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An Implementation Process for Complementary Therapy Pain Interventions in a Transitional
Care Setting

DNP Project

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Nursing Practice

St. Catherine University
St. Paul, Minnesota

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This quality improvement project was part of the Interprofessional Education Clinical Scholars
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Abstract

Background: A Minnesota Metro Area transitional care facility reported higher-than-average moderate-to-severe pain scores. Objective: This interprofessional, evidence-based project purpose was to develop a sustainable implementation process for patient pain management using complementary therapy interventions. Methods: The National Implementation Research Network (NIRN) implementation drivers guided the three-phase project: 1) a stakeholder analysis, 2) staff and leader education and 3) initial implementation. Results: Stakeholder analysis data were triangulated to identify themes about staff and leader perspectives on implementation. The staff education module, using findings from the stakeholder analysis, demonstrated a significant ($z = 82, p = 0.009, n = 22$) change in staff and leader pre-post knowledge scores. The project created multiple products to support initial implementation and sustainability of the complementary therapy pain interventions. Conclusions: A stakeholder analysis is an essential implementation process for positive change. Knowledge increased following an educational intervention developed from themes emerging from the stakeholder analysis. The NIRN framework served as the foundation for initial implementation and sustainability of the complementary therapy interventions. Nursing Implications: Using the NIRN framework promoted positive nurse-led change. Engaging all stakeholders, along with leadership support, is essential in the process and sustainability of practice change.

Key Words: Quality Improvement, Pain Management, Complementary Therapy,
Interprofessional

An Implementation Process for Complementary Therapy Pain Interventions

Creating sustainable systems change is a challenge and requires an evidence-based framework for sustainability (National Implementation Research Network [NIRN], 2013). Successful systems change will review the evidence, utilize the current strengths of an organization, identify barriers, develop a plan for initial and sustained change, and review the fit, needs, resources, readiness and capacity to change as part of the implementation process (NIRN, 2013). This quality improvement project represented the joint efforts of an Interprofessional Education Clinical Scholars Team (IECST), a partnership between a university and a transitional care unit (TCU) facility in the Metro Area of Minnesota. The team included faculty and students from the university, TCU staff, and leaders. The goal of the project was to implement complementary pain management interventions to help reduce client reported moderate to severe pain using the principles of Implementation Science.

Background

The TCU received initially higher than average Minnesota and national patient reported moderate to severe pain scores as reported to the MDS (IPSC, 2018). In response, a feasibility study on complementary therapy interventions took place in 2016-2017 on one TCU. The study results indicated that there was a statistically significant decrease in patient pain ($p=0.002$) following the use of the tested complementary pain interventions: guided imagery, progressive relaxation, and therapeutic music (IPCS, 2018). Additional benefits of the complementary therapies included reduced patient anxiety, greater relaxation, improved sleep, and diminished agitation (IPCS, 2018). The significant decrease in patient pain supported the need to plan for site-wide implementation and sustainability of the complementary pain interventions.

Purpose

The purpose of this quality improvement project was to reduce patient pain through the design and implementation of complementary therapy interventions, guided by implementation science strategies. Complementary therapy interventions include guided imagery, progressive relaxation, and therapeutic music. The interventions are patient administered via compact discs (CDs) and CD players.

Framework and Study Design

This quality improvement study used before and after measures, and is based on the Active Implementation Drivers Framework as described by the NIRN (2008) (see Appendix A). According to this framework, there are three primary drivers of effective implementation: 1) Competency Drivers, 2) Organization Drivers, and 3) Leadership Drivers. Successful implementation relies on the relationship between each of these drivers. The failure of any one of these critical elements can undermine the outcome (NIRN, 2008). The competency driver focuses on staff education and training, emphasizing using selected staff, sometimes called champions or coaches. The organization driver focuses on reducing barriers to innovation that may include cost, additional paperwork when using the innovation, and the disruption of workflow. The leadership driver focuses on the importance of adaptive, proactive, and enthusiastic leaders in supporting the team's understanding of innovation and in facilitating an environment in which staff is empowered to enact the change (NIRN, 2008). Overall, this framework emphasizes that changes to clinical workflow require staff training, support from clear organizational policies, and motivated leaders to guide the process.

The implementation included an educational component. The NIRN Active Implementation Drivers framework was partnered with the Kirkpatrick Model for training

evaluation (see Appendix B) to help determine the effectiveness of the educational intervention and resulting organizational systems implementation (Kirkpatrick, Kirkpatrick, & Kirkpatrick, 2009). According to this model, there are four items to consider when planning a teaching intervention to help ensure success including 1) Reaction or the degree to which learners find the training relevant to their jobs and engaging, 2) Learning or the degree to which the learners gain the “knowledge, skills, attitude” and “confidence” planned by the training, 3) Behavior or the extent to which learners apply what they have learned in training to their work, and 4) Results or the degree to which the desired outcomes are reached based on the training (Kirkpatrick, Kirkpatrick, & Kirkpatrick, 2009).

Literature Search and Synthesis

Using the PICO question, “What are the best mechanisms for implementing and sustaining complementary therapy interventions that decrease pain for patients in transitional and long-term care?” a literature search ensued. Using the Johns Hopkins Nursing EBP Model Research and Non-Research Evidence Appraisal Tools (Dang & Deerholt, 2017), 20 articles met the inclusion criteria (see Appendix C). Eligible articles synthesis provided consistent evidence to highlight the importance of the stakeholder analysis, staff competency, and organizational supports as distinct steps of project implementation and sustainability.

Stakeholder Analysis

A review of the literature identified a stakeholder analysis as a crucial step for implementation with sustainability. The three key areas to assess during a stakeholder analysis are leadership support, barriers to success, and organizational culture. This information should inform the types of questions asked to stakeholders within an organization. Results highlighted that having ongoing access to a leader or champion was critical in project implementation and

sustainability (Abrahamson, DeCrane, Mueller, Davila, & Arling, 2015; Crandall, White, Schuldheis, & Talerico, 2007; Fleiszer, Semenic, Ritchie, Richer, & Denis, 2015a; Hendy & Barlow, 2012; Rantz et al., 2012). Specht (2013) recommended including certified nursing assistant (CNA) in an implementation and sustainability plan due to their frequent contact with patients.

Addressing barriers to successful implementation and sustainability is also important. Egan and Cornally (2013) reported that patient-related barriers rated highest when compared to a caregiver or organizational barriers. Study results suggested that possible barriers included barriers to assessing pain; inability to integrate intervention into practice; lack of interprofessional involvement, leadership support, education, and communication between providers; and inadequate time, policies, procedures, resources, and funding (Egan & Cornally, 2013; Fleiszer et al., 2015a; Fleiszer, Semenic, Ritchie, Richer, Denis, 2016; Gagnon, Hadjistavropoulos, & Williams, 2013; Kaasalainen et al., 2010).

Finally, culture plays a significant role in implementation and sustainability. Kaplan et al. (2010) noted that the culture of the organization is a major influence in quality improvement initiatives success. Additionally, Fleiszer et al. (2015a) suggested that issues related to organizational culture were negative influences on sustainability.

Staff Competency and Education

The literature review revealed that education is important to increase staff knowledge about pain and the use of complementary therapies. Major themes that emerged from the review of literature included: (a) the importance of ongoing education for staff, (b) a mix of interactive and didactic educational methods, (c) top-down administrative leadership paired with comprehensive input from staff on all levels, and (d) documentation of pre-post intervention

knowledge levels (Ament et al., 2014; Gagnon et al., 2013; Ghandehari et al., 2013; Jones et al., 2004; Long, 2013; Rantz et al., 2012; Reid, O'Neil, Dancy, Berry, & Stowell, 2015).

Additionally, Rantz et al., (2012) suggested that education also include nurse leaders involved in the MDS and Quality Indicator/Quality Measure (QI/QM) process to help staff interpret how pain scores correlate with federal QI/QM scores.

It is clear that well-documented staff knowledge and beliefs around pain are imperative before and after the educational component. Baseline “before” and “after” data can be used to measure and document staff learning, or lack thereof, which can then be used by administration to justify and curate additional education (Ament et al., 2014; Gagnon et al., 2013; Ghandehari et al., 2013; Long, 2013; Rantz et al., 2012; Reid et al., 2015). Finally, the literature supported that three of the common surveys given to measure staff knowledge and beliefs before and after interventions included the following: The Pain Beliefs Questionnaire (Edwards, Pearce, Turner-Stokes, & Jones, 1992), a general demographic survey, and site-specific knowledge questionnaires (Gagnon et al., 2013; Ghandehari et al., 2013; Long, 2013). Integrating these evidence-based practices into the educational component of quality improvement projects may assist in higher levels of success.

Organizational Systems

Organizational system supports are a key consideration for the effective implementation of sustainable change (NIRN, 2008) with the aim of identifying and decreasing barriers to support innovation success (NIRN, 2013). The evidence in the literature review supported multiple key items to promote successful implementation and sustainability of the planned complementary therapy interventions. The planned change must fit into the organizational culture and social context (Ament et al., 2014; Fleiszer et al., 2015a; Rantz et al., 2012).

Evidence strongly maintained that sustainable implementation of complementary therapy interventions must incorporate the innovation into the natural workflow environment helping to ensure longevity (Finch-Guthrie, 2016; Fleiszer, Semenic, Ritchie, Richer, & Denis, 2015b; Fleiszer et al., 2016). Additionally, evidence suggested that shared leadership and ownership of the project was critical for project success and continuation. Buy-in from nurses, leadership, therapists, and CNA's are equally important (Fleiszer et al., 2015b; Kaasalainen et al., 2010; Leone, Standoli, & Hirth, 2009; Rantz et al., 2012). Etheridge, Couturier, Denis, Tremblay, and Tannenbaum (2013) further suggested actively working toward the change using "planned, scientific, orderly and regulated management" (p. 676) to close the gap between what is occurring within an organization and what should occur. Consideration of these organizational systems supports was essential for successful implementation with the sustainability of complementary therapy measures at the TCU.

Implementation Methods

The project implementation began after identifying the best mechanisms for implementing and sustaining complementary therapy interventions for patients in transitional care. The NIRN Active Implementation Drivers framework (2008), Kirkpatrick Model for Training Evaluation (Kirkpatrick, Kirkpatrick, & Kirkpatrick, 2009), literature review, and summary of recommendations guided the project through three phases including a stakeholder analysis, staff education, and initial implementation at the organizational systems level.

Phase I: Competency/Leadership Driver – Stakeholder Analysis

Using the information from the literature review, the IECST developed a stakeholder analysis survey for staff (nurses, therapists, and CNAs) and interview questions for leaders, to identify and gather information from key persons at the TCU. Some facility leaders and staff

reviewed the draft stakeholder survey to provide feedback on understandability and ease of use. The feedback helped guide revisions to the written stakeholder survey prior to administration. Informational posters displayed throughout the facility promoted staff survey participation for the stakeholder analysis. Written scripts provided to leaders to share with staff promoted voluntary participation in the project before the staff stakeholder survey took place. Staff anonymously completed the written six-item stakeholder analysis survey. Leaders participated in a 15-question interview with two IECST members over the telephone; one member conducted the interview and the other word-processed the transcription of the interview. Participants reviewed the de-identified transcriptions individually and then aggregately for accuracy. These analyses aimed to identify staff and leader viewpoints on existing and necessary resources, education, barriers or challenges, supports, and systems or policies for implementing and sustaining the complementary therapies.

Given the diverse nature of the data, analysis of the results varied. The results of the written staff survey used descriptive frequency statistics for the quantitative survey questions and the responses to the four qualitative questions were aggregated and summarized. The leaders' perspectives on the complementary therapies used a qualitative design based on a grounded theory approach for analysis. Themes were identified using inductive themes analysis and triangulated with results from the stakeholder surveys. The results of the stakeholder analysis provided important information to guide and plan for implementation of the complementary therapies.

Phase II: Competency Driver – Staff Education

The IECST synthesized the information from the stakeholder analysis and literature review to create the educational content and knowledge test with feedback from facility leaders.

Education for staff about complementary therapies served as the necessary competency driver to ensure staff was knowledgeable and able to integrate complementary therapies into daily practice. Four didactic educational sessions, each 45-60 minutes, occurred. Staff voluntarily attended one education session occurring during their scheduled shift or break. Upon entry to the session, attendees received a randomly numbered envelope. Inside the envelope was a copy of the IECST developed pre and post Knowledge Test, the Edwards et al. (1992) pre and post Pain Beliefs Test, and the in-service evaluation form; all identically numbered. This numbering allowed the pre and posttests to be attributed to an individual staff member and ensured anonymity of that individual. The content of the educational sessions included information about the background of the project, stakeholder survey results, the complementary therapies, contraindications, the developed tools for initial implementation, and how use the complementary therapies within professional scopes of practice.

Additionally, discussions included information on how beliefs about pain influence the felt experience of pain, the way pain is treated, and myths and facts about pain in older adults. Two short videos demonstrating two nursing staff champions role-playing offering complementary therapies to patients and retrieving equipment from the storage room were played. Staff were taught how to weave new complementary therapies into practice via education about documentation, how to prepare the patient, staff leadership roles, and sustainable use. Staff were given time both before and after the education session to fill out the Knowledge Test as well as the in-service evaluation form.

Descriptive statistics analyzed the results of each section of the pre and post Knowledge Test. A new variable for the number of participants with correct answers divided by the total number of participants for each question was created. This information aided to evaluate ratio

level data for each item. Analysis occurred for the mean and standard deviation for pre and post-test. The pre and post-test Knowledge Test variables were tested to identify normal or non-normal data distribution using the Kolmogorov-Smirnov Test (SPSS, 2018). Based on this test for normality the investigators used the Related-Samples Wilcoxon Signed-Rank Test (Statistics Solutions, 2019).

Phase III: Organizational Driver – Systems Support

The literature review, stakeholder analysis results, and staff competency and education results guided the organizational systems phase of the project. The third and final phase of the project, implementation, was initiated based on facility preference related to their workflow and needs. This phase examined the impact of using the selected complementary therapy interventions as part of the available pain interventions for transitional care unit patients. The IECST created multiple copies of the complementary therapy interventions audio files on CDs for the patients to use.

Working with leaders from the facility tools for initial implementation were developed. During the educational sessions, information on the interventions, site-specific policy, staff education, and the documentation process were referenced. All information was then placed in binders for continued reference during initial project implementation. The binders are stored on each unit and with the RN Clinical Coordinator for reference by staff during the implementation process. The IESCT offered continued support through initial implementation and further discussions on implementation barriers and sustainability occurred.

Institutional Review Board and Limitations

The University Institutional Review Board (IRB) reviewed the project determining it be quality improvement in nature and designed to contribute to general knowledge. Limitations to

the generalizability of the findings include the small sample size, from one TCU in the Metro Area of Minnesota. Multiple barriers experienced during project including the resignation of the Director of Nursing, RN scope of practice concerns regarding complementary therapy assessment and limited time and funding for the project. While the NIRN framework design accounts for weakness in one side of the triangle; barriers were experienced on all drivers – leadership, competency and organizational – making implementation challenging. Additionally, the project included initial implementation only therefore information on sustainability of the complementary therapy interventions is not available.

Outcomes

Phase I: Competency/Leadership Driver – Stakeholder Analysis

Participants ($N=27$) in the stakeholder survey included CNAs ($n=11$), registered nurses (RN; $n=5$), occupational therapists ($n=3$), occupational therapy assistants ($n=3$), licensed practical nurses (LPN; $n=2$), a physical therapist ($n=1$), a social worker ($n=1$), and a health unit coordinator ($n=1$). There were four leader participants in the stakeholder interviews. The analysis identified several common themes the IECST used when planning the education and implementation phases of the project (see Appendix E).

Phase II: Competency Driver – Staff Education

Participants ($N=26$) in the educational sessions and surveys included CNA ($n=7$), RN ($n=6$), OT ($n=4$), OTA ($n=2$), LPN ($n=1$), PT ($n=2$), PTA ($n=2$), Administrative Leadership ($n=1$) and Administrative Leadership/LPN ($n=1$). The data from the Pre and Post Knowledge Test Descriptive Statistics (see Appendix D, Table 1) were not normally distributed as shown by the Kolmogorov-Smirnov normality test. Therefore, the Wilcoxon Signed-Rank Test was used to analyze the data. The Wilcoxon Signed-Rank Test indicated that the median post-test ranks

were statistically significantly higher than the median pre-test ranks ($z=82$, $p=.009$, $n=22$), which showed positive increase in knowledge supporting the Kirkpatrick Model (Kirkpatrick et al., 2009). The pre and post Pain Beliefs Questionnaire scores revealed no significant change. Participants scored high on the pre-test. Considerations for these findings include that it would take longer to observe behavioral change, especially when initial scores were higher than expected (see Table 3, Appendix F).

Phase III: Organizational Driver – Systems Support

To aid in the successful implementation of the project the IECST developed multiple tools. These tools aimed at incorporating the complementary therapies into the daily practice and workflow. The tools included: 1) a site-specific complementary therapy policy, 2) one-page summary references for staff with important information for each complementary therapy, 3) a patient education brochure, and 4) an equipment use process for the CD players and CDs. The IECST worked with the Corporate Technology Resource Nurse to input additional documentation fields into the electronic medical records system to help nursing assistants document the use of the pain complementary therapy interventions. Furthermore, the IECST created a resource document for patients to use after discharge listing complementary therapy resources for pain as requested by facility staff and patients after implementation.

Recommendations

In summary, the three phases of the project each provided key findings to support the best mechanisms for implementing and sustaining complementary therapy interventions to decrease pain for patients in transitional care. The NIRN (2008) Active Implementation Drivers framework provided an evidence-based context to design and complete initial implementation of complementary therapy interventions. Results from the stakeholder analysis highlighted staff and

leaders' perspectives on potential barriers and supports, necessary resources, policies, procedures, and educational needs. The staff competency and educational component addressed concerns around RN assessments and use of complementary therapy interventions for pain. The education resulted in a statistically significant change in knowledge following educational sessions. Considerations for continued sustainability of the complementary therapy interventions include on-going leader support, quality improvement monitoring, continued staff education and support, annual review of complementary therapy policies and documentation processes, and continued education for patients on complementary therapy pain interventions.

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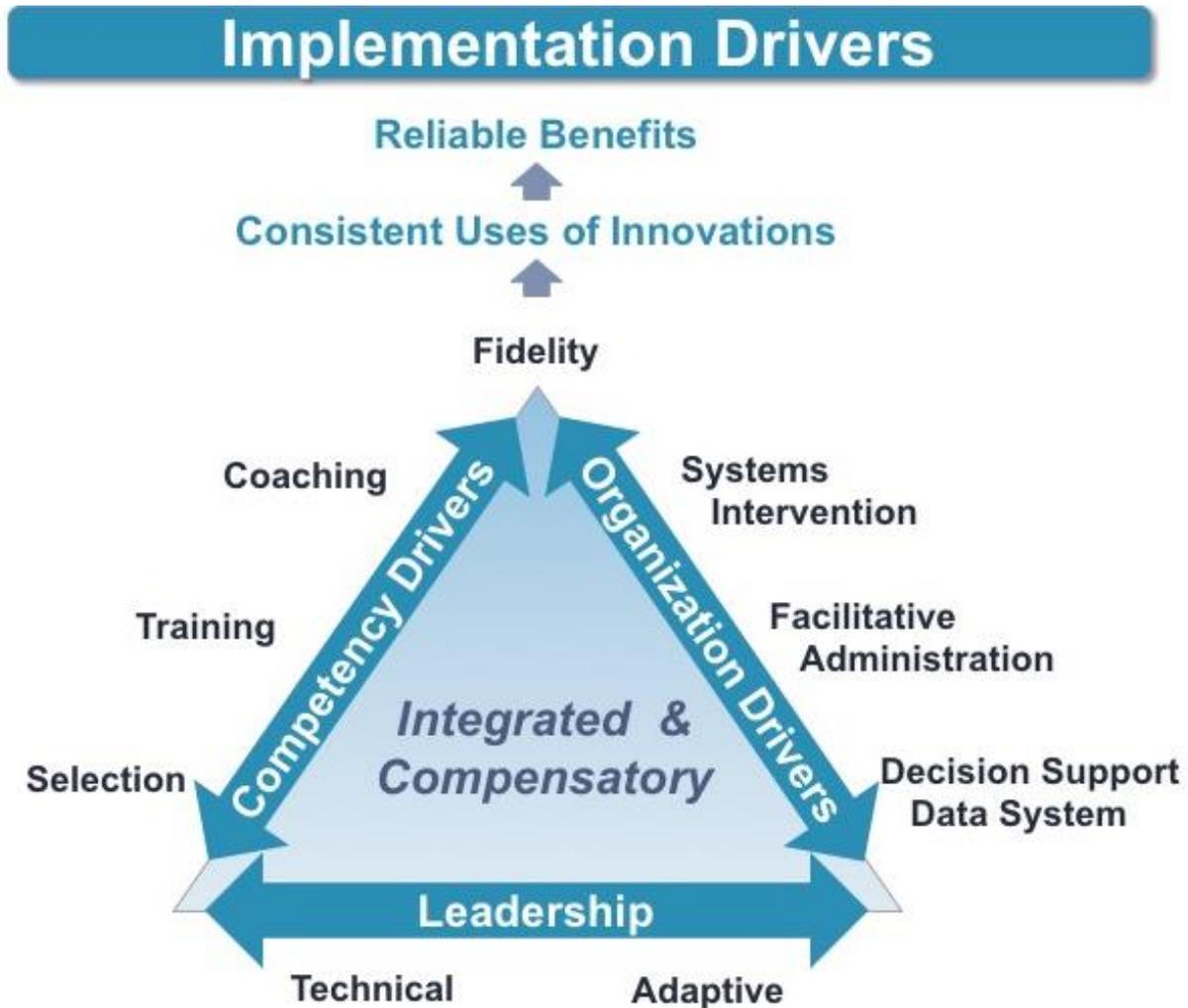
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Appendix A

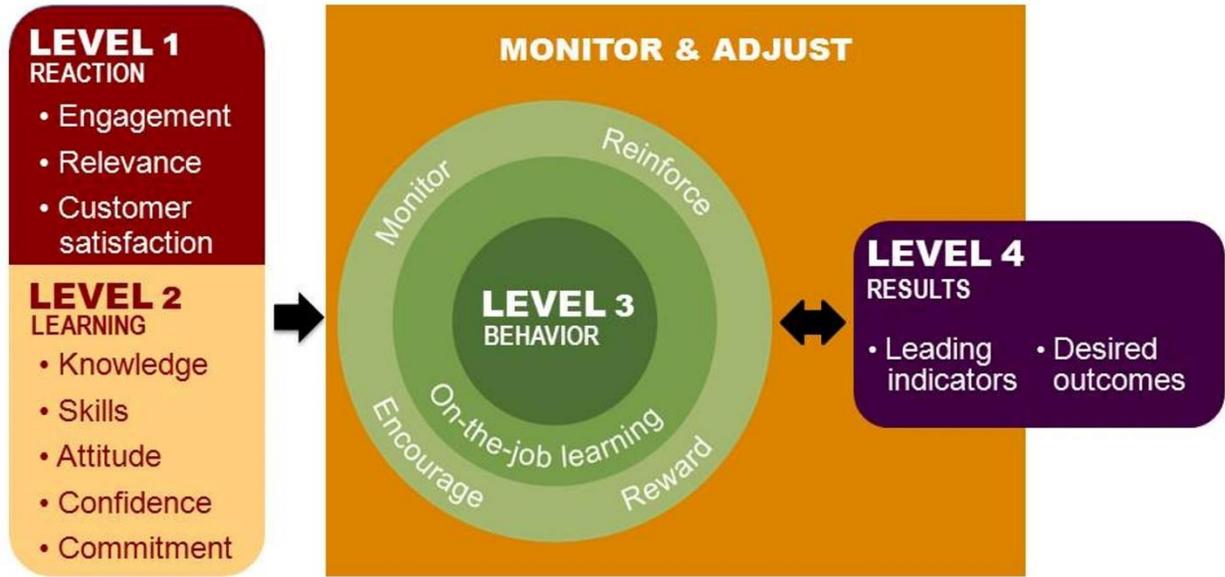


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Figure 1. Implementation Drivers (NIRN, 2016).

Appendix B

THE NEW WORLD KIRKPATRICK MODEL

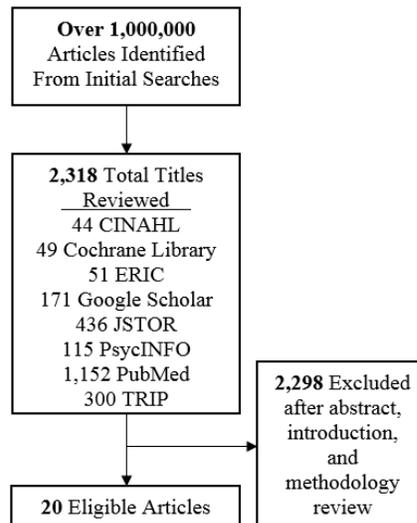


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Figure 2. Kirkpatrick Model for Training Evaluation (Kirkpatrick et al., 2009).

Appendix C

Figure 3. Database Search by the Numbers



Inclusion Criteria:

1. Studies described implementation or sustainability strategies, barriers, supports, and/or education/training techniques related to healthcare settings.
2. Relevant to PICO question.
3. More attention was spent on articles that were published within the past ten years, but articles beyond ten years were included if they met other inclusion criteria.
4. Reports of quality improvement projects related to pain in healthcare settings were reviewed to inform the project.
5. Two additional articles were included in the literature review from outside of the database search, based on reading references from relevant articles.

Appendix D

Table 1
Pre and Post Knowledge Test Descriptive Statistics

| | Min | Max | Mean | Standard deviation |
|----------------------|-----|------|------|--------------------|
| Pre-knowledge ratio | .33 | .83 | .62 | .18 |
| Post-knowledge ratio | .33 | 1.00 | .72 | .17 |

Note. * denotes a significant difference. Pre-test $N=22$ and Post-test $N=24$

Appendix E

Table 2
Stakeholder Analysis Aggregate Themes

| Theme Identified | Theme Details |
|------------------------|---|
| Resources | Adequate funding to have access to the necessary resources. |
| Barriers | Identified barriers include cultural, financial, beliefs, intervention as a barrier interference, and staff implementation barriers. |
| Education | Many participants discussed the importance of staff education to support implementation and sustainability of complementary therapies. |
| Patients | Participants commented on the importance of considering patient preference and patient acceptance of the complementary therapies. |
| Data Needs | Participants expressed the desire to have different types of data, and that results of the data will be a factor in sustained change. |
| Complementary Therapy | Participants made various comments related to complementary therapies, such as using analogies, other options for pain management, and creating an appropriate environment for the complementary therapies. |
| Cultural Change | Participants highlighted the importance of changing the culture of the organization in order to implement and sustain the complementary therapies. |
| Administration | Administrative buy-in will be beneficial and necessary for implementation and sustainability. |
| Equipment Needs | Sufficient, available, modern equipment that is easy to use. |
| Integration Strategies | Multiple comments noted on the logistics of how to use these complementary therapies within the organization. |
| Documentation | Emphasis on the need for documentation systems and ability to document the use and effectiveness of the complementary therapies. |

Appendix F

Table 3

Organic and Psychological Pain Beliefs Pre/Post Test Scores

| | Organic | | Psychological | |
|--|---------|-------|---------------|-------|
| | Pre | Post | Pre | Post |
| Median | 21.50 | 21 | 17 | 17 |
| Mean | 22.50 | 22.26 | 17.22 | 17.63 |
| Standard deviation | 3.67 | .76 | 2.95 | .61 |
| Kolmogorov-Smirnov (pre-test) significance score | .000 | .132 | .000 | .200 |
| Kolmogorov-Smirnov (pre-test) statistic score | .322 | .17 | .322 | .13 |