disorders may find that some music triggers seizures. Individuals with music-induced seizures should consult with a music therapist and/or their healthcare team when planning to engage in ML, especially PML.
 - Infants with delayed neurological development, especially those hospitalized in a Neonatal Intensive Care Unit (NICU), who have not fully developed the ability to process intense sound stimuli, should be provided music with the consultation of a music therapist or other qualified professional specializing in infants, neurology, and/or auditory processing, to avoid overstimulation and harm to the infant.
 - Individuals with disorders, diseases, and injuries that affect their ability to exhibit focused attention, comprehension, memory recall, and/or reality orientation should receive PML in a setting and with a plan of care that:
 - i. Facilitates monitoring of the individual's responses to music stimuli to allow for changes or discontinuation of the PML when unbeneficial responses are observed, or;
 - ii. Appropriately engages the individual in social, cognitive and communicative tasks that exercise the neurological pathways exhibiting improved functionality from the stimuli of PML when beneficial responses are observed.
5. Music Listening Safety Considerations
 - a. It is important to be prepared to recognize and support, or obtain support for, any significant emotions and/or memories that emerge from PML experiences.

- b. Monitor the person listening. ML, especially PML, may cause an increase or decrease in movement that may need to be monitored, depending on what activity the individual is engaged in, and particularly if the person is considered a fall risk. See Appendix A. Responses to Watch For.
 - c. Respond in the moment to significant changes, emotions and/or memories. See Appendix B. Responding to Observed Reactions to Music.
 - d. Make note of significant changes, emotions, memories and/or observations, including the music playing at the time. This information may affect whether the playlist or listening regimen needs to be modified or whether follow up needs to be made by a qualified psychosocial healthcare provider such as a social worker, counselor, or music therapist (particularly beneficial for non-verbal listeners).
6. Music Listening Frequency & Delivery
- a. Individualized responses and reactions to PML can vary with time of day and from day-to-day. When using or facilitating personalized music listening, it is imperative to watch for responses of pleasure and relaxation, but also signs of increased agitation and discomfort from music to allow you adjust music delivery accordingly as indicated in section 5.
 - b. PML is not recommended to continue beyond 50 minutes for one session, and sessions may occur up to four times a day.
 - ML for as little as twenty minutes has shown to be effective in reducing post-operative pain (Lin. et al., 2020).
 - ML should not interfere with nursing care and may be interrupted at the discretion of the caregiver.
 - c. See Appendix C. Considerations for Planning Music Listening Length, Frequency and Schedule.
 - d. See Appendix D. Considerations for Determining Best Method of Music Listening Delivery.
 - e. See Appendix E. Considerations for Caregivers to Enhance the Social and Relationship Benefits of Music Listening.
7. Music Preference & Playlist Recommendations
- a. Individual music preferences may be based on a wide variety of influences such as familiarity, artist or performer, preferences of friends/relatives, prior musical experience, composer, recommendations of authority figures or acquaintances, accompanying instruments or styles, or concurrent and changing mood. Playlist songs should always be selected with cultural, historical and ethical considerations relevant to the listener.
 - b. Different preferences may often be expressed by the same individual depending on that person's state of mind at a given moment.
 - c. Research shows that most people prefer the music that they listened to in their teens and 20's due to the association of that music with the formation of one's self identity, goals, and development of mechanisms for independence. Music from adulthood can also be preferred, especially music which relates to significant periods of time, experiences and/or achievements in the person's adult life.
 - d. The needs of the individual should always be considered when building a PML playlist. For example, songs may be placed in an order so as to induce excitement/alertness or relaxation/sleepiness. Playlist may require periodic revisiting to ensure continued relevance to the individual's needs.
 - e. PML may be provided in a predictable set order of songs or in a mix or shuffle of songs, as indicated by the goal of the music listening and the listener's responses to the music.

AMTA Music Listening Guidelines Appendix A

Music Listening Safety Considerations

Research and experience shows us that music can elicit a wide range of emotions, memories, and thoughts. Even within a single song, music can elicit smiling and happiness one minute and tears and sadness or anger and agitation in the next. It is important to be prepared to recognize and support, or obtain support for, any significant emotions

and/or memories that emerge from PML experiences. Find below recommendations for safely and effectively supporting PML:

- Monitor the person listening. Ensure the music listener is within your sight and be present. It is impossible to know how the listener is responding without maintaining focus on them. Listeners may display significant emotions or recall of memories that need to be noted or addressed. Listeners may also become increasingly alert and stimulated, and therefore, increase movement. This may be problematic for individuals who are fall risks. Good monitoring helps ensure the benefits of a positive and safe music listening experience. If you are unable to monitor the person yourself, arrange an appropriately trained person who can also successfully monitor the listener. Responses to watch for include:
 - Affect – Positive or Negative?
 - Tears - Positive or Negative?
 - Alertness - More awake/responsive or Sleepier/less responsive?
 - Physical responses - Tapping toes or hand, or swaying body to the beat?
 - Movement - shifting in bed or chair, standing or attempting to stand, walking or attempting to walk, dancing?
 - Verbal expression - More/Less, particular subject or words used in expression?
 - Orientation to correct time, place, person, situation - Better/Worse?
 - Eye contact - More/Less?
 - Change in agitation - Increased/Decreased?
 - Listener self-reports of memories, changes in mood, etc.
 - Changes in breathing or muscle tone (relaxed tone, easy breaths or tense/flexed tone, rapid or short breaths)

AMTA Music Listening Guidelines Appendix B

Responding to Listener's Reactions

It is important for listeners to have support nearby to respond in the moment to significant changes, emotions and/or memories.

- If you observe a listener having a significant emotional response to the personalized music listening, verbally acknowledge what you are observing and check in with the listener and attempt to have the listener confirm or deny the accuracy of your observation(s) and elaborate on what they are thinking and/or feeling.
- If the listener verbally expresses their response, listen intently and acknowledge what they are telling you until they are done talking. Then ask if they would like to continue listening or stop and talk.
- If the listener is non-verbal, acknowledge what you are observing and let them know you are there with them. Sit next to them and consider appropriate comforting measures for the situation, perhaps placing a hand on the person's arm or hand. If the person can non-verbally communicate yes or no, ask if they would like to continue listening or stop and talk. If the person is unable to verbalize and is displaying what appears to be a negative response, it may be best to stop the music until a professional can determine what is happening with that listener.
- If the listener is having a concerning physical response to music, such as attempting to shift, get up or walk when the person is unsafe to do so independently, respond with assistance if you are trained, or seek assistance from someone who is trained to support the listener safely.

AMTA Music Listening Guidelines Appendix C

Music Listening Frequency & Delivery

The following are considerations for planning frequency and length of music listening:

- Music listening may be beneficial to individuals suffering from insomnia who demonstrate responses of relaxation to a variety of music stimuli or to specific music stimuli. Individuals may also benefit from PML during patterns of agitation, such as sun-downing periods, to promote soothing and reduction of unpleasant feelings.
- PML prior to activities may allow an individual to demonstrate increased participation and benefit from the activities such as meals, outings, receiving visitors, and therapies.
- Facilities may consider providing PML or BML during shift changes, meals, or other busy times when larger amounts of people are on a unit and background noises increase. Music at this time allows a more pleasant environment for facility patients or residents.
- Listening to self-selected, preferred music as desired has been shown to result in significant improvement in state-mood and cognitive performance scores, as well as increased motivation and productivity, therefore individuals should be able to receive (upon request) music listening devices that will deliver preselected, preferred music with loudness and song selection controlled by the listener.
- Length of listening should be dependent on the length of time the listener is able to process and benefit from music stimuli. Many individuals will need periods of time with less or different stimuli between music listening periods. PML length and periods of time between music listening should be determined based upon the individual's needs and observed responses.
- Population/Need specific listening frequency & duration research indications:
 - *Stress* - Labbé, E., Schmidt, N., Babin, J., & Pharr, M. (2007)
 - *Pain* - Martin-Saavedra, JS. et al. (2018) & Ames, N., et al (2017)
 - *Pre-operative Anxiety* - Jeppesen, E., et al. (2019)
 - *Operative Anxiety* - Vachiramon, V., Sobanko, J., Rattanaumpawan, P., & Miller, C.J. (2013)
 - *Stroke Recovery* - Särkämö, T., et al, (2008) & Särkämö, T., et al, (2014)

AMTA Music Listening Guidelines Appendix D

Music Listening Delivery

Recorded PML may be delivered through headphones, speakers, or the existing television remote. The following factors should be considered when determining the best method of music delivery:

- Any hearing impairments;
- Any hearing assistive devices;
- The pitch range, timbre, and decibel level an individual is able to auditorily process;
- Sensitivity to the sensation of various styles of headphones touching their head and/or ears;
- Any behaviors the individual may exhibit that may limit the listener's ability to listen to the music, such as changing the volume too high or too low, hitting buttons that may unintentionally start, stop, or change the music playlist, becoming unintentionally wrapped up in cords and/or the equipment, becoming intentionally wrapped in equipment cords if the individual may be suicidal;
- Other sound stimuli in the environment where music listening is to take place;
- In environments where there are other individuals in the music listening area who do not or may not wish to listen to music or a specific type of music that may be played, headphones are recommended if the listener can tolerate them. If headphones cannot be tolerated it is recommended that the listener be placed in a location away from others who may respond negatively to the listener's preferred music but where the listener may still be monitored for safe listening as appropriate.

AMTA Music Listening Guidelines Appendix E

Music Listening as a Social Experience

While the recipient of PML can benefit from engaging in this activity individually, music is also a social experience. The following are considerations for caregivers to assist in enhancing relaxation, quality caregiver relationship, reciprocity and caregiver role satisfaction.

- Caregivers can use PML as a method of engagement with those they care for by using a headphone splitter or speakers to share the music listening experience. When listening together, the caregiver can tap their lap in time to the beat, hum, or sing main choruses of familiar songs to demonstrate their own enjoyment of the music. The individual may watch what is being modeled for them and begin to respond to the music as adjustment to the medium occurs.
- Caregivers may also initiate conversation with listeners who are able to effectively communicate based upon the music's lyrics and musical elements, as well as the thoughts, emotions and memories facilitated from the music listening.
- Caregivers can utilize touch and movement to increase listener engagement, e.g. holding the listeners hands and bouncing or swaying to the song. Gently tapping a pulse on the listeners' leg or arm can increase attention and interaction.
- The addition of relevant pictures or photo viewing while listening can also enhance the social experience. Be mindful of sensory overload, and adjust according to the listener's responses.

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Appendix D**NEBPRC Approval Letter**

Joel Griffith BSN, RN, SRNA
Sean Lawler BSN, RN, SRNA
Alec Smith BSN, RN, SRNA
[REDACTED] University

July 8, 2021

**RE: Proposal of a Clinical Practice Guideline for a
Non-Pharmacologic Music Listening Complementary Pain Therapy**

Dear Student Team members:

The Nursing Evidence-Based Practice Review Committee (NEBPRC) has reviewed the proposal referenced above. Our understanding is that you would like to develop a clinical practice guide sheet to aid staff in implementing music listening as a complementary therapy to medications in the surgical recovery area. The Committee approves this request with the following stipulations:

1. Consider updating the current policy instead of developing a new guideline. We believe this approach will facilitate successful implementation.
2. We ask that you agree that the guideline must go through the correct policy approval process at [REDACTED] before any practice change is recommended.

Upon agreeing to the stipulations above, you may begin the planning stage for the change and SWOT analysis to assess barriers to non-pharmacologic therapies. Upon completion of the project and before dissemination (poster or manuscript), you must submit the results so that the [REDACTED] can review the presentation to ensure Health Insurance Portability and Accountability Act (HIPAA) compliance.

Congratulations on your progress towards this worthy endeavor.

Appendix E

IRB Approval Letter

INSTITUTIONAL REVIEW BOARD

Original Review
 Continuing Review
 Amendment

Dear [REDACTED],

With regard to the employment of human subjects in the proposed research:

HS # 20/21-76

Ballard, Griffith, Smith, et al.: Proposal of a Clinical Practice Guideline for a ...

THE INSTITUTIONAL REVIEW BOARD HAS TAKEN THE FOLLOWING ACTION:

<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved
<input type="checkbox"/> Approved with Stipulations*	<input type="checkbox"/> Waiver of Written Consent Granted
<input type="checkbox"/> Limited/Exempt/Expedited Review	<input type="checkbox"/> Deferred

* Once Stipulations stated by the IRB have been met by the investigator, then protocol is APPROVED.

1. As Principal Investigator, you are responsible for ensuring that all individuals assisting in the conduct of the study are informed of their obligations for following the IRB-approved protocol.
2. It is the responsibility of the Principal Investigator to retain a copy of each signed consent form for at least four (4) years beyond the termination of the subject's participation in the proposed activity. Should the Principal Investigator leave the university, signed consent forms are to be transferred to the IRB for the required retention period.
3. If this was a limited, exempt, or expedited review, there is no need for continuing review unless the investigator makes changes to the proposed research.
4. If this application was approved via full IRB committee review, the approval period is one year, after which time continuing review will be required.
5. You are reminded that you must promptly report any problems to the IRB, and that *no procedural changes may be made without prior review and approval*. You are also reminded that the identity of the research participants must be kept confidential.

Date: 7-22-21 Signed: [REDACTED]

(Revised January 2019)

Appendix F

Revised Policy

POLICY and / or PROCEDURE	
TITLE: Complementary Therapies	NUMBER: Proposal
ISSUE DATE: 4/30/2022	EFFECTIVE DATE: TBD
DEVELOPED BY: Cancer Policy Peer Group REVISED BY: Nurse Anesthesia DNP Project Team	
REVIEWED BY: Oncology Clinical Guidance General Counsel Rehab Women's Health Nursing Policy & Procedure Committee Medical Executive Committees (MECs) Nurse Anesthesia DNP Project Team	DATE REVIEWED: 4/4/18 4/9/18 4/25/18 4/9/18 2/9/18 May-July, 2018 7/20/18 1/29/22
APPROVED BY: Pending	

SCOPE:

This policy is in effect for the following hospital system business units:
A midwestern level-1 trauma medical center with both inpatient and outpatient surgical services.

STATEMENT OF PURPOSE:

To define complementary health approaches which are approved for use in the inpatient and outpatient setting. To provide guidelines for the use of approved complementary health approaches, specifically music listening.

DEFINITIONS:

Alternative Care refers to non-traditional treatment intervention considered unorthodox by conventional medicine. They are used *instead of* or *in place of* conventional medicine. Although there is anecdotal evidence addressing the benefits an approach, it has not been subjected to the type of rigorous testing for safety and efficacy for the intended use.

Complementary Health Approaches (CHA): A group of diverse medical and health care systems, practices, and products that originate outside of mainstream or conventional medicine, including natural products or mind body practice. CHA are used together with conventional medicine or usual care and are not used as alternative or in place of conventional medicine.

Credentialing refers to requirements for providers are determined and maintained by the healthcare facilities governing body with recommendations from Medical Executive Committee. In some circumstances where delineated privileges are not required Human Resources and Office of the General Counsel may set and oversee scope for providers via job descriptions and competency evaluation for

hired positions. Some interventions may require a prescription from an authorized medical provider.

Integrative Care refers to the inclusion of evidence-based complementary health approaches in combination with conventional medicine in comprehensive medical treatment planning.

Mind and Body Practices: A form of complementary health care which includes a large and diverse group of procedures or techniques administered or taught by a trained provider. Mind and Body Practices include but are not limited to yoga, chiropractic and osteopathic manipulation, meditation, massage therapy, acupuncture, relaxation techniques, tai chi, Qigong, Healing Touch, hypnotherapy, and movement therapies.

Natural Products: A form of complementary health care that includes the use of a variety of herbs (botanicals), vitamins, minerals, probiotics, and other substances often sold as dietary supplements. Refer to Rx-910.003 Therapy Management by the Pharmacist and Rx-910.024 Home Medications Brought to the Hospital for pharmacy processes on when non-formulary herbals/alternative products/probiotics are held or may be brought in as home supply.

POLICY:

1. Patients have the option to actively participate in approved evidence based complementary health approaches. Alternative care, as defined above, is not approved substitute for conventional medicine.
2. Patients are encouraged to consult their physician or provider when considering complementary health approaches.
3. Each campus will determine which complementary health approaches and interventions require an order from a physician or provider, for both inpatient and outpatient services. See attached details.
4. All providers of complementary health approaches (e.g., contract practitioners and associates) must meet minimum training qualifications and credentialing requirements for the modalities offered and maintain relevant hospital privileges as required by Medical Executive Committee and/or Human Resources. In addition, associates must receive clearance by their direct supervisor(s) to perform in the additional clinical capacity during working hours as it may affect staffing levels.
5. Volunteers offering services (such as Animal Assisted Activities) or assisting with therapeutic activities must meet credentialing requirements if appropriate and follow guidelines set forth by Volunteer Services and relevant policies regarding limitations on clinical interaction with patients.
6. Patient education is provided regarding complementary health approaches prior to complementary health approach intervention.
7. Appropriate informed consent (verbal or written) must be obtained from the patient or family/designee prior to initiation of the complementary health approaches. A patient may opt not to participate at any time.
8. Policy for perioperative music listening:

Perioperative Music Listening Clinical Practice Guideline

These modified AMTA Music Listening Guidelines are intended to provide guidance to individuals engaging or assisting others in regular music listening to address physiological, psychological, communicative, behavioral, educational, and/or wellness needs. The recommendations below should always be used in consultation with the listener's health team, including but not limited to physicians, psychologists, psychiatrists, counselors, audiologists and music therapists.

It is important to note the difference between Personalized Music Listening (PML), Background Music Listening (BML), Leisure Music Listening (LML) and Music Listening (ML). For the purposes of this document:

- PML is defined as music selections chosen from an individual listener's preferences and life experiences. PML is designed to support the individualized needs of the listener.
 - BML is defined as music listening intended as an unobtrusive accompaniment to some activity such as eating or to help facilitate a type of atmosphere.
 - LML is defined as engaging in music listening as an activity for leisure and/or entertainment.
 - ML is defined as any music listening experience and includes PML, BML and LML.
1. Auditory Safety
 - a. ML should be delivered at a volume controlled at 65dB or lower.
 - ML should not interfere with nursing care or disrupt the patient care environment, volume may be adjusted accordingly by the caregiver, not to exceed 65 dB.
 - b. When ML is to be delivered via headphones, the style of headphones should be selected based upon the listener's comfort and safety.
 - Patients can be asked to bring their preferred headphones during the pre-op phone call.
 - c. Bluetooth headphones are recommended for listeners whose safety could be at risk and/or music listening experience could be interrupted by becoming entangled in headphone wires.
 - d. Listeners with hearing aids and/or hearing impairments should have a consultation with their audiologist prior to beginning a regular music listening program.
 2. Infection Control Safety
 - a. For cleaning and disinfecting, use EPA-registered, disposable disinfectant wipes, ultraviolet-C disinfection wands, or follow any other sanitary procedures provided by a person's physician or facility infection control staff.
 - For use at this inpatient/outpatient healthcare facility, the PDI Sani-Cloth ® AF3 Germicidal Disposable Wipes may be used.
 - b. Cleaning and disinfecting is recommended:
 - when visibly soiled,
 - before and after each use if person has an infection and/or is on infection control precautions,
 - when equipment is being transferred between individuals for use,
 - when a person has been traveling with their equipment, and,
 - when it may have come into contact with contagious diseases.
 3. Music Content Considerations
 - a. Song selections for ML, especially PML, should take into consideration lyric content that may promote or suppress healthy behaviors and information should be obtained on any songs, lyrics, subjects that should be avoided and note any negative reactions to song lyrics should they occur.
 - Appropriate music listening channels are available in many of the PACU bays.
 - Patients can be asked about their music preferences during the pre-op phone call.
 - b. Individuals with a history and/or predisposition for addictions and/or unhealthy behaviors, or who have a history of trauma, should consult with their physicians, counselors, music therapists and other treatment team members and practice caution when selecting ML, and especially PML, songs associated with and/or containing lyrics pertaining to those addictions, behaviors or memories.
 - c. Use of ML songs, especially PML songs, known or likely to cause intense emotional and cognitive responses are not recommended for use outside of a treatment plan with a qualified healthcare professional.
 4. Health Considerations
 - a. Physiological Considerations
 - Individuals with cardio-pulmonary health concerns should consult their physician prior to using a PML program in conjunction with a physical exercise regimen to determine ideal tempos for their heart and respiration.

- Individuals with physical disabilities or injuries should consult their physical therapist, occupational therapist, music therapist and/or physician to determine PML tempos/beats per minute, rhythms and other music elements appropriate for engaging in specific motor repetition for habilitation or rehabilitation.
 - b. Psychological Considerations
 - Generally it is recommended that individuals with mental health diagnoses consult with their treatment team and music therapist (when possible) when planning to begin PML.
 - An individual experiencing strong and unpleasant thoughts or feelings from certain songs, genres, or artists should cease listening to music that elicits these reactions or responses and/or seek the help of a professional music therapist.
 - While selecting music to match an individual's current mood can be effective, it is important that the music not prohibit the individual from changing moods and experiencing the full spectrum of feelings and emotions.
 - Individuals with mental health diagnoses that present with hyperactivity and/or mania should avoid selecting songs or playlists of songs that only express and elicit fast-paced sound and activity, high energy and/or excitement.
 - ML, whether individually or in groups, may be accompanied by other experiences (such as art composition, moving, story composition, or lyric discussion) designed to give form to thoughts, impressions, or emotions generated by the music.
 - c. Cognitive, Communicative and Sensory Considerations
 - Individuals with cognitive and sensory processing deficits should have PML delivered in consideration of their environmental stimuli, physiological stimuli and their ability to neurologically process the music stimuli within their current state of recovery from injury or disease.
 - An individual experiencing severe and/or chronic pain may demonstrate hypersensitivity to music stimuli and therefore may require frequent adaptations in delivery of music stimuli in order to meet their changing ability to process varying amounts and types of stimuli and to benefit from PML.
 - Individuals with seizure disorders may find that some music triggers seizures. Individuals with music-induced seizures should consult with a music therapist and/or their healthcare team when planning to engage in ML, especially PML.
 - Infants with delayed neurological development, especially those hospitalized in a Neonatal Intensive Care Unit (NICU), who have not fully developed the ability to process intense sound stimuli, should be provided music with the consultation of a music therapist or other qualified professional specializing in infants, neurology, and/or auditory processing, to avoid overstimulation and harm to the infant.
 - Individuals with disorders, diseases, and injuries that affect their ability to exhibit focused attention, comprehension, memory recall, and/or reality orientation should receive PML in a setting and with a plan of care that:
 - i. Facilitates monitoring of the individual's responses to music stimuli to allow for changes or discontinuation of the PML when unbeneficial responses are observed, or;
 - ii. Appropriately engages the individual in social, cognitive and communicative tasks that exercise the neurological pathways exhibiting improved functionality from the stimuli of PML when beneficial responses are observed.
5. Music Listening Safety Considerations
- a. It is important to be prepared to recognize and support, or obtain support for, any significant emotions and/or memories that emerge from PML experiences.
 - b. Monitor the person listening. ML, especially PML, may cause an increase or decrease in movement that may need to be monitored, depending on what activity the individual is engaged

in, and particularly if the person is considered a fall risk. See Appendix A. Responses to Watch For.

- c. Respond in the moment to significant changes, emotions and/or memories. See Appendix B. Responding to Observed Reactions to Music.
 - d. Make note of significant changes, emotions, memories and/or observations, including the music playing at the time. This information may affect whether the playlist or listening regimen needs to be modified or whether follow up needs to be made by a qualified psychosocial healthcare provider such as a social worker, counselor, or music therapist (particularly beneficial for non-verbal listeners).
6. Music Listening Frequency & Delivery
- a. Individualized responses and reactions to PML can vary with time of day and from day-to-day. When using or facilitating personalized music listening, it is imperative to watch for responses of pleasure and relaxation, but also signs of increased agitation and discomfort from music to allow you adjust music delivery accordingly as indicated in section 5.
 - b. PML is not recommended to continue beyond 50 minutes for one session, and sessions may occur up to four times a day.
 - ML for as little as twenty minutes has shown to be effective in reducing post-operative pain (Lin. et al., 2020).
 - ML should not interfere with nursing care and may be interrupted at the discretion of the caregiver.
 - c. See Appendix C. Considerations for Planning Music Listening Length, Frequency and Schedule.
 - d. See Appendix D. Considerations for Determining Best Method of Music Listening Delivery.
 - e. See Appendix E. Considerations for Caregivers to Enhance the Social and Relationship Benefits of Music Listening.
7. Music Preference & Playlist Recommendations
- a. Individual music preferences may be based on a wide variety of influences such as familiarity, artist or performer, preferences of friends/relatives, prior musical experience, composer, recommendations of authority figures or acquaintances, accompanying instruments or styles, or concurrent and changing mood. Playlist songs should always be selected with cultural, historical and ethical considerations relevant to the listener.
 - b. Different preferences may often be expressed by the same individual depending on that person's state of mind at a given moment.
 - c. Research shows that most people prefer the music that they listened to in their teens and 20's due to the association of that music with the formation of one's self identity, goals, and development of mechanisms for independence. Music from adulthood can also be preferred, especially music which relates to significant periods of time, experiences and/or achievements in the person's adult life.
 - d. The needs of the individual should always be considered when building a PML playlist. For example, songs may be placed in an order so as to induce excitement/alertness or relaxation/sleepiness. Playlist may require periodic revisiting to ensure continued relevance to the individual's needs.
 - e. PML may be provided in a predictable set order of songs or in a mix or shuffle of songs, as indicated by the goal of the music listening and the listener's responses to the music.

AMTA Music Listening Guidelines Appendix A

Music Listening Safety Considerations

Research and experience shows us that music can elicit a wide range of emotions, memories, and thoughts. Even within a single song, music can elicit smiling and happiness one minute and tears and sadness or anger

and agitation in the next. It is important to be prepared to recognize and support, or obtain support for, any significant emotions and/or memories that emerge from PML experiences. Find below recommendations for safely and effectively supporting PML:

- Monitor the person listening. Ensure the music listener is within your sight and be present. It is impossible to know how the listener is responding without maintaining focus on them. Listeners may display significant emotions or recall of memories that need to be noted or addressed. Listeners may also become increasingly alert and stimulated, and therefore, increase movement. This may be problematic for individuals who are fall risks. Good monitoring helps ensure the benefits of a positive and safe music listening experience. If you are unable to monitor the person yourself, arrange an appropriately trained person who can also successfully monitor the listener. Responses to watch for include:
 - Affect – Positive or Negative?
 - Tears - Positive or Negative?
 - Alertness - More awake/responsive or Sleepier/less responsive?
 - Physical responses - Tapping toes or hand, or swaying body to the beat?
 - Movement - shifting in bed or chair, standing or attempting to stand, walking or attempting to walk, dancing?
 - Verbal expression - More/Less, particular subject or words used in expression?
 - Orientation to correct time, place, person, situation - Better/Worse?
 - Eye contact - More/Less?
 - Change in agitation - Increased/Decreased?
 - Listener self-reports of memories, changes in mood, etc.
 - Changes in breathing or muscle tone (relaxed tone, easy breaths or tense/flexed tone, rapid or short breaths)

AMTA Music Listening Guidelines Appendix B

Responding to Listener's Reactions

It is important for listeners to have support nearby to respond in the moment to significant changes, emotions and/or memories.

- If you observe a listener having a significant emotional response to the personalized music listening, verbally acknowledge what you are observing and check in with the listener and attempt to have the listener confirm or deny the accuracy of your observation(s) and elaborate on what they are thinking and/or feeling.
- If the listener verbally expresses their response, listen intently and acknowledge what they are telling you until they are done talking. Then ask if they would like to continue listening or stop and talk.
- If the listener is non-verbal, acknowledge what you are observing and let them know you are there with them. Sit next to them and consider appropriate comforting measures for the situation, perhaps placing a hand on the person's arm or hand. If the person can non-verbally communicate yes or no, ask if they would like to continue listening or stop and talk. If the person is unable to verbalize and is displaying what appears to be a negative response, it may be best to stop the music until a professional can determine what is happening with that listener.
- If the listener is having a concerning physical response to music, such as attempting to shift, get up or walk when the person is unsafe to do so independently, respond with assistance if you are trained, or seek assistance from someone who is trained to support the listener safely.

AMTA Music Listening Guidelines Appendix C

Music Listening Frequency & Delivery

The following are considerations for planning frequency and length of music listening:

- Music listening may be beneficial to individuals suffering from insomnia who demonstrate responses of relaxation to a variety of music stimuli or to specific music stimuli. Individuals may also benefit from PML during patterns of agitation, such as sun-downing periods, to promote soothing and reduction of unpleasant feelings.
- PML prior to activities may allow an individual to demonstrate increased participation and benefit from the activities such as meals, outings, receiving visitors, and therapies.
- Facilities may consider providing PML or BML during shift changes, meals, or other busy times when larger amounts of people are on a unit and background noises increase. Music at this time allows a more pleasant environment for facility patients or residents.
- Listening to self-selected, preferred music as desired has been shown to result in significant improvement in state-mood and cognitive performance scores, as well as increased motivation and productivity, therefore individuals should be able to receive (upon request) music listening devices that will deliver preselected, preferred music with loudness and song selection controlled by the listener.
- Length of listening should be dependent on the length of time the listener is able to process and benefit from music stimuli. Many individuals will need periods of time with less or different stimuli between music listening periods. PML length and periods of time between music listening should be determined based upon the individual's needs and observed responses.
- Population/Need specific listening frequency & duration research indications:
 - *Stress* - Labbé, E., Schmidt, N., Babin, J., & Pharr, M. (2007)
 - *Pain* - Martin-Saavedra, JS. et al. (2018) & Ames, N., et al (2017)
 - *Pre-operative Anxiety* - Jeppesen, E., et al. (2019)
 - *Operative Anxiety* - Vachiramon, V., Sobanko, J., Rattanaumpawan, P., & Miller, C.J. (2013)
 - *Stroke Recovery* - Särkämö, T., et al, (2008) & Särkämö, T., et al, (2014)

AMTA Music Listening Guidelines Appendix D

Music Listening Delivery

Recorded PML may be delivered through headphones, speakers, or the existing television remote. The following factors should be considered when determining the best method of music delivery:

- Any hearing impairments;
- Any hearing assistive devices;
- The pitch range, timbre, and decibel level an individual is able to auditorily process;
- Sensitivity to the sensation of various styles of headphones touching their head and/or ears;
- Any behaviors the individual may exhibit that may limit the listener's ability to listen to the music, such as changing the volume too high or too low, hitting buttons that may unintentionally start, stop, or change the music playlist, becoming unintentionally wrapped up in cords and/or the equipment, becoming intentionally wrapped in equipment cords if the individual may be suicidal;
- Other sound stimuli in the environment where music listening is to take place;
- In environments where there are other individuals in the music listening area who do not or may not wish to listen to music or a specific type of music that may be played, headphones are recommended if the listener can tolerate them. If headphones cannot be tolerated it is recommended that the listener be placed in a location away from others who may respond negatively to the listener's preferred music but where the listener may still be monitored for safe listening as appropriate.

AMTA Music Listening Guidelines Appendix E

Music Listening as a Social Experience

While the recipient of PML can benefit from engaging in this activity individually, music is also a social experience. The following are considerations for caregivers to assist in enhancing relaxation, quality caregiver relationship, reciprocity and caregiver role satisfaction.

- Caregivers can use PML as a method of engagement with those they care for by using a headphone splitter or speakers to share the music listening experience. When listening together, the caregiver can tap their lap in time to the beat, hum, or sing main choruses of familiar songs to demonstrate their own enjoyment of the music. The individual may watch what is being modeled for them and begin to respond to the music as adjustment to the medium occurs.
- Caregivers may also initiate conversation with listeners who are able to effectively communicate based upon the music's lyrics and musical elements, as well as the thoughts, emotions and memories facilitated from the music listening.
- Caregivers can utilize touch and movement to increase listener engagement, e.g. holding the listeners hands and bouncing or swaying to the song. Gently tapping a pulse on the listeners' leg or arm can increase attention and interaction.
- The addition of relevant pictures or photo viewing while listening can also enhance the social experience. Be mindful of sensory overload, and adjust according to the listener's responses.

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Appendix A: Hospital specific orders and requirements

Midwestern Level-1 Trauma Medical Center

1. Inpatient complementary health approaches require an order from a physician or provider; this includes but is not limited to the following: massage therapy, aromatherapy and other interventions which involve manipulation, administration of a substance (e.g. topical, oral, nasal, inhaled, intravenous, intramuscular, subcutaneous, etc.), use of needles or other invasive treatments.
2. Inpatient complementary therapies that do not require a physician or provider order include, but are not limited to the following: some Mind-body therapies (e.g., guided imagery, meditation), Expressive arts therapies (e.g., art and music therapy), animal assisted activity such as pet therapy or other non-invasive interventions. Volunteer Services refers to the Animal Assisted Activity visitation policy. Associates or volunteers providing Healing Touch are required to complete Level 1 Healing Touch.