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Collaborative Treatment Plan Development

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Walden University
2018

Abstract

Collaborative Treatment Plan Development

by

Sally Elizabeth Kangas

MS, St. Catherine's University, 2012

BS, College of St. Scholastica, 1982

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

November 2018

Abstract

The practice problem for this quality improvement project was the lack of engagement of chronic back pain patients at a Midwest clinic in evidence-based risk/benefit discussions regarding treatment options. The project was designed to explore whether practice guidelines increase patient engagement as measured by the Patient Activation Measure (PAM). Practice guidelines for interactive patient/nurse practitioner discussions regarding treatment options were developed, implemented, and evaluated. The concepts of chronic pain, chronic pain treatment options, and patient engagement were researched, and the evidence was evaluated using the Grades of Recommendation Assessment, Development, and Evaluation system. The clinical practice guideline was developed following the domains of Agree II. The project was based on the Chronic Care Model and Roy's Adaptation Model. Sources of evidence included literature on the PAM survey and development and implementation of a clinical guideline. To evaluate the project, PAM data were analyzed using a paired t test to compare means before and after implementation of the practice guidelines. The PAM mean score was 45.86 prior to guideline implementation and 76.62 post implementation. Paired t testing ($p < .000$) showed statistically significant increase in scores. Implications for the patient might be a decreased level of chronic back pain by patients' full engagement in treatment options. Contributions to positive social change include increased patient engagement because patients will experience control over treatment options and experience less pain as a result.

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Dedication

This project is dedicated to my daily chronic back pain patients, to my nurse practitioner and physician colleagues, and to my family who supported me through this scholarly project focused on chronic pain.

Acknowledgments

I would like to thank Dr. Barbara Niedz, Dr. Cassandra Taylor, and Dr. Margaret Harvey for their guidance and support throughout this scholarly project. I appreciate the nurse practitioners and physician assistants that participated in this quality improvement endeavor at our clinic. I extend a special thank you to my family who have been very supportive throughout my academic pursuit to achieve the doctorate level in nursing.

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Section 1: Nature of the Project

Introduction

Chronic back pain is a condition that many patients experience daily, but they often do not pursue treatments because providers do not offer interactive risk/benefit discussions with patients regarding treatment options. This lack of patient engagement can result in incomplete patient understanding of their condition or treatment options and in not pursuing treatments which could reduce their back pain

This was a quality improvement doctoral project I designed with the aim of increasing patient engagement. I conducted this project, as an approved quality improvement initiative, a chronic pain clinic in the Midwest. According to Irizarry, Dabbs, and Curran (2015), patient engagement occurs when patients are involved in, and make educated decisions, about their healthcare. Drawing on the concept definitions shared by Higgins, Larson, and Schnall (2016) and Koh, Brach, Harris, and Parchman (2013), I defined *patient engagement* as the actions a patient takes to receive optimal benefit from healthcare services, which have evolved from the patient – provider relationship as well as the healthcare delivery environment. This quality improvement project involved (a) developing a practice guideline, with input from nurse practitioners, that guided providers in interactive evidence-based risk/benefit discussions regarding treatment options; (b) implementing this practice guideline into the chronic pain clinic practice; and (c) evaluating the practice guideline's effectiveness in patient engagement as measured by the Patient Activation Measure (PAM). The PAM survey measured patient activation, which Hibbard and Greene (2013) described as the skills and

confidence that give patients the ability to be actively engaged in their health care,

leading to enhanced patient health outcomes and patient experience. I developed the

practice guideline and accompanying algorithm and presented it to an expert panel

comprised of the nurse practitioners at the clinic for their feedback and approval prior to

implementation. The algorithm provided a simplified step-by-step overview of the

patient engagement guideline. The patients completed the PAM survey prior to practice

guideline implementation, and at the conclusion of an 8-week period, and they were

involved in developing their treatment plan at each visit. The PAM survey indicated if

patients were activated, believing they had an important role in self-managing care,

collaborating with providers, maintaining their health functioning, and accessing

appropriate and high-quality care (see Insignia Health, 2017). The PAM survey

evaluation provided nurse practitioners information on the patients' levels of activation,

which represent the skills and confidence that give them the ability to be actively engaged

in their health care

     Potential positive social change implications included empowerment, respect, and

dignity for patients as they were more involved in their treatment plan development and

were able to make educated decisions. The goal of increased participation in daily

activities could potentially affect society if patients are able to become engaged in

volunteering, the workforce, and other activities in and outside of the home. Patient

engagement in treatment plan development could also be shared with other chronic pain

clinics in this midwestern city. The nurse practitioners also benefitted from this project

inasmuch as developing treatment plans with chronic back pain patients improves their

outcomes, contributing to positive social change.

Problem Statement

I addressed lack of patient engagement in this quality improvement project.

Patients were not engaged at this chronic pain clinic, and were not receiving optimal

health care because they were not having interactive evidence-based risk/benefit

discussions regarding treatment options. Hibbard and Greene (2013) found that with less

engagement or lower levels of activation, patients are three times as likely to have unmet

medical needs and are twice as likely to delay medical care, compared to more engaged

and activated patients. Barello, Graffigna, and Vegni (2012) reported that results of

nonengagement may include preventable illness and suffering, decreased health outcomes

and increases in health disparities. Chronic back pain patients often do not have a

complete understanding of their condition and treatment options, and health care

professionals need to deliver appropriate information to improve patients' understandings

of their medical conditions and treatment options (Rantonen, Vehtari, and Karppinen,

2014). This negatively impacts their quality of life and limits the activities in which they

can participate. Dansie and Turk (2013) explained that chronic pain negatively affects

the individual patient as well as their significant others, which makes appropriate

treatment essential. They noted that a majority of people with painful conditions

continue to experience significant pain that impairs their quality of life, causing

significant physical disability and emotional distress. Jonsdottir, Gunnarsdottir, and

Oskarsson (2016) found that lack of provider communication about the pain condition

may decrease the patient's understanding of pain and may lead to less patient involvement in and adherence to treatment. Watson, Cosio, and Lin (2014) explained that lack of patient education is associated with a decreased quality care for patients with chronic pain. Dansie et al. (2013) found that on average, the amount of pain reduction by available procedures is 30-40%, and this occurs in fewer than one-half of treated patients. In short, the majority of those with chronic pain continue to experience chronic pain, despite trying many treatments, which reduces their quality of life. Dansie et al. (2013) pointed out that successful treatment of the patient can only occur if all factors impacting the patient are assessed including cognitive, environmental, social, and emotional elements, but a thorough review of these factors is often lacking in patient assessment. This impacts the individual patient and their families. For these reasons, this issue should be addressed.

This quality improvement project took place at a Midwest chronic pain clinic on the edge of a metropolitan area and suburbs. The clinic serves over 7,000 patients from diverse populations yearly. The lead physician owns the clinic, and a clinic administrator runs the day-to-day operations and leads the various departments. There are 12 nurse practitioners who see all of the patients at their follow up visits. At this chronic pain clinic, there was no consistent protocol to follow to engage patients in their health care including development of their treatment plan. Patients often made statements indicating that they did not understand what is causing their back pain and statements demonstrating they did not know how some treatment options can decrease their pain. Patients at this clinic were observed by the lead physician and project manager to be hesitant to ask

questions. The nurse practitioners were observed to tell the patients what they recommended for treatment without asking the patient whether they understood what these treatments were and if they had questions. The patient was not given a hard copy of the treatment plan, and there was no specific protocol to review the treatment plan with the patient. Nurse practitioners proceeded according to their own, individual manners. It was also observed by the project manager that patients often did not pursue treatment options such as injections or stimulators, and they did not ask questions regarding these treatments. The lack of patient engagement in this chronic pain clinic was most likely due to absence of a protocol to engage patients, including a hard copy back pain treatment plan that patients can take home with them.

Advanced practice nurses at this chronic pain clinic conduct all patient follow ups and spend the entire visit with the patient. They develop the treatment plan for patients, which is why it is appropriate for the advanced practice nurse to take steps to assure patients are engaged during their visits, understand their conditions and treatments, and are involved in the treatment plan development.

Purpose

The purpose of this DNP quality improvement project was to develop, implement, and evaluate practice guidelines that guided providers in interactive evidence-based risk/benefit discussions regarding treatment options. This project assisted nurse practitioners in the chronic pain clinic as part of an approved quality improvement initiative that encouraged patient engagement at each visit by educating them and providing best evidence on the treatment options available. Effectiveness of patient

engagement was measured via the PAM survey (Insignia, 2017). The gap in nursing practice at the project site was that the providers did not provide interactive risk/benefit discussions with patients regarding treatment options. Patients were told that physical therapy, injections, pain psychology, pain medications, and neurostimulators were proven to be effective for back pain reduction and were given a handout on these options without much explanation. Patients were often resistant to trying these treatment options and did not ask many questions. Pascale, Ghadiri, Karazivan, Fernandez, and Clavel (2015) reported that patient engagement is the actions patients take to improve their health. They encouraged patients to become more involved with their healthcare, and argued that patients should be considered full partners with their health care providers. Epstein and Street (2011) contended that patients should be heard, informed, respected, and involved in their care during their health care journey. The guiding practice-focused question for this project was: Do chronic back pain practice guidelines increase patient engagement, as measured by the PAM? I developed a patient engagement guideline for chronic back pain patients at a midwestern chronic pain clinic. The gap in practice at this chronic pain clinic was that the providers did not provide interactive risk/benefit discussions with patients regarding treatment options. Patients were not regularly asked if they had questions during and after their visits, which left many of their questions unanswered due to lack of patient engagement. Patients inconsistently received treatment option information, and when they did, they did not completely understand these treatments because they were not engaged. This lack of understanding of their condition and treatment options led to patient hesitance and resistance to pursuing treatment options,

and there was little reduction in their chronic back pain according to their pain scale scores at each office visit. Patients indicate on a patient intake form what their pain score is prior to meeting with the nurse practitioner, and then the nurse practitioner reviews the intake form information from the prior visit. It was observed by the lead physician and project manager that there was minimal patient engagement in office visits at this chronic pain clinic, and patients often did not pursue treatments other than pain medications. A few of the patients at this chronic pain clinic who had a clear understanding of their conditions and treatments and pursued the treatments were observed by the project manager to be the patients who had done research or who spoke up and asked questions at office visits. Therefore, I determined that actively pursuing patient engagement at office visits by having the nurse practitioners follow an evidence-based practice guideline was one solution to enhancing patient engagement at this chronic pain clinic.

In this project, the nurse practitioners followed the patient engagement guideline by comprehensively educating their patients on their back conditions and treatment options utilizing effective communication techniques. The nurse practitioners then reviewed all potential back pain treatment options at the end of every follow up visit with their chronic back pain patients. This included physical therapy, injections, neurostimulator, pain psychology, and medications. The nurse practitioners decided with their patients which treatment options they would pursue before the next follow up visit. The treatment plan was available in the electronic record and a hard copy was printed for the patient at each visit. Patients were asked if they had any questions during and at the end of the visit.

Nature of the Project

I obtained sources of evidence for this project through an extensive review of peer reviewed scholarly articles. Topics researched via databases included *patient engagement, patient involvement, treatment plans, patient education, chronic back pain, chronic pain, chronic condition, patient compliance,* and *patient-provider communication*. I used the Grades of Recommendation Assessment, Development, and Evaluation system (GRADE) to evaluate the constitutive elements of each source. These elements included level of evidence, the results, the strengths and limitations of the study, and the method design. To develop the clinical practice guideline, I met with the nurse practitioners on two occasions. At the first meeting, I presented a draft of the clinical guideline for patient engagement and sought recommendations for revising and enhancing the guideline. Open-ended questions were asked to encourage participation and recommendations. The second meeting involved presentation of the revised clinical guideline and algorithm. My goal was to build consensus on the final guideline using the Delphi technique. The algorithm was a tool for the providers which was an overview of the guideline in a simplified chart format.

The purpose of this doctoral project was to address the gap-in-practice by developing, implementing, and evaluating practice guidelines. The practice guideline guided providers in the provision, follow-up, and documentation of interactive risk/benefit discussions regarding back pain treatment options. The practice guideline provided the nurse practitioners with tools needed to engage patients in the chronic back treatment plan at each visit over an 8-week period. Prior to implementation of this

quality improvement initiative, I provided an overview of the guideline to the nurse practitioners at the monthly provider meeting. I then met individually with each nurse practitioner to review the clinical guideline, algorithm, patient handouts, the PAM survey, the coding system for patient identification, and the comprehensive, individualized treatment plan. At that point, each nurse practitioner began implementing the guideline for 10 patients.

The anticipated findings included increased patient engagement, leading to an understanding of their conditions and treatment options so they could pursue treatments and be actively involved in their health care. I anticipated that active involvement would lead to enhanced health outcomes and a better patient experience. I used the PAM scale as the primary tool to collect the information to answer the practice-focused question. The nurse practitioners had the patients take the survey prior to implementation of the quality improvement initiative, and then had them take the survey again after following the guideline for three office visits. I entered the results of the PAM survey on all participants into the Insignia software and then analyzed results. This analysis indicated if the patient's activation score and level of activation, which reflects patient engagement, increased from the first visit to the third visit. This was a valid and reliable result, answering the question of whether following the patient engagement practice guideline resulted in a higher level of patient engagement as measured by the PAM survey. Hibbard et al. (2005) performed pilot studies verifying the reliability and validity of the PAM survey. I also conducted paired *t* testing was on the activation scores for this

project to determine statistical significance of the activation scores. This doctoral project was an approved quality improvement initiative at a chronic pain clinic.

Significance

I identified many stakeholders for this project, including chronic back pain patients, nurse practitioners and physicians, volunteer organizations, employers, community organizations, families, and health care organizations. Potential contributions from this doctoral project to nursing practice include steps to enhance patient understanding of their conditions and treatment options. Such understanding may result from greater patient engagement in their treatment plans, which in turn may encourage patients to try treatment options that could reduce their chronic back pain. I developed this project with the aim to strengthen the provider-patient relationship, and to encourage the nurse practitioner to ensure that they have followed a comprehensive process to allow their patients an understanding of why treatments can decrease their pain. Koh, Brach, Harris, and Parchman (2013) found that high quality care is reliant on successful patient engagement where patients take actions to receive the greatest benefit from the healthcare services available to them. Jonsdottir et al. (2016) reported that patient-provider communication is an essential part of treatment, and that the patient's perspective should be the focus. They pointed out that it is important to listen and to give patients time and support to communicate their chronic pain experiences and how they impact their lives. Giving patients hard copies of their comprehensive treatment plans at each visit will give the patients the opportunity to review and confirm what they discussed with their nurse practitioner. The practice guideline included elements of engaging patients (how to

communicate with the patient, guidelines for provision of education on the patient's back condition, and treatment options), and concluded with development of the back pain treatment plan with the patient, which included the hard copy treatment plan the patient took with them.

This doctoral project could be applied to nurse practitioners and patients with other conditions such as neck pain, migraines, fibromyalgia, and other conditions treated for chronic pain. This project could also be applied to any chronic condition in clinics in the United States. Walden University's (2011) mission to promote positive social change is supported through this project by providing the nurse practitioners with a patient engagement guideline to guide providers on risk/benefit discussions with their chronic back pain patients. This was a quality improvement initiative that educated patients and provided best evidence on the treatment options available through effective patient engagement techniques that are included in the patient engagement guideline. This empowered them first to understand their chronic condition and set the foundation for the patient to then make educated decisions about their treatment plan. Engagement in treatment plan development allows growth and control for the individual and their loved ones. Second, review of a consistent, comprehensive treatment plan at each office visit promotes the worth and dignity of the patient because time is taken to review each treatment option. This allowed the patient to make an educated decision on which treatment options they wanted to pursue under the expert guidance of the provider through comprehensive risk/benefit discussions.

Understanding and pursuing these treatment options may lead to a higher quality of life, which could potentially allow the patients to participate in more activities. Participation in activities could range from reengaging in a career or volunteering in the community, to involvement in community events and personal hobbies. The strategy and action of following an evidence-based patient engagement practice guideline that assures proper education for the back-pain condition and then comprehensively reviewing and developing the treatment plan at each visit may improve the human and social condition for the patient.

In this project, I aimed to effect positive social change for nurse practitioners. That is, this comprehensive education and treatment plan development with the patient allowed the nurse practitioner to develop a higher level of professionalism by advancing the betterment of chronic back pain patients.

Summary

Chronic back pain patients often are not engaged in developing their treatment plans, do not have an understanding of their condition and treatment options, and do not pursue treatments. Epstein and Street (2011) recommended that patients be informed and involved in their care. The gap in practice identified for this project was that providers did not provide interactive risk/benefit discussions with patients regarding treatment options. This quality improvement project involved nurse practitioners developing, implementing, and evaluating a practice guideline on patient engagement. The nurse practitioners developed hard copy back pain treatment plans with patients that were reviewed at each office visit over an 8-week period with the goal of patients pursuing

more treatments to reduce their pain, so they could become active and more involved with family, their community, and society. The hard copy treatment plans had each potential treatment option including physical therapy, injections, medications, neurostimulators, pain psychology, healthy lifestyle, and alternative therapies. Sources of evidence for this project included extensive review of peer reviewed literature followed by a stringent review of the findings. Potential positive social change that may result from this project include empowerment, dignity, and respect for the patients and increased nursing professionalism for the nurse practitioners.

In Section 2, I review concepts, models, and existing scholarship on the topic of chronic pain, chronic pain treatment options, and patient engagement. Local evidence on the relevance of the problem and the context of the scholarly project setting is also discussed. Finally, I discuss my role as DNP student.

Section 2: Background and Context

Introduction

Chronic back pain is a condition that many patients experience on a daily basis. I addressed the problem of lack of patient engagement in back pain treatment at a chronic pain clinic in the Midwest. Patients often did not pursue treatments, which could potentially reduce their pain levels, because they were not engaged and they did not understand their conditions or the treatments. The guiding practice-focused question for this project was: Do chronic back pain practice guidelines increase patient engagement as measured by the PAM?

The gap in practice at the project site was that providers did not provide interactive risk/benefit discussions with patients regarding treatment options. Pascale et al. (2015) reported that patient engagement is the action patients take to improve their health. They encourage patients to become more involved with their health care, and argued that they should be considered full partners with their health care providers. Epstein and Street (2011) explained that patients should be heard, informed, respected, and involved in their care during their health care journey. The purpose of this DNP approved quality improvement project was to develop, implement, and evaluate practice guidelines that will guide the providers in interactive evidence-based risk/benefit discussions regarding treatment options. My goal for the project was for nurse practitioners in the chronic pain clinic to encourage patient engagement at each visit by following the patient engagement clinical guideline, which included education and

provision of best evidence on the available treatment options. Effectiveness of patient engagement was measured via the PAM survey.

This quality improvement project took place at a midwestern chronic pain clinic on the edge of a metropolitan area and suburbs. The clinic serves over 7,000 patients from diverse populations yearly. The owner of the clinic is the lead physician and a clinic administrator runs the day to day operations of the clinic and leads the various departments. There are 12 nurse practitioners who see all of the patients at their follow up visits. Many support staff are present, and each of the nurse practitioners has a scribe to document the visit and a medical assistant to bring the patients to the exam rooms to check their vital signs and have them complete paperwork prior to their office visit.

In Section 2, I discuss the concepts pertinent to this project including chronic pain, patient engagement, chronic pain treatment options, self-management, partnership, autonomy, and quality of life. I reviewed and then followed the chronic care model and Roy's adaptation model for this project. I also reviewed peer reviewed scholarly articles that demonstrated the current state of patient engagement, evidence-based treatment options for chronic back pain, and chronic back pain. GRADE was used to analyze each study, and I followed Appraisal of Guidelines for Research and Evaluation II (AGREE II) for clinical guideline development. Evidence on the relevance of lack of patient engagement and a description of the context related to the chronic pain clinic was reviewed. I conclude this section by describing my role as DNP student in this project.

Concepts, Models, and Theories

Agree II and GRADE

I developed the clinical guideline to guide providers in interactive evidence-based risk/benefit discussions regarding treatment options following the AGREE II instrument domains (Brouwers, Browman, Cluzeau, Fervera, and Makarski, 2013). I analyzed the peer-reviewed studies using the GRADE literature review tool. Terracciano, Brozek, Compalati, and Schunemann (2010) explained that the GRADE system allows four grades of evidence and three levels of strength.

Brouwers et al. (2013) noted that clinical practice guidelines are statements developed systematically to assist practitioner and patient decisions about appropriate care for clinical situations. The AGREE II instrument's purpose is to provide a framework to assess the quality of guidelines, to provide a methodological strategy for guideline development, and to guide what and how information should be reported in guidelines.

I reviewed each scholarly article via the GRADE literature review tool for the purpose of the study, type of study, data collection method, major findings, recommendations, strengths, and weaknesses. I then inserted findings into a table (Appendix A). Studies were then closely analyzed, ranked, and selected for use in this project.

I addressed each of the six domains and 23 elements under the domains of the AGREE II instrument in a chart format to assure all clinical guideline elements were

addressed. The clinical guideline and corresponding algorithm were then developed after the domain groundwork was established.

Chronic Pain

I drew on many concepts while developing this project on patients with chronic low back pain. Fu, McNichol, Marczewski, and Closs (2015) explained that chronic pain occurs for more than 12 weeks and is an unpleasant and continuous experience. They elaborated that low back pain is the most common type of chronic pain. Stewart, Jakubowicz, Beard, Cyphers, and Turner (2016) reported that the definition of pain varies. They discussed that the International Association for the Study of Pain (IASP) views pain as both an emotional and sensory experience that is unpleasant and is connected with potential or actual tissue damage. Alvarado-Garcia and Salazar Maya (2014) used the Kyoto protocol of IASP basic pain terminology, explaining that chronic pain is an emotional and sensory experience that is unpleasant and is connected to potential or present tissue damage related to a disease process. This unpleasant experience continues once the disease has been cured and traditional treatments have been performed. In her concept analysis of chronic pain, Breen (2002) explained that attributes of chronic pain fall within three primary dimensions: physical, behavioral, and psychological. Larner (2013) concluded after review of multidisciplinary consensus that pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. He also explored the definition of chronic pain and found that many researchers agreed it was pain without apparent biological value that had persisted beyond the normal tissue healing time. He took into account definitions from the IASP.

According to Haefeli and Elfering (2006), pain can be measured and assessed by different approaches. One measurement commonly used to measure the impact of pain on the individual's disability is the Oswestry disability index (Lee, Fu, Liu, and Hung, 2016). This tool measures the patient's ability to perform daily tasks such as dressing and walking. Two tools that are commonly used to measure pain intensity include the visual analogue scale and the graphic rating scale (Haefeli and Elfering, 2006). The visual analogue scale has the patient mark their level of pain along a straight line which has no pain at all on one end of the line and severe pain at the other end of the line. The graphic rating scale has the same approach, except numbers are added to the line. This scale has been used with a variety of numbers. Common scales include ratings from 1-5 or 1-10. At the chronic pain clinic where this scholarly project took place, patients complete the Oswestry disability index and graphic rating scale at every follow up visit.

Chronic back pain can have personal, economic, and social consequences. Dima, Lewith, and Little (2013) summarized that previous qualitative studies focused on patients' experiences, which included a desire for a clear diagnosis, adequate explanations, access to treatment services, and partnerships with clinicians. Dima, Lewith, and Little (2013) conducted a qualitative study using focus groups in primary care. The researchers investigated patients' perspectives on low back pain treatment. This qualitative study had 75 participants ages 29-85 years. The discussion was deductively categorized as related to recommended treatments, and then an inductive approach was taken to identify dimensions underlying the participants' perceptions of treatments and themes related to the clinical management of low back pain. The four

core dimensions the researchers identified as related to patients' beliefs about low back pain therapies were credibility, effectiveness, concerns, and individual fit. These beliefs were expressed in a broader sense of self-management, clinicians, and health care systems. The primary concern of the participants was to get a clear explanation of their low back pain to help them understand the cause of their pain. Also identified was the prerequisite for meaningful engagement with treatment decision making.

Wideman, Boom, and Dell'Elce (2016) discussed chronic pain's impact on patient health, well-being, and social participation. They used qualitative and quantitative methodologies to try to find out how patients perceived and experienced changes in function, participation, and pain-related factors following a chronic pain rehabilitation program. The 37 participants in this study completed a chronic pain management treatment program within 1-6 months of the study. The treatment program included physical therapy, psychology, and pain education. Medical charts were reviewed and questionnaires were completed at the beginning and end of the treatment program. These were the pain disability index, the pain catastrophizing scale, the patient health questionnaire, and the self-report questionnaire (Wideman, Boom, and Dell'Elce, 2016). Phone interviews were then conducted, and information was collected on how patients perceived changes in lifestyle, function, and social integration following the pain program. The researchers used a thematic analysis to analyze the interview data. This process involved identification and naming of patterns of meaning that emerged from the interview transcripts and related to the research questions. There was an ongoing analysis process that allowed categories and concepts to be explored in more interviews.

The major themes identified were personal growth, factors affecting personal growth, and ongoing challenges. The qualitative study results demonstrated that participants experienced personal growth that was supported by their chronic pain treatment. The quantitative data from this study was used to better characterize the clinical presentation by participants. It was not used to make any statistical inferences about a larger population, but was used to better characterize the clinical presentation of the participants. The questionnaire scores for the pain severity scale, the disability index, and pain catastrophizing scale were presented at pretreatment, posttreatment, and follow up assessments. Wideman et al. (2016) commented that past research in this area of chronic pain focused on psychological factors and pain-related disability change related to treatment of the chronic pain.

Lochting, Storheim, Werner, Dvancarova, and Grotle (2016) evaluated the effect of a patient education intervention compared with usual care on patient quality of life and psychologic outcomes of illness perceptions and pain catastrophizing to patients with low back pain. They conducted a randomized controlled trial that included 220 patients. Sixteen providers and 20 physical therapists were randomly assigned patients to provide either cognitive patient education or usual care. Patients were 20-55 years of age and had experienced back pain for 4-52 weeks. The patients completed a questionnaire at the start of the study, at 4 weeks, and then again at 12 months. The questionnaires included patient-reported outcomes relating to quality of life and psychological aspects. Descriptive statistics in this study included means and standard deviations for continuous variables. Lochting et al. assessed differences between the groups using an independent

samples *t* test for continuous variables. Mean difference between the outcome measures of the intervention and control groups was assessed by linear mixed model analysis for repeated measures. The model included group (intervention vs control), type of clinician, time, and the interaction between group and elapsed time as fixed factors. The *p* value for all outcome measures was statistically significant for effect of time, at less than 0.001; the *p* value for the effect of group and time on illness perceptions was 0.003. Results indicated that the cognitive patient education program led to faster improvement in illness perceptions but not with patient quality of life and other areas. The scores of all the outcomes improved during the follow-up period at 4 weeks and at 12 months for both the intervention and control groups. An added finding was that patients who were followed by physical therapists demonstrated larger improvements compared to those followed by primary care providers.

Patient Engagement

Comprehensive risk/benefit discussions via guidance of the patient engagement guideline was used in this quality improvement project with the goal to determine whether the impact of patient engagement with development of the low back treatment plan improved the patient's understanding of their low back pain condition and whether this leads to greater compliance and pursuit of appropriate treatment options. Higgins, Larson, and Schnall (2016) defined patient engagement as both process and behavior and explain it is shaped by the relationship between the patient and provider and the environment in which healthcare delivery takes place. Irizarry, Dabbs, and Curran (2015) used the Agency for Healthcare Research and Quality (AHRQ) definition of

patient engagement which summarizes the concept as making educated decisions about health care by individual and designees due to involvement in their own care. This includes actually taking action to support these decisions. They explained that the AHRQ had a second definition for patient engagement which includes behaviors by health care workers, patients and their families as well as procedures which lead to active participation by patients and their families in a collaborative partnership with the health care team, including their providers. Koh, Brach, Harris, and Parchman (2013) mentioned that patient engagement explains the concept as actions that one takes to receive optimal benefit from services in health care available.

Self-management concepts are frequently mentioned in the literature when exploring the concept of patient engagement. VanHooft, Been-Dahman, and Ista (2016) reviewed that self-management indicates improving a patient's lifestyle or patients' adherence to enhance quality of life, or to empower patients. VanHooft, Dwarswaard, and Jedeloo (2015) explained that Barlow views self-management as living with a chronic condition and seeking treatment, managing symptoms, adhering to healthy life style changes, and adjusting to physical and psychosocial outcomes due to the condition. He also mentions that the individual who self manages, demonstrates the emotional, behavioral, and cognitive skills leading to a higher quality of life. Kawi (2012) discussed that Lorig and Holman reviewed that the self-management concept is when a patient possesses the skills leading to their engagement in health care, including making decisions about their treatment.

Kawi (2012) explained that chronic low back pain is the most common chronic pain condition. This study's aim was to describe perceptions of chronic low back pain patients on their self-management, self-management support, and functional ability. The data were derived from a larger study using a non-experimental, cross-sectional, descriptive design and used both qualitative and quantitative data. There were 110 participants in this study ages 19 – 86. Patient responses were similar to previous studies regarding self-management and self-management support. Self-management activities that were dominant included taking medications and maintaining physical activity. Self-management support activities that were perceived as impacting patient self-management were prescribing medications, providing other treatments, and giving encouragement. Participants had concerns regarding their functional ability that focused on anxiety and fear. The qualitative information was analyzed using qualitative content analysis. All responses to open-ended questions were transcribed and a list of codes was systematically constructed to create themes generated from the text. Researchers reached agreement on the presentation of facts using low-inference descriptions representing that the descriptive validity accurately conveyed the findings. Themes identified on self-management included taking medications, maintaining physical activity, changes in lifestyle, and rest and relaxation. Themes from self-management support included prescribing medications, providing other treatments, providing emotional support, providing information, and giving referrals. Themes on functional ability were anxiety, hope for improvement, acceptance, and needing to continue treatments. Results indicated that more education is needed for chronic low back pain patients and it is important to manage the patients

physical and mental state. It was found to be essential that providers provide support, encouragement, follow-up, and coordination of care. Kawi (2012) reviewed that previous studies that focused on self-management and self-management support were successful in decreasing health care costs and improving health-directed behaviors, but there was not much study on the way chronic pain impacted the patient's functionality.

Fu, McNichol, Marczewski, and Closs (2015) conducted a systematic review researching the influence for patient-professional partnerships on patients' ability to self-manage chronic back pain and to identify factors that may influence self-management. The researched reviewed 738 studies from five data bases. The Critical Appraisal Skills Program (Fu et al., 2015) was used to analyze the research. Thematic synthesis was used, and themes were linked and grouped to broader descriptive codes. These codes were then compared and contrasted across studies to generate new themes aimed to represent interpretations of the findings of each study to assist with development of a model to demonstrate the relationship between patient-professional partnerships and chronic back pain self-management. Seven major themes were identified including, communication, mutual understanding, roles of health professionals, information delivery, patients' involvement, individualized care, and healthcare service. These themes were put into a model recommending how factors from a patient-provider partnership influences self-management. It was found that patients seek more information on their condition and self-management strategies may help them understand how to live with chronic pain. Providers also need to increase their awareness of patient life circumstances with chronic back pain to provide more flexible care. There is a need to maximize patient involvement

and develop partnerships in health care. Fu et al. (2015) review that previous study focused on either chronic back pain self-management or the patient-professional partnerships, but not on both which this study covered.

Jonsdottir, Gunnarsdottir, and Oskarsson (2016) discovered that pain is a personal experience and patient-provider communication is an important part of diagnosis and treatment where the patient's needs are the focus. The purpose of this descriptive cross-sectional study was to research chronic pain related patient-provider communication related to pain variables, perceived outcome of care, and patient satisfaction with providers. A questionnaire was sent to 4500 patients randomly drawn measuring pain characteristics, pain-related health care utilization, and patient-provider communication. There were 754 participants who reported their experiences with chronic pain. Descriptive statistics was used to present the sample's characteristics. Individual relationships between all variables in each of the predisposing, enabling, need, and outcome factors, and each of the Patients' Perceived Involvement in Care Subscales were reviewed using Spearman's rho correlation and the Mann-Whitney U test. A series of linear regression analyses was then used to calculate relationships between each of the I-PICS scales and variables that were independently related to I-PICS subscales. The linear regression on the variables of health care provider information, health care provider facilitation, patient information, and patient participation in decision-making in the predisposing, enabling, need, and outcome factors were significantly related to the Patients' Perceived Involvement in Care Scale with a p value of less than 0.05. Results indicated the patients who perceive their providers as supportive and open to questions

and discussions about symptoms and treatment options were more satisfied and saw their outcomes more positively. It is important for providers to assess pain in a broad manner and to allow the patient time to discuss symptoms and how this effects their life. This was key to understanding an enhancing patients' involvement in care and treatment compliance. Jonsdottir et al. (2016) commented that there have been previous studies conducted that demonstrated patients' understanding and being engaged in their own treatment has been associated with a greater sense of control and better treatment adherence and outcomes.

Hibbard, Stockard, Mahoney, and Tusler (2005) developed a way to measure patient engagement using the Patient Activation Measure (PAM). This was the measurement tool used for this scholarly project and a recommendation was made to continue use of this measurement tool for this chronic pain clinic. Hibbard et al. (2005) described the process they used to develop the tool which included an exhaustive literature review, conducted an expert consensus panel process, conducted two focus groups evaluating the PAM scale, and conducted two pilot studies with 100 participants and 486 participants to test the reliability and validity of the PAM scale. They then followed this with a probability sample with 1,515 participants. The patient focus groups and national expert consensus panel assisted with defining the concept of activation and to identify the domains associated with this concept. This was followed by the two pilot studies.

Hibbard et al. (2005) reviewed that item selection is based on item fit statistics which represent how much responses to an item deviate from the model's expectations.

A fit value of 1.0 indicates perfect fit to model expectations. Two item fit statistics were calculated. Infit is an information-weighted residual and is most sensitive to item fit when the item's scale location is close to the individual's scale location. Outfit is more sensitive to item fit for items with a scale location that is distant from the individual's scale location. This was all part of the preliminary scale development. In the first pilot study, the Rasch person reliability for the scale was between 0.85 and 0.87 and Cronbach's alpha was 0.87. A test-retest reliability assessment was also conducted and the standard error of measurement was 1.96 leading to a 95% confidence interval for each person's measured activation. Validity was tested with Cohen's kappa for measured activation and each judge's classification were 0.80, and 0.90 with a p value of less than 0.001.

The second pilot study involved refinement of the PAM scale. Hibbard et al. (2005) found that the items had infit values between 0.76 and 1.32. They found that the Rasch person reliability was between 0.85 and 0.88 and Cronbach's alpha was 0.91. Then with the probability sample, they found that the survey replicated the results with the prior pilot studies. The data demonstrated a high level of reliability with infit values ranging from 0.71 to 1.44. The outfit statistics were between 0.80 and 1.34. The high reliability estimates indicated that the measure was appropriate for individual-level use. The results indicated evidence for the construct validity of the PAM survey. Those with higher activation reported better health as measured by the SF of 8, r was 0.38 and the p value was less than 0.001.

Hibbard and Greene (2013) explained that the terms patient engagement and patient activation are often used interchangeably. The definition for patient engagement that was used for this quality improvement scholarly project were the concepts from Higgins, Larson, and Schnall (2016) and Koh, Brach, Harris, and Parchman (2013) and were defined as the actions a patient takes to receive optimal benefit from health care services which has evolved from the patient – provider relationship as well as the healthcare delivery environment. The PAM survey is a tool that was designed to measure patient activation or engagement. The patient answers 13 questions in the survey with answers ranging from strongly agree to strongly disagree. The questions include how well the patient understands their condition and treatments, how they view their relationship with their provider, and how likely they are to pursue treatments. The PAM survey results in two measures, a measure of the patient's activation via a score and a measure of the patient's competency via a level. Insignia (2017) explained that the activation score is based on a 0 – 100 point scale and is used to track individual progress over time regarding their activation, which includes their engagement in their own healthcare and their understanding of their condition and treatment options. The level of activation is an indicator of the patient's competency to take on new behaviors including engagement and understanding.

. The PAM survey provided two metrics, score and level. The PAM score should be used to indicate the effectiveness of an intervention on an individual between Time 1 and Time 2. The PAM level should help the provider to provide the appropriate type of support to that individual. The patient characteristic by level include the patient who has

a low knowledge base and poor adherence at level 1. Level 2 indicates the patient has some knowledge, but a large gap remains. Level 3 indicates that the patient strives for best practice behaviors and they feel like part of the health care team. Level 4 demonstrates that the patient has adopted new behaviors and focuses on a healthy lifestyle.

Chronic Back Pain Treatment Options

There are many chronic back pain treatment options which are evidence-based practices. Adiguzel, Tecer, Guzelkucuk, Taskaynatan, and Tan (2016) described the transforaminal lumbar injection as one performed under C-arm fluoroscopy guidance, using a mix of betamethasone and lidocaine into the lumbar epidural space, depending on the area of injury. They explain that epidural steroid injections are one of the most commonly used interventions for radicular low back pain. The injection is conducted under fluoroscopy which increases the safety of this procedure. Benzon, Huntoon, and Rathmell (2015) explained that analysis via a systematic review indicated that large clinical trials utilizing epidural steroid injections demonstrated only mild and transient adverse effects. They reviewed that there are rare occurrences of catastrophic central nervous system injuries following an epidural injection.

Adiguzel et al. (2016) conducted a study to research the efficacy of transforaminal epidural steroid injections for reduction in low back pain. This study included 62 patients with low back pain ages 22 – 88. The participants completed the visual analog scale for pain, the Oswestry disability index, and short form-37 before the injection, and again at the second and twelfth week. Continuous variables with non-

normal distribution were presented as median and continuous variables with normal

distribution were presented as mean standard deviation. The Kolmogorov-Smirnov test

was used to determine the normality of data distribution. A Cohen's d calculation

between second and twelfth week measurements was used to determine the effect sizes.

Results indicated that the transforaminal epidural steroid injection was significantly

effective in the patient assessments using the VAS pain, ODI, and SF-36 questionnaires

at the second and the 12th weeks with a p value of less than 0.001 for all assessments.

There was a statistically significant difference between the second and 12th week

satisfaction rate assessment with a p value of 0.03. There was a significant difference in

social function, emotional role, mental health, and mental components summary subsets

of SF-36 between positive and negative provocation groups with all having a p value of

less than 0.05. Results indicated that the transforaminal epidural steroid injection was

found to be effective in both the periods in which the tools were completed, which

occurred at the second and twelfth week. Other locations of lumbar epidural injections

include the interlaminar and caudal approaches but the transforaminal approach has been

found to be most effective and utilizing the least amount of injectate.

 Kumar, Hunter, and Demaria (2006) reviewed that spinal cord stimulation is a

treatment for back pain and back pain with radiculopathy. The procedure involves

implantation of leads with contact points into the epidural space of the spine which are

programmed to induce a paresthesia to mask the pain the patient is experiencing. The

leads are connected to a pulse generator which is implanted under the skin. The device is

reprogrammed as needed to give the patient pain relief in the back, legs, and feet when

used for this purpose. The neurostimulator is also used for other types of pain such as chronic regional pain syndrome, neuropathy, and other conditions. Verrills, Sinclair, and Barnards (2016) reported that spinal cord stimulation is a safe procedure due to its reversible and minimally invasive characteristics. They explained that catastrophic complications are very rare and minor complications are readily reversible and generally resolved. Minor complications could be mechanical, biologic, or technique-related in nature.

Kumar et al. (2005) conducted a study on 410 patients that were treated at multidisciplinary pain clinics who were treated with spinal cord stimulation. The study was conducted over a 22-year period. Patients were followed every 6 months for the first three years and annually following that. A two-tailed Student's *t* test was used to evaluate significance for comparisons between two groups. Nonparametric Kaplan-Meier survival curves were then used to demonstrate differences in electrode effectiveness. Fisher's exact test was used to compare small sample sizes and dichotomous variables. They found that 328 of the 410 patients experienced more than 50% pain relief. Participants (n=82) did not meet the 50% pain relief criteria to go on to the implant. At the mean follow-up period of 97.6 months, 243 patients continued to receive satisfactory pain relief. Of the 410 patients who received trail stimulation, effective long-term pain control was achieved in 59.3% pf the patients enrolled. There was no statistical significance in difference between sex and age. The p value using the Fisher's exact test for age was 0.389 and for sex it was 0.256. This study demonstrated that the success rate is related to the time interval between the onset of chronic pain to the

time of implantation. The Student's t test analysis was significant for this finding at a p value of less than 0.001 and a majority of these cases were patients with back pain from failed back surgery. Overall the study indicated that spinal cord stimulation can provide significant long-term pain relief and improve quality of life for patients with low back pain. In previous years, spinal cord stimulators used a single lead and now they have advanced to two or more leads to get more pain control coverage.

Nijs, Roussel, VanWilgen, Koke, and Smeets (2013) explained that chronic pain is a complex and challenging condition that is treated effectively by physical therapists who have received a biomedical-focused training. Dreisinger, (2014) reviewed that exercise is the only meaningful way to increase functional capacity. Physical therapy is a treatment for back pain unless the back pain is from a tumor, infection, cauda equine syndrome, or a spinal fracture. Physical therapy is exercise-directed therapy within the context of a rehabilitation setting.

Gordan and Bloxham (2016) conducted a systematic review utilizing three data bases. Over 400 articles were reviewed and a total of 14 studies were included in the final review. The researchers compared and contrasted studies and consistent results from the 14 studies comprised their final results. The results indicated that a physical therapy program involving muscular strength, flexibility and aerobic fitness is beneficial to those suffering from low back pain. Increasing core muscular strength can help with lumbar spine support. Increasing flexibility of the muscles, tendons, and ligaments in the back can increase range of motion and function. Aerobic exercise increases blood flow to the back which improves the healing process and reduces stiffness. The researchers

reviewed five studies regarding the impact of aerobic exercise on low back pain. The studies varied in length from eight to 16 weeks in length and the decrease in back pain ranged from a 20% to a 42% decrease in chronic low back pain. A total of nine studies were examined to study the impact of increasing core muscle strength on chronic low back pain. These programs were six weeks to one year in length and the results indicated a decrease in low back pain between 39% to 76.8%. The key areas of muscle strengthening included the deep abdominal muscles, ankle dorsiflexion, and the lumbar muscles. The researchers reviewed seven studies on flexibility exercises related to low back pain. The flexibility programs ranged from four to twelve weeks in length and the areas targeted for flexibility were the hamstrings, lumbo-pelvic spine, the hip flexor muscle groups. A decrease in low back pain ranged from 18.5% to 58%. In the past, it was most common to treat low back pain with a monodisciplinary approach in patients experiencing this type of chronic pain.

Jensen and Turk (2014) reviewed that pain psychology is an effective treatment for chronic pain. There are many psychologic approaches to treating chronic pain including behavioral pain treatment, relaxation training and biofeedback interventions, cognitive behavioral therapy, and psychological treatments that target brain processes and activity. Jensen et al. (2014) explain that within each type of psychologic treatment, there are more specific treatments such as relaxation training, biofeedback, autogenic training, cognitive therapy, motivational interviewing, neurofeedback, hypnosis, and cognitive behavioral therapies such as coping skills training, stress management, and mindfulness.

Cano-Garcia, Gonzales-Ortega, Sanduvete-Chaves, Chacon-Moscoso, and Moreno-Borrego (2017) conducted a quasi-experimental one-group pre-test – post-test design. There were 40 participants age 33 – 69 and they implemented a cognitive-behavioral treatment related to chronic pain for the study which included ten psychological intervention sessions on a weekly basis. The treatment included psychoeducation for pain, breathing and relaxation, attention management, cognitive restructuring, problem-solving, emotional management, social skills, life values and goal setting, time organization and behavioral activation, physical exercise promotion, postural and sleep hygiene, and relapse prevention. They utilized instruments recommended by the Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials (IMMPACT). Measures were conducted before and after intervention and at a 6 month follow up visit. The measures included the West Haven-Yale multidimensional pain inventory, the profile of mood states, and the Beck depression inventory. To study the changes to the different dependent variables across the three measurements, they checked the normality assumption using Shapiro-Wilk's test. Linear and quadratic trend contrasts were used to compare the three levels. The normality assumption using Shapiro-Wilk was accepted on 34 of 42 combinations when considering 14 variables and three instances. The variables affected by normality rejection were done using non-parametric tests. The clinical significance in WHYMPI was substantial in the pre-post comparison and moderately important when comparing pre-test and follow-up. The significant linear and quadratic trends with medium effect size demonstrated that the improvement continued in the follow-up period. The clinical

significance was statistically significant improvement in POMS and BDI. The effect size was medium/large in all the variables. In all cases, the clinical significance demonstrated a substantial change when comparing pre-test and post-test. The quadratic trend was statistically significant in all cases. The p value in all statistical analysis with the measures was less than 0.001. At the initial post- test, all patients reported a decrease in chronic pain and at the 6-month visit, over half continued to experience a decreased level of pain. Results indicated that cognitive-behavioral treatment was effective in chronic pain management and it was recommended that patients have a therapy session at least every four months to sustain the improvements they gained. Cognitive behavioral therapy and acceptance and commitment therapy have been the two types of psychological interventions found to have the most benefit for chronic pain patients. Relaxation therapy, guided meditation, and hypnosis have also been shown to have moderate benefits to the patient experiencing chronic pain.

There are many different classes of medications which can be tried for back pain management. Chou et al., (2014) reviewed that opioid use is often used for common chronic pain conditions such as back pain. Opioid analgesics have been a widely accepted treatment option for acute pain or for end of life terminal pain. The analgesic effect stems from the opioid binding with the opioid or mu receptor. Misuse of opioid medication has brought opioid treatment for chronic pain to the public forefront and stricter regulations are being put in place for providers treating patients for chronic pain. Chou et al, (2014) defined chronic opioid use as opioid use on most days. Rosenblum, Marsch, Joseph, and Portenoy (2008) explained that opioid analgesics are not without

risk. Opioid use can lead to addiction, constipation, mental cloudiness, fatigue, respiratory depression, and other side effects. They reviewed that there is no study that indicates that opioids are effective after a patient has experienced pain beyond two months.

Enthoven, Roelofs, and Koes (2017) defined NSAIDS as nonsteroidal anti-inflammatory drugs and these are prescribed medications that are often used for chronic low back pain. Most NSAIDS can also be obtained over the counter at lower doses. Common NSAIDS include ibuprofen and naproxen. These medications are often used for fever, pain, and inflammation. Ghosh, Alajbegovic, and Gomes (2015) discussed that NSAIDs exert their pain-relieving effect mainly by inhibiting the cyclooxygenase pathway. They explain that NSAIDS may cause side effects such as ulcers, internal bleeding, kidney failure, and increased risk of heart attack and stroke.

Baron et al. (2016) explained that neuropathic back pain can arise from injury or disease affecting the nerve roots that innervate the spine and lower limbs. They reviewed that 16 – 55% of patients with chronic back pain have possible neuropathic components. Baron et al. (2016) discussed that antidepressants are used in patients with neuropathic pain because their analgesic properties effect the noradrenergic and serotoninergic neurotransmission. These are medications such as duloxetine, venlafaxine, and amitriptyline. Anticonvulsants are also considered neuropathic pain medications and they are calcium channel alpha-2-delta ligands. Common anticonvulsants used for neuropathic pain are gabapentin and pregabalin. Sein (2017) reviewed that neuropathic

pain medications can have side effects such as drowsiness, nausea, heart issues, and constipation.

Shaheed, Maher, Williams, and McLachlan (2017) posit that muscle relaxants are commonly prescribed for low back pain. Muscle relaxants affect skeletal muscle function and decrease muscle tone. They are used for pain, muscle spasms, and hyperreflexia. Common muscle relaxants which are prescribed for back pain include methocarbomol, tizanidine, cyclobenzaprine, metaxalone, orphenadrine, and chlorzoxazone. DeFalla (2016) explained that muscle relaxants can have side effects including drowsiness and constipation.

Chou et al. (2017) conducted a systematic review on pharmacologic therapies for low back pain. Three data bases were searched and randomized trials were selected. The number of trials for each medication category ranged from 9 to 70. The data was qualitatively synthesized for each medication and stratified according to the duration of symptoms and presence or absence of radicular symptoms. When statistical heterogeneity was present, the researchers examined the degree of inconsistency and evaluated subgroup and sensitivity analyses. They qualitatively examined whether results of new studies were aligned with qualitative findings from prior systematic reviews. Qualitative assessments were based on whether the findings from the new studies were similar to prior systematic reviews. They analyzed whether the estimates and confidence intervals from new studies were within the CIs from pooled estimates. Strength of evidence was also designated to each study based on aggregate study quality, precision, consistency, and directness.

Chou et al. (2017) reviewed 27 trials researching opioids. The results varied from minimal effect, to pain reduction short term, and minimal difference between short and long acting opioids. The overall finding was that opioids can have a small effect on pain improvement and function. Chou et al. (2017) explored 70 trials for NSAIDS. The results of the impact of NSAIDS on low back pain varied from inconsistent results, to no difference in relief with chronic or acute back pain, to minimal and moderate relief. Their conclusions on NSAIDS is that they have a small to moderate effect on pain reduction. When reviewing neuropathic pain medications, Chou et al. (2017) studied sixteen trials for the antidepressant neuropathic medications and twelve for the anti-seizure neuropathic pain medications. The results for both the antidepressant and anti-seizure neuropathic pain medication impact on chronic pain varied from no impact, to poor effect, to fair impact, to good effect. The review concluded that neuropathic medications have a small to moderate effect on pain reduction and function. When researching muscle relaxants, Chou et al. (2017) studied 25 trials. Results varied from insufficient evidence, to having a small effect on chronic back pain, to having a good effect with acute low back pain. Overall the findings indicated that muscle relaxants had a small effect on reduction of pain short term for chronic low back pain. Overall the researchers indicated that more research is needed to understand optimal selection of medications for radicular low back pain.

The Chronic Care Model

The Chronic Care Model was used to support this scholarly project. The Chronic Care Model was started in the mid-1990's in an effort to encourage high-quality care for

those suffering from chronic disease according to the Group Health Research Institute (2017). Many elements were considered essential for this model including the health care system, the community, the health delivery system design, self-management support, clinical information systems, and decision support. Each of these elements are supported by evidence-based change concepts which lead to positive interactions between patients who are active in their care and with their expert providers who have resources. This model has been found to be effective with many chronic illnesses and health care settings. The overall goal of the Chronic Care Model is better patient outcomes.

The Chronic Care Model has been modified several times since the 1990's by expert groups including the MacColl Center for Health Care Innovation, the Group Health Research Institute, The Robert Wood Johnson Foundation, and most recently by the Improving Chronic Illness Care group which incorporated five more themes into the model including patient safety, cultural competency, care coordination, community policies, and case management (Group Health Research Institute, 2017).

The Chronic Care Model (Group Health Research Institute, 2017) is aligned with this scholarly project as each of the essential elements to improve outcomes for chronic back pain patients was used by following this solid model. The first component of organization of health care relates to the lead physician and owner of the clinic committing to this project which improved care for chronic pain patients. The second component of self-management supported the goal of this project so patients can have a better grasp of their condition and treatment options. The third goal of decision support relates to utilization of evidence based practice guidelines which were incorporated into

this project on development of a clinical guideline based on best evidence-based practices focused on educational and treatment plan tools for chronic pain patients. The fourth component of delivery system design focused on the team work of our physicians, nurse practitioners, and support staff who continue to work closely together to enhance chronic pain patient care. The fifth component of clinical information system included having the treatment plan built into the electronic record, so it can be modified visit to visit. Currently the nurse practitioner documents a brief overview of the plan in the electronic record, but there is not a patient plan template available for the record or available to be printed for the patient at the end of the visit. Finally, the sixth component of community resources and policies includes sharing of tools with other chronic pain clinics and directing patient to and working with community resources specializing in chronic pain (Fiandt, 2006). There is a close network between chronic pain clinics and these tools could be shared at chronic pain conferences or meetings in this Midwest city. There are chronic pain therapies, such as acupuncture, that are not offered at this chronic pain clinic, which the nurse practitioners can direct patients to via the treatment plan. There is some networking between this chronic pain clinic and other organizations which offer alternative therapies for chronic pain, and this connection can be strengthened through meetings and phone calls to allow more resources for chronic pain patients. Connection with other clinics and organizations will take place after the conclusion of this scholarly quality improvement project.

Davy and Bleasel (2015) conducted a systematic literature review on the Chronic Care Model and found that the two elements used most often were self-management

support and delivery system design. Overall, use of the Chronic Care Model led to more positive health outcomes for patients. Coleman and Austin (2017) discussed the effective use of the Chronic Care Model not only in the United States, but across the world. They also found that following the Chronic Care Model improved patient care leading to healthier patients. Gee and Greenwood (2015) looked at the Chronic Care Model from the eHealth tool perspective and again found overall that the Chronic Care Model led to informed, active patients and prepared, proactive health care teams leading to enhanced patient health outcomes. This explains why the Chronic Care Model is selected for this scholarly project.

Roy's Adaptation Model

Roy's Adaptation Model was developed by Sister Callista Roy in 1970 and is based on many concepts (Roy, 2012). These include: environment, health, person, goal of nursing, adaptation, focal stimuli, contextual stimuli residual stimuli, cognator subsystem, regulator subsystem, stabilizer control processes, and innovator control processes (McEwen & Wills, 2014). All of the major concepts are applied to nursing practice directly and indirectly. As nurses, we look holistically at the patient including their environment, their health, and a comprehensive evaluation of the patient. The goal of nursing under Roy's Adaptation Model is to promote the adaption for our patients in each of Roy's Adaptation Modes which include physiologic-physical, self concept-group identity, role function, and interdependence. The three types of stimuli all impact the patient's environment continually and are monitored by the nurse. The subsystems allow the patient to adapt while the two processes mentioned allow the patient system

maintenance and growth. As nurses, we not only want the patient to adapt, we want them to grow to a higher level of health and well-being.

Nursing Theories (2012) emphasized that nursing uses the Roy's Adaptation Model to promote adaptation in the four adaptive modes to enhance health and quality of life for patients. McEwen and Wills (2014) explained that the Roy Adaptation Model has been valuable in extending nursing science and has had an impact on nursing practice, education, and administration. Hundreds of research studies have followed this model for over 35 years and many countries follow these principles.   Clarke and Barone (2011) discussed the span of years that the Roy Adaptation Model has been present and how it has enhanced nursing practice as new concepts are used such as evidenced based practice and the use in the doctorate of nursing practice. Gall (2013) reiterated that the Roy Adaptation Model is widely used across the world and has been invaluable to nursing practice in every aspect as it is a very comprehensive model.

Each of the elements of Roy's Adaptation Model supports this project. The environmental stimuli and physiologic mode involves the nurse assessing the patient's imaging, physical symptoms and assessment, and other means to determine the patient's diagnosis which is needed to develop the treatment plan. The cognator coping process and self-concept and role function modes involve the patient's understanding of their condition and treatment options and their engagement in treatment plan development. The models of adaptation and interdependence mode entail the patient pursuit of treatment options that were put into the low back treatment plan with the goal of reducing the patient's pain level leading to a higher quality of life. This is aligned with this

scholarly project as the goal is for the patient to adapt by understanding their condition and treatment options and to pursue these treatment options and experience a higher level of well-being and quality of life with less pain.

Key Terms

For the purpose of this scholarly project, chronic low back pain used the definitions of chronic pain that Alvarado-Garcia and Salazar Maya (2014) described using the Kyoto Protocol of IASP Basic Pain Terminology and the time frame that Fu et al. (2015) used with a 12-week period leading to a definition for chronic back pain as a sensory and emotional experience that is unpleasant.   This experience is related to existing or potential tissue damage related to a disease process in the low back. The unpleasant experience continues once the disease has been cured, and has not responded to traditional treatment. This definition encompasses elements of each of the other definitions and is appropriate for the use of this project.

The definition for the concept of patient engagement for this scholarly project included the concept definitions shared by Higgins, Larson, and Schnall (2016) and Koh, Brach, Harris, and Parchman (2013) and was defined as the actions a patient takes to receive optimal benefit from health care services which has evolved from the patient – provider relationship as well as the healthcare delivery environment.

The other terms used for this scholarly project are generally accepted meaning in nursing practice and include patient compliance which would refer to the patient's pursuit of appropriate treatments, and patient understanding which would refer to the patient's comprehension of their back-pain condition and treatment options.

Relevance to Nursing Practice

Gatchel, McGeary, McGeary, and Lippe (2014) held that not only is chronic pain a significant issue in the United States and across the world, it is a very costly condition. They explained that chronic pain treatments have been around for thousands of years and that the first formal chronic rehabilitation program was introduced in the 1970's. In the late 1980's, interdisciplinary pain clinics were formed to assist with treatment of chronic pain and the nurse was one of the identified roles to be a part of this team. Medications, physical therapy, psychologic intervention, and referrals to specialists were all included as part of the interdisciplinary approach to treating chronic pain. Gatchel et al. (2014) pointed out that the interdisciplinary approach to treatment of chronic back pain is a strong recommendation based on the highest quality of evidence. The nursing role in chronic pain management can be that of the nurse practitioner who will develop and monitor the treatment plan for the chronic pain patient, or as an RN assisting the providers with treatments and assisting with the role of monitoring patient outcomes. Other members of the interdisciplinary team include physicians, psychologists, and physical therapists.

Barello, Graffigna, and Vegni (2012) discussed that patient engagement in healthcare has now become a critical factor in a high-quality healthcare system. They conducted a systematic review on patient engagement which involved a bibliographic analysis and then conducted a qualitative content analysis on selected articles. They searched over 15,000 journals in the SCOPUS database and in the final analysis, reviewed the ten most cited articles regarding patient engagement and identified core

themes. Barello et al. (2012) found and emphasized that it is the nurse's role to give patients reliable information and more control and influence over their healthcare as well as other healthcare workers. In the past, patients were often simply told what they need to do for their medical condition without much patient involvement. They concluded that nurses today are a key part of assisting the patient to reach optimal outcomes revolving around a solid partnership between patients, providers, and nurses. Engaging patients is internationally recognized as a key factor in improving health service delivery and quality.

Vahdat, Hamzehgardeshi, Hesam, and Hamzehgardeshi (2014) conducted a systematic review of 100 scholarly articles and 5 books on the topic of patient engagement. After this review, they conducted an analysis of the selected 35 articles and 2 books between the years 1992 and 2012. This review led to six identified themes: definition of concept of participation; importance of patient participation; factors influencing participation of patients in health care decisions; method of patient participation process; patient participation tools and techniques; benefits and consequences of patient participation in health care decision-making. The main findings in this review by the researchers was that the factors influencing patient participation consisted of: factors associated with health care professionals such as provider-patient relationship, recognition of patient's knowledge, and dedicating sufficient time for participation. They also found that factors related to patient characteristics were important such as having knowledge, physical and cognitive ability, emotional connections, beliefs, values and their experiences in healthcare services. Vahdat et al.

(2014) recommended that it is important that patients are regarded as partners in healthcare because patient participation leads to improved health outcomes, enhanced quality of life, and delivery of cost effective services.

This doctoral scholarly project advances nursing practice by developing, implementing, and evaluating best evidence-based practice guidelines. The practice guidelines guided providers in the provision, follow-up, and documentation of interactive risk/benefit discussions. This is part of a quality improvement initiative that nurses can follow to engage patients in the development of their chronic back pain treatment plan at every office visit. This guideline included elements of education, effective provider-patient communication, and development of the chronic low back pain treatment plan which may entail physical therapy, injections, spinal cord stimulation, pain psychology, and pain medications. Currently there is no consistent process in place to guide nurse practitioners on effective patient engagement in their treatment plan. Educational materials are given out sporadically by the nurse practitioners and there is no treatment plan handout for patients at the end of the visit. Patients receive variable explanations about their back condition and treatment options without much opportunity to discuss these topics or to ask questions. The patient engagement clinical guideline gave the nurse practitioners guidance on engaging the patient in their treatment plan development in many realms including communication, enhancing the provider/patient relationship, educational tools, and development and distribution of the chronic back pain treatment plan.

Local Background and Context

There is solid evidence available that points to the need for a best evidence-based practice guideline as part of a quality improvement initiative that nurses need to take action to foster patient engagement. Kawi (2012) concluded that more education is needed for chronic low back pain patients and it is essential that the provider provide support, encouragement, follow-up, and coordination of care. At this chronic pain clinic, patients were often told what treatment options are available and given handouts without much explanation. Patients rarely asked questions and often did not pursue treatments due to lack of involvement and understanding of their condition and treatments. There was no process present to review or develop the treatment plan, nor was there a hard copy of the treatment plan available to give to the patient at the end of the visit. This chronic pain clinic did not have a process developed to engage patients in discussion to discuss the risks/benefits of their potential treatments. Though there are a variety of treatment options, every solution for each individual patient varies depending on their history, extent of disease, and a myriad of factors. There is no single treatment that fits a given patient at a set timeframe. Treatment options need to be made apparent at each interchange with the patient while engaging the patient in an interactive discussion.

To summarize findings mentioned, Jonsdottir et al. (2016) concluded that patient-provider communication is important for successful health care delivery. Patients who perceive their provider as supportive and open to discussions about symptoms and treatment options are more satisfied and perceive their health care outcomes more positively. Dima et al. (2013) found that patients need a clear explanation of their low

back pain to help them understand the cause of their pain and that this education is an essential prerequisite for meaningful engagement with treatment decision making. Lochting et al. (2016) discussed that a patient education intervention can improve the patient's perception of their condition. Fu et al. (2015) concluded that effective communication was fundamental to the development of understanding between patients and their providers. Patients seeking more information on their condition and self-management strategies gave patients more reassurance and an enhanced understanding on how to live with chronic pain. Increasing an awareness of the patient's life circumstance with chronic back pain will give the provide an opportunity to involve patients and develop a provider-patient partnership.

Gordon and Bloxham (2016) explained that patients with chronic low back pain may benefit from a physical therapy program that combines muscular strength, flexibility, and aerobic exercise. The core muscular strength assists with lumbar spine support, flexibility of the muscles, tendons, and ligaments increases range of motion and functional movement, and aerobic exercises increases blood flow to soft tissues in the back. Kumar et al. (2005) explain that spinal cord stimulation can provide significant long-term pain relief with improved quality of life for patients suffering from low back pain. Chou et al. (2017) found that the use of opioids, neuropathic pain medications such as antidepressants and anti-seizure medication, muscle relaxants, and NSAIDs may benefit patients suffering from chronic low back pain. Adiguzel et al. (2016) concluded that the transforaminal epidural injection reduced bac pain up to 12 weeks post injection for patients experiencing low back pain.

The mission of the chronic pain clinic in which this scholarly project took place was to get patients back to living their life with less pain. This is accomplished through offering the patient the best treatments available for chronic pain. The owner and lead physician at the chronic pain clinic is at the top of the organizational chart. The clinic runs under a Clinic Director with many department leads under her direction including the business office, laboratory, nurses, front desk staff, and other support areas. There are three physicians at this chronic pain clinic who perform procedures and act as resources for the nurse practitioners. The 12 nurse practitioners at this clinic see all of the chronic pain patients and perform botox and trigger point injections. The nurse practitioners are supported by medical assistants who bring their patients to the exam room and perform vital signs and other duties, and scribes who document each office visit. The clinic is located on the edge of the metropolitan area and suburbs. The patient population is diverse, and patients are seen from many ethnic groups. Interpreters are used for those patients that do not speak English. Patients range from age 18 to 105. This chronic pain clinic services over 7,000 chronic pain patients a year, implants approximately 300 neurostimulators a year for back pain and other conditions, and performs approximately 2,000 epidural injections a year. Patients who are on pain medications are seen at least monthly for follow up visits. The Joint Commission is the accrediting body for this chronic pain clinic. The clinic employs a nurse practitioner lead informatics nurse who keeps the clinic current with mandatory accrediting requirements.

This chronic pain clinic did not have an official process or guideline to direct nurse practitioners on the process to engage chronic pain patients in development of their

chronic pain treatment plan. There are a few handouts available on the neurostimulator and injections but there was no direction on when to hand these out to the patient. In the past, there was no process to develop the treatment plan and the nurse practitioner documented a brief plan in the electronic record. There was no hard copy of a treatment plan to give to patients at this time. This doctoral scholarly project was quality improvement focused on patient engagement, and nurse practitioners developed, implemenedt, and evaluated a chronic back pain management practice guideline. The participants in this scholarly project completed the PAM survey at the first visit and after the third visit over an eight-week period. This measure provided the level of engagement or activation that the patient displayed, thus indicating whether the practice guideline increased patient engagement. This quality improvement initiative was sanctioned by this chronic pain clinic and the owner, who is the lead physician.

Role of the DNP Student

As DNP student, I served as project manager and collaborated with the nurse practitioners at this chronic pain clinic prior to the implementation phase of the scholarly project. I have been a nurse practitioner at this chronic pain clinic for five years and I see new and follow up patients on a full time basis. I also perform different types of injections and I am housed in one of four nurse practitioner offices. The nurse practitioners and physicians were the expert panel revising and approving the clinical guideline, which is part of this quality improvement initiative, prior to implementation of the scholarly project. The meeting with the nurse practitioners and physicians to review the clinical guideline took place at the monthly provider meeting. The guideline was

finalized at the following monthly meeting. A group overview educational session on the

project implementation took place at the monthly provider meeting and I also met

individually with each nurse practitioner to review the quality improvement initiative

which included the guideline, algorithm, patient handouts, the PAM survey, the coding

system for patient identification, and the comprehensive, individualized treatment plan.

This allowed for a one to one discussion on the project and an opportunity to answer

questions. I also designated time before or after work hours when I was available to the

nurse practitioners if they had any further questions. The collaboration with staff

followed the delivery system design component of the Chronic Care Model (Fiandt,

2006).

Implementation of this scholarly project involved provision of various tools to

assist the nurse practitioner with engaging the chronic back pain patient in the

development of the chronic back pain treatment plan. Tools as part of this quality

improvement initiative included a clinical guideline and algorithm detailing a

comprehensive education protocol, effective provider-patient communication, and best

evidence-based treatment options available to patients with chronic back pain. Patient

handouts included specific information on their chronic back condition, all potential

evidence-based treatment options, and a comprehensive, individualized treatment plan for

chronic low back pain.

My motivation for this doctoral scholarly project was my observation that patients

often did not take advantage of potential treatment options that could reduce their back

pain. They often complained about their low quality of life and voiced that they cannot

participate in the activities they enjoy. Patients often made comments which demonstrated that they did not understand their back-pain condition or treatment options. For these reasons, I identified that many patients did not understand their condition or treatment options and did not pursue treatment options because they were not involved and engaged in discussions related to their symptoms and treatments. I saw this as a gap in nursing practice which could be enhanced by conducting a quality improvement initiative including development and implementation of a guideline based on evidence-based practice which nurse practitioners could use in their daily practice which includes comprehensive patient education, enhanced provider-patient communication, and engaging the patient in developing their chronic back pain treatment plan. This protocol fell under the Chronic Care Model goal of decision support (Fiandt, 2006). With this engagement, the goal is that more patients will pursue best evidence-based treatments which could reduce their back pain leading to participation in more activities which would increase the quality of their life. This falls under the Chronic Care Model component of self-management support (Fiandt, 2006) and the cognator coping process and self-concept-role function mode of Roy's Adaptation Model as well as the model of adaptation and interdependence mode (Roy, 2012).

A possible limitation of the project is my bias that I expect others in the nurse practitioner profession to be organized and comprehensive and I desire that patients have a full picture of treatments available to them. Even though every nurse practitioner has their own style and approach with patients, this should not be a barrier to the success of this quality improvement project. I have discovered after many years of nursing

leadership that patients can receive effective nursing care through a variety of styles and approaches.

Summary

Utilizing the Chronic Care Model and Roy's Adaptation Model and after analysis of evidence-based practices regarding chronic pain, chronic pain treatment options, and patient engagement, this quality improvement initiative included development and use of a clinical care guideline to engage chronic back pain patients in development of their chronic back pain treatment plan, was implemented in a chronic pain clinic for this quality improvement scholarly project.

Section 3 reviews best evidence-based practices leading to development of this clinical guideline and algorithm. The expert panel of physicians and nurse practitioners reviewed and approved the clinical guideline leading to patient engagement and review sessions occurred with the nurse practitioners as a group and then one on one. The detailed steps for this quality improvement initiative, including implementation of the clinical guideline, how data was collected, and steps to analyze the data utilizing the PAM survey is outlined in Section 3.

Section 3: Collection and Analysis of Evidence

Introduction

Chronic pain affects individual patients as well as their significant others, which makes appropriate treatment essential (Dansie & Turk; 2013). Dansie and Turk (2013) explained that a majority of people with painful conditions continue to experience significant pain that impairs their quality of life, causing significant physical disability and emotional distress. Rantonen et al. (2014) found that chronic back pain patients often do not have a complete understanding of their condition and treatment options and contended that health care professionals need to deliver appropriate information to improve patients' understandings of their medical conditions and treatment options. This negatively impacts their quality of life and limits the activities in which they can participate. Jonsdottir et al. (2016) posited that lack of provider communication about the pain condition may decrease the patient's understanding of pain and may lead to less patient involvement in and adherence to treatment. The problem for this quality improvement project was lack of patient engagement. The purpose of this DNP project was to develop, implement, and evaluate practice guidelines that providers could use for interactive evidence-based risk/benefit discussions regarding treatment options. This guideline included elements of education, effective provider-patient communication, and the development of a chronic low back pain treatment plan that may entail physical therapy, injections, spinal cord stimulation, pain psychology, and pain medications.

There is solid evidence that points to the need for an evidence-based practice guideline that nurses can follow to engage the chronic low back pain patient in the

development of their low back pain treatment plan at every office visit. Kawi (2012) concluded that more education is needed for chronic low back pain patients, and that it is essential that the provider provide support, encouragement, follow-up, and coordination of care. Dima et al. (2013) concluded that patients need a clear explanation of their low back pain to help them understand the causes of their pain, and that this education is an essential prerequisite for meaningful engagement with treatment decision making.

There are many effective treatment options for chronic pain that are evidenced-based best practices. Gordon and Bloxham (2016) found that patients with chronic low back pain may benefit from a physical therapy program that combines muscular strength, flexibility, and aerobic exercise. Kumar et al. (2005) concluded that spinal cord stimulation can provide significant long-term pain relief with improved quality of life for patients suffering from low back pain. Chou et al. (2017) explained that the use of opioids, neuropathic pain medications such as antidepressants and anti-seizure medication, muscle relaxants, and NSAIDs may benefit patients suffering from chronic low back pain. Adiguzel et al. (2016) concluded that the transforaminal epidural injection reduced patients' low back pain up to 12 weeks post-injection.

This chronic pain clinic has 12 nurse practitioners who provide care to all of the chronic pain patients at office visits. There are three physicians who perform injections and are available for questions as needed. The clinic is located on the edge of a metropolitan area and suburbs and services over 7,000 chronic pain patients a year. The patient population is ethnically diverse.

In Section 3, I review the elements surrounding the practice-focused question related to patient engagement, review the sources of evidence I collected and analyzed in this project, discusses the step-by-step process that I used to collect the evidence including participants and tools, identify the systems used for organizing the evidence, and review the analysis procedure I used to address the practice-focused question regarding chronic back pain patient engagement with the treatment plan.

Practice-Focused Question

The gap in practice at the chronic pain clinic where I conducted this quality improvement project was that the providers do not provide interactive risk/benefit discussions with patients regarding treatment options. Epstein and Street (2011) argued that patients should be heard, informed, respected, and involved in their care during their health care journey. The guiding practice-focused question for this project was: Do chronic back pain practice guidelines increase patient engagement as measured by the PAM?

The purpose of this quality improvement doctoral project was to develop, implement, and evaluate practice guidelines that guided providers in interactive evidence-based risk/benefit discussions regarding treatment options. The project involved nurse practitioners in the chronic pain clinic as part of an approved quality improvement initiative that encouraged patient engagement at each visit by educating and providing evidence on the treatment options available. The desired outcome of this quality improvement project was an increase in patient engagement as measured by PAM. Patients with more engagement may better understand their condition and treatment

options such that they pursue treatments, which could potentially increase their quality of life so they can participate in more activities. I used this quality improvement project to answer the question of whether implementation of patient engagement clinical guidelines with patients experiencing chronic back pain would lead to increased patient engagement as measured by the PAM survey. The quality improvement project involved approximately 100 chronic back pain patients who were involved in development of a treatment plan following the evidence-based practice clinical guideline over an 8-week period. The PAM survey was completed at the start and finish of the 8-week timeframe.

Sources of Evidence

At the onset of this study, I consulted literature on clinical guideline development. I followed the Agree II instrument domains to develop the clinical guideline to guide providers in interactive evidence-based risk/benefit discussions regarding treatment options (Brouwers et al., 2013). Brouwers et al. (2013) indicated that the AGREE II instrument's purpose is to provide a framework to assess the quality of guidelines, to provide a methodological strategy for guideline development, and to guide what and how information should be reported in guidelines. Hoffmann-Eßer et al. (2017) noted that the AGREE II instrument is the most comprehensively validated guideline appraisal tool worldwide. This evidence indicated that by using this tool to develop the clinical guideline for this quality improvement scholarly project, I would develop the guideline following the evidence. My aim was to follow this clinical guideline on patient engagement to increase patient engagement at this chronic pain clinic. This guideline relates to the project purpose, which was to offer guidance to providers, through the

guideline, for interactive evidence-based risk/benefit discussions regarding treatment options.

I also reviewed literature on implementation of clinical guidelines. Francke, Smit, Veer, and Mistiaen (2008) conducted a meta-analysis on clinical guideline implementation and found that a combination of methods was most effective when implementing clinical guidelines. Educational materials, meetings, and feedback were found to be effective when implementing a clinical guideline. In this quality improvement project, I held meetings with each nurse practitioner prior to guideline implementation to review the clinical guideline, algorithm, patient handouts, PAM survey, coding system for patient identification, and comprehensive, individualized treatment plan. A binder with all of the information on these elements was given to each nurse practitioner. The nurse practitioners had access to me in my role as project manager, and asked questions as needed for clarification. These steps were aligned with effective guideline implementation according to Francke et al. (2008). This implementation is related to the project purpose because implementation of the practice guideline guided providers in interactive evidence based risk/benefit discussions regarding treatment options.

Finally, I used evidence from the literature on the PAM survey evaluation tool. The activation using this tool involves four stages including (a) believing the patient role is important, (b) having the confidence and knowledge necessary to take action, (c) taking action to maintain and improve one's health, and (d) staying the course even under stress. Hibbard and Greene (2013) indicated that patients who can self-manage

symptoms, engage in activities that maintain functioning, be involved in treatment choices, collaborate with providers, select providers based on performance, and navigate the health care system are likely to have better health outcomes. The PAM survey evidence, a measure of readiness for patient engagement, assisted with identification of patient understandings of their health condition and treatment options and their pursuit of treatments after they were engaged in developing their chronic back pain treatment plan. The questions in the survey range from patient understanding of their condition and treatments, to whether they will pursue treatments.

The PAM survey gave the providers at the chronic pain clinic two measures, a measure of the patient's activation via a score and a measure of the patient's competency via a level. Insignia (2017) explained that the activation score is based on a 0-100 point scale and is used to track individual progress over time regarding activation, which includes the patient's engagement in their own healthcare and the patient's understanding of the their condition and treatment options. The level of activation is an indicator of the patient's ability to demonstrate behaviors including engagement and understanding. The measure of the patient's activation is the main measure that provided the information needed to detect if there was increased patient engagement after implementation of the patient engagement guideline for back pain.

I used the results of the PAM survey to determine if the implementation of the patient engagement guidelines would lead to increased patient engagement. The activation score and level of activation awareness allowed the nurse practitioner to determine whether interactive evidence-based risk/benefit discussions regarding

treatment options led to increased patient engagement. Paired *t* tests were also conducted

with the raw data to determine if there was a statistically significant difference in scores

between Week 1 and Week 8. I entered the raw data into SPSS, which I used to

determine mean scores and statistical significance at the .05 level.

Published Research and Outcomes

I searched data bases for this scholarly project regarding the collaboration of

treatment plan development between the nurse practitioner and patient included

CINAHL, PubMed, MEDLINE, the Cochrane Database, and the Joanna Briggs Institute

Database. Search engines included the Walden University library site and the Google

Scholar site.

Key search terms I used for the literature review for this quality improvement

scholarly project on collaboration with treatment plan development included the

following individual terms as well as combinations of two or three of the terms: pain,

chronic pain, back pain, chronic back pain, treatment plan, patient involvement, patient

engagement, patient participation, patient education, treatment options, opioids,

neuropathic pain medications, muscle relaxants, anti-inflammatory pain medications,

NSAIDs, physical therapy, pain psychology, neurostimulator, patient understanding,

patient-provider communication, patient-provider partnership, and patient activation.

Scholarly articles I searched for this quality improvement scholarly project

included peer reviewed articles from 2012 to 2017. The literature I searched for included

those under healthcare, nursing, evidence based, clinical resources, allied health

resources, and medicine. The literature search I conducted was exhaustive and

comprehensive and resulted in discovery of pertinent, quality studies required to meet the purposes of this scholarly project.

All studies I reviewed for this scholarly project were critiqued utilizing the GRADE literature review format (Terracciano, et al., 2010) and I entered information into a table including the elements of purpose of the study, type of study, data collection method, major findings, recommendations, strengths, and weaknesses and findings were inserted into a table format (Appendix A). I then closely analyzed, ranked, and selected studies for use in the scholarly project. The three studies which best supported evidence for the impact of chronic pain on patients, support for patient engagement in their treatment, and treatment options with positive results for low back pain patients, were analyzed and synthesized to develop a first draft for a clinical best practice guideline on patient engagement in development of the chronic back pain treatment plan. The guideline development followed the domains of the AGREE II instrument (Brouwers, et al., 2013). I addressed each domain in relationship to this scholarly project and I developed a clinical guideline draft around the areas of back pain and treatment option education, communication techniques, and evidence-based treatments for chronic back pain. I developed an algorithm which was aligned with the evidence based clinical guideline on patient engagement with patients experiencing chronic back pain. The nurse practitioners gave feedback on this guideline, it was modified, and then I represented this to the nurse practitioners at a staff meeting for their approval prior to guideline implementation.

Evidence Generated for the Doctoral Project

The evidence generated for this quality improvement doctoral project focuseed on the participants, the procedures, and the protections.

Participants. A list of participants was generated by each nurse practitioner after their one to one education session and they selected patients using the inclusion criteria which included the requirement that the patient had low back pain with radiculopathy as a diagnosis and the patient had been seen by the nurse practitioner for at least three office visits. They selected every third patient who met the inclusion criteria and developed a list of ten patients which they kept locked up in their private file drawer.

New patients were not selected for this scholarly project. The selected back pain patients had undergone standard visits and the level of patient engagement with the standard visit was as high as it could have been before implementation of the practice guideline. There are 12 nurse practitioners at this chronic pain clinic and each nurse practitioner developed and implemented the new clinical guideline and algorithm with ten of their chronic low back pain patients. On the determined start date, they followed the guideline for every third low back pain patient. Once the nurse practitioner reached ten patients, this was the population they continued to follow the guideline with over their next two visits. The target population was to have been a total of 100 participants for this scholarly project. The participants met the criteria for the scholarly project to answer the practice-focused question on whether patient engagement guidelines led to increased patient engagement as measured by the PAM survey.

Procedures

There were three primary procedures in this quality improvement scholarly project with the aim of engaging patients in development of their chronic back pain treatment plan. There was a procedure to develop the clinical practice guideline on patient engagement, a procedure to provide the nurse practitioners with review of this quality improvement initiative, and a procedure on how the PAM survey data was to be collected.

The procedure to develop the clinical practice guideline involved meeting with the nurse practitioners on two occasions. At the first meeting, I presented a draft of the clinical guideline for patient engagement and recommendations were sought to revise and enhance the guideline. I asked open ended questions to encourage participation and recommendations. The second meeting involved presentation of the revised clinical guideline and algorithm and my goal was to build consensus on the final guideline using the Delphi technique (Gray, Grove, and Sutherland, 2017).

For the second procedure, I conducted a review prior to implementation of this quality improvement initiative at the monthly provider meeting with the nurse practitioners. I presented an overview of the scholarly project. I then met individually with each nurse practitioner to review the clinical guideline, algorithm, patient handouts, the PAM survey, the coding system for patient identification, and the comprehensive, individualized treatment plan. I measured the nurse practitioner's comprehension of the review session via a teach back method (Tamura-Lis, 2013).

The third procedure involved how the PAM survey was to be distributed to the participants in this scholarly project and how the results would be analyzed to measure

outcomes on patient engagement. The nurse practitioner instructed the medical assistant

prior to a patient office visit that the patient would be involved in the patient engagement

practice guideline project. The nurse practitioner gave the medical assistant a code

numbered PAM survey. The nurse practitioner notified their medical assistant to review

the consent form with the patient, had them sign this informed consent form, and then

administered the PAM survey to the selected patients prior to their office visit. The

participant was assured that their identity was anonymous for this scholarly project.

There were no identifying marks on the consent form and the patient placed the form and

the completed PAM survey in a folder after completion. The medical assistant then gave

this folder to the nurse practitioner who locked this in their private file drawer with the

other consents and PAM surveys. After the third visit, eight weeks later, the medical

assistant again had the patient complete the code numbered PAM survey after the

conclusion of this third visit. The only identification on the survey was the code number.

The patient again placed the completed PAM survey in a folder which the medical

assistant gave to the nurse practitioner to again be locked in a personal file drawer with

the other surveys. Survey data was entered into a de-identified spreadsheet by each nurse

practitioner. All data were collected by the NPs at the site and provided to the DNP

project leader in a de-identified spreadsheet for secondary analyses.

The primary source of evidence that was used to address the practice-focused

question was the Patient Activation Measure survey; though the use of this tool was

initiated for the doctoral project, ultimately, this tool may be used on an ongoing basis at

the clinic. Hibbard et al. (2005) described the PAM survey as a valid, highly reliable,

scale that reflects a developmental model of activation. Hibbard and Greene (2013) explained that the terms activation and engagement are often used interchangeably.

The Insignia software (2017) compiles the PAM survey results, which measures an individual's knowledge and confidence to manage their health. The PAM survey provides two metrics, score and level. The PAM score should be used to indicate the effectiveness of an intervention on an individual between Time 1 and Time 2. The PAM level should help the provider to provide the appropriate type of support to that individual. The patient characteristic by level includes the patient who has a low knowledge base and poor adherence at level 1. Level 2 indicates the patient has some knowledge, but a large gap remains. Level 3 indicates that the patient strives for best practice behaviors and they feel like part of the health care team. Level 4 demonstrates that the patient has adopted new behaviors and is focused on a healthy lifestyle. The information that was provided by scores utilizing the PAM survey were a valid and reliable measure indicating whether following the practice guidelines as part of this quality improvement project increased the patient's engagement in developing the chronic back pain treatment plan, leading to enhanced understanding of their condition and treatment options and the pursuit of these treatment options.

The participants involved in this scholarly project were chronic low back pain patients at a Midwest chronic pain clinic. They completed the PAM survey prior to and after implementation of a patient engagement clinical guideline in which they were involved in development of their back pain treatment plan. Each of 12 nurse practitioners implemented this clinical guideline with ten chronic back pain patients at three visits over

an eight-week period. The PAM survey requirement is to use the survey on between 75 and 500 patients and it was seen reasonable to have each nurse practitioner implement the clinical guideline with ten patients. Back pain is the diagnosis most seen at this chronic pain clinic and that is the reason that this population was chosen for this scholarly project. Patients were selected by following the guideline with every third back pain patient that has been seen a minimum of three times, until each provider reached 10 patients.

The PAM scale was the primary tool to collect the information necessary to answer the practice-focused question. The nurse practitioners had the patient take the survey prior to implementation of the quality improvement initiative including clinical guideline and then had them take the survey again, after engaging the patient in three office visits. The quality improvement initiative guideline directed the nurse practitioner to educate the patient on their specific low back condition and each potential treatment option verbally and with the use of comprehensive handouts on back conditions and each possible treatment option. They also reviewed a comprehensive hard copy low back pain treatment plan with the patient and together they developed the plan. The nurse practitioner had a supportive and positive approach with each patient, listened to the patient as they discussed their symptoms and treatment options, took a partnership approach as a provider with the patient, and asked if they had questions throughout the education and plan development and then again at the end of the visit. The patient was provided with the detailed treatment plan at the end of each visit. This process followed the Chronic Care Model component of decision support which follows the new clinical guideline related to collaborative development of the treatment plan (Fiandt, 2016).

The nurse practitioners were excited and willing to participate in this scholarly project and implementation of the quality improvement initiative which included the new clinical guideline regarding patient engagement in the development of their chronic back pain treatment plan. A condition for their employment is the agreement to participate in quality improvement initiatives. The nurse practitioners asked every third chronic back pain patient the first week the clinical guideline implementation began if they would be willing to take the PAM survey and to participate in the project which involved their engagement in the development of the treatment plan at the end of the visit. The patients were given an overview sheet on the elements of the project and signed a consent to participate. This consent allowed them to withdraw from the project at any time. The patients were assured via the consent and verbally that all of their information would remain confidential and that their name would not be identified during the study. Instead their identification was designated a code number so their identity would remain private. This code provided anonymity because there was a number on each PAM survey with no patient identification. No master list was involved. The nurse practitioner put a code number on each PAM survey and kept the numbered surveys and list of patients locked in a private locked file drawer. The list of ten patients was shredded by the nurse practitioner after the final survey was completed. The nurse practitioner was the only individual who had access to the locked drawer. The nurse practitioners gave the de-identified spreadsheet to the project manager after the last patient visit. The data was all analyzed utilizing secondary analysis.

Protections

The Walden Institutional Review Board (IRB) received the appropriate forms and requirements so they could review the proposal for the scholarly project. Once the proposal was approved, IRB approval number 02-13-18-0744035, and permission from the IRB was secured, implementation of the scholarly project occurred. In addition, the owner and lead physician of the chronic pain clinic provided a sanctioned approval for this quality improvement initiative which included the clinical guideline and algorithm for patient engagement in development of their back-pain treatment plan. This is a requirement by the blanket existing quality improvement manual project to the Walden IRB. The owner and lead physician of the chronic pain clinic was fully supportive of this scholarly project and agreed in writing to support the project throughout this important quality improvement initiative for the clinic. These actions are aligned with the Chronic Care Model component of organization of health because the lead physician is supportive of the scholarly project.

Analysis and Synthesis

The Delphi technique is a method to measure the judgments of a group of experts for the purpose of making decisions (Gray, Grove, and Sutherland, 2017). The focus for the purpose of this scholarly project was to enhance patient engagement in the back-pain treatment plan development via use of a standardized clinical guideline. The goal was for the nurse practitioners to reach consensus on the clinical guideline for patient engagement after two meetings. The group discussed the guideline development and the nurse practitioners were also asked to submit their revisions in a written format. Extensive

notes were taken at the two meetings and the de-identified recommendations by the nurse practitioners were analyzed and synthesized.

Tamura-Lis (2013) described the goal of the teach back method as providing effective teaching for the primary learner. The learner, who in this case was the nurse practitioner, explained their comprehension of each part of the project discussed when meeting with them. The expectation was that all 12 nurse practitioners were able to explain the elements with a full, 100% understanding of the expectations of the scholarly project.

Results of the PAM survey measurement at week one and week eight took place at the conclusion of the project. A majority of patients have monthly follow up visits. To summarize the timeline, at week one the patient took the PAM survey and then the nurse practitioner followed the patient engagement clinical guideline at the office visit. At week four, the clinical guideline was followed. At week eight, the guideline was followed, and the patient took the PAM survey after the conclusion of this visit. All of the data was collected through the 12 nurse practitioners and was provided in a de-identified excel file for secondary analysis. The Insignia software provided two measures, the activation score and the participant level of activation characteristics. The activation score is measured on a scale of 0 to 100. A score of 1 indicates the least engagement and a score of 100 indicates the most engagement. The participant level was also ranked on four potential levels, with one indicating the least amount of engagement, and four indicating the highest level of activation. The raw data was entered into SPPS to conduct a paired t test on the activation score from the Week 1 and Week 8 data. A paired *t* test was used to

determine statistical significance on the difference in scores from week one to week eight. If the practice guideline is successfully implemented via this quality improvement project, the expectation was that we would see a statistically significant improvement.

Summary

Section 3 reviewed the sources of evidence which were used to address the practice-focused question regarding whether following the patient engagement practice guideline would lead to increased patient engagement as measured by the PAM survey. The PAM survey provided this information. If the findings were significant from this quality improvement initiative, following the clinical guideline on patient engagement with the chronic back pain patient could lead to increased patient engagement. A step by step description of how the evidence was collected was discussed as well as review of details on the participants and tools that were used to collect the evidence. Ethical protection for the participants was explained and a description on the procedure to input, organize and analyze the evidence was described. The next step of the scholarly project was approval by the institutional review board, followed by collaboration with the nurse practitioners on development of the practice guideline and then implementation of the clinical practice guideline. Following the implementation phase Section 4 reviews the findings, implications, and recommendations that were outcomes from this quality improvement scholarly project.

Section 4: Findings and Recommendations

Introduction

The local problem that I focused on in this quality improvement scholarly project was lack of patient engagement at a chronic pain clinic in the Midwest. The nurse practitioners at this practice have not followed a guideline to engage patients in developing their back-pain treatment plan. Each nurse practitioner had been conducting their follow-up visits with chronic back pain patients without any specific direction on patient education regarding their conditions and potential treatments, and the patients had been told to pursue treatments without any intentional involvement in their treatment plan. The gap in practice at this chronic pain clinic was that the providers did not provide interactive risk/benefit discussions with patients regarding treatment options. The guiding practice-focused question for this project was: Do chronic back pain practice guidelines increase patient engagement as measured by PAM? The purpose of this scholarly project was to develop, implement, and evaluate chronic back pain practice guidelines for interactive evidence-based risk/benefit discussions regarding treatment options. This guideline included elements of education, effective provider-patient communication, and development of a chronic low back pain treatment plan that may entail physical therapy, injections, spinal cord stimulation, pain psychology, and pain medications.

I drew on three sources of evidence for this scholarly project including evidence from the literature, evidence from team input in developing the clinical guideline, and evidence from the PAM tool evaluation data. The literature review included the domains

of the AGREE II instrument (Brouwers, et al., 2013) and the teach back method (Tamura-Lis, 2013). I used the AGREE II tool to develop the patient engagement guideline and the teach back method to measure the comprehension of each nurse practitioner regarding the components of the quality improvement project. The literature review also included research on the PAM tool to prepare for evaluation of patient activation or engagement scores.

The nurse practitioners provided feedback on the guideline draft, I used that feedback to make modifications, and a consensus was reached on the final patient engagement guideline and algorithm via the Delphi method (Gray, Grove, & Sutherland, 2017). At the conclusion of the one-to-one educational sessions with the nurse practitioners to review the key components of the quality improvement project, I used the teach back method (Tamura-Lis, 2013) to assure that each nurse practitioner had a solid understanding of these components. A combination of methods including meetings, provision of educational materials, and other approaches are effective when implementing a clinical guideline according to Francke, Smit, Veer, and Mistiaen (2008).

The PAM survey evaluation tool produced a score of each patient's level of activation or engagement, which was based on a 0-100 point scale (Insignia, 2017). Behaviors, such as the patient's activation and understanding, are displayed by this indicator of level of activation. The data detecting an increase in patient engagement after implementation of the patient engagement guideline was the primary measure for patient activation or engagement. To determine statistical significance on the differences in patient engagement scores from Week 1 to Week 8, I used a paired *t* test.

Findings and Implications

I developed the patient engagement clinical guideline in collaboration with the nurse practitioners and physicians at this chronic pain clinic. I presented providers an initial draft of the clinical guideline, which was developed following the Agree II instrument domains (Brouwers, et al., 2013), at a staff meeting. The providers and I discussed the process for clinical guideline development, the Agree II instrument domains, and evidence-based practices for chronic back pain treatment. Using the Delphi approach (Gray, Grove, and Sutherland, 2017), I asked the providers to offer revisions to the clinical guideline. They suggested a few recommendations, including inclusion of chronic pain medications prescribed. I presented the revised clinical guideline at the following staff meeting 3 days later, and the team and I had another discussion regarding the revised guideline and algorithm. Each provider approved the final guideline and algorithm, and the providers were all instructed to contact me with any further recommendations. No further recommendations were offered. The final patient engagement clinical guideline elements included each AGREE II domain in relationship to the scholarly project which included scope and purpose, stakeholder involvement, rigour of development, clarity of presentation, applicability, and editorial independence. The three actions to be performed at follow up office visits for the project were described in the guideline by the nurse practitioners including education on the back-pain condition and treatment options, effective patient and provider communication, and treatment plan development. The patient engagement clinical guideline algorithm included a simple chart format overview that outlined the components of patient education, patient and

provider communication, and treatment plan development. The final patient engagement clinical guideline (Appendix B) and the final patient engagement clinical guideline algorithm (Appendix C) are attached in the appendixes.

As I noted in the last paragraph, the patient engagement quality improvement project was reviewed at two provider staff meetings 3 days apart. I then met individually with each nurse practitioner to review the implementation phase for the patient engagement guideline and algorithm. The meeting with each nurse practitioner involved educating the nurse practitioner on the project components, discussing implementation of the guideline, and answering any questions each nurse practitioner had. The project components included the clinical guideline, algorithm, patient handouts, the PAM survey, the coding system for patient identification, and the comprehensive, individualized treatment plan. The discussion and question session were conducted over 20-30 minutes one-on-one with each nurse practitioner. At the conclusion of the session, the nurse practitioner was asked to perform a teach back (Tamura-Lis, 2013) on each of the components reviewed. Each nurse practitioner was able to accurately describe the patient engagement clinical guideline process, review the available patient educational handouts, describe the PAM survey purpose, explain the coding system for patient identification, and describe the components of the individualized treatment plan that they would develop with their patients. I was available to answer questions from the nurse practitioners at designated times. The nurse practitioners then proceeded to follow the quality improvement patient engagement guideline with 10 selected patients over three visits.

This project started with 120 participants. Ten participants did not complete the second PAM survey because they did not follow up for their office visits. The nurse practitioners selected every third back pain patient who met inclusion criteria for this project. The medical assistant had the patient fill out the code numbered PAM survey in paper format before the start of the first office visit for the project and after the third office visit.

The selected patients for this project completed the PAM survey before the start of their first follow up clinic visit. The nurse practitioner then followed the patient engagement clinical guideline to conduct the first visit, the visit 4 weeks later, and then the visit 8 weeks after they completed the first PAM survey. The guideline included provision of comprehensive education on the patient's condition and potential treatments, communication techniques encouraging a partnership approach between the provider and the patient, and development of a detailed back pain treatment plan with the patient. The selected patients then completed the second PAM survey after the conclusion of the third visit. The de-identified spreadsheets were given to me once all selected patients completed the second PAM survey. A total of 110 pre- and post-PAM surveys were collected and transcribed into spreadsheets for analysis.

I inserted the survey data into the Insignia software. There were two results for each chronic back pain patient who was involved in this project. The two results from Insignia were the PAM activation score and the PAM activation level. The first result indicated the patient's PAM activation score, which I used to indicate the level of patient engagement before the guideline was followed and after patient engagement guideline

implementation at three follow up office visits. The actual PAM activation score had a potential range between 1 and 100. Higher scores indicated higher levels of patient engagement or activation. I performed statistical analysis of the raw data using SPSS. The results showed a mean engagement score of 45.8600 before intervention and a mean engagement score of 76.6164 post intervention ($n = 110$). The standard deviation was 11.76193 prior to intervention and 10.99191 post-intervention, which indicated that there was a low level of deviation from the mean in both sets of scores. The standard error mean was 1.12146 prior to intervention and 1.04804 post-intervention, which indicated that there was a low level of deviation of the sampling distribution of the means. The 95% CI for the mean had a lower bound value of 43.6373 and an upper bound value of 48.0827 prior to intervention and was 74.5392 for the lower bound value and 78.6935 for the higher bound value post-intervention. This gives the providers at the clinic a 95% level of confidence that the population mean lies between 43.6373 and 48.0827 prior to intervention and between 74.5392 and 78.6935 post-intervention. Refer to Table 1.

Table 1

Pre- and Post-Patient Engagement Guideline Implementation PAM Scores

Implementation	n	M	95% CI	SD
Pre-implementation	110	45.86	[43.64, 48.08]	11.76
Post-implementation	110	76.62	[74.54, 78.69]	10.99

Paired t testing on the patient engagement guideline implementation when comparing pre-scores with post-scores resulted in a mean difference of -30.76. This

indicated that the activation or engagement score increased by approximately 30 points

between pre-intervention and post-intervention. The 5% CI of the difference in mean

scores was -32.69 for the lower bound value and -28.83 for the higher bound value,

which gives the providers a 95% level of confidence that the population mean difference

is between 28.83 and 32.69 points. The paired *t* test SD was 10.21, which indicated there

was a low level of deviation of the difference in mean paired score. The *t* result was

31.61, which indicated the size of the difference relative to the variation in the data. The

two-tailed level of significance with the paired *t* testing of before and after intervention

scores was .000, which demonstrated that the difference in scores was statistically

significant at the .05 level. The statistical significance indicated that the intervention of

following a patient engagement clinical guideline for this quality improvement project

led to a significant increase in patient engagement as measured by the PAM survey.

Refer to Table 2.

Table 2

Paired t test on Guideline Implementation PAM Scores

Implementation	*n*	*M*	95% CI of Mean Difference	*SD*	*t*	Sig.
Pre and Post	110	-30.76	[-32.69, -28.83]	10.21	31.61	.000

The second result that was produced from the PAM survey was the level of

activation or engagement of each chronic back pain patient involved in this quality

improvement project. There were four levels of activation or engagement. Level 1

indicated the lowest level of engagement whereas Level 4 indicated the highest level of

engagement. Prior to implementation of the patient engagement guideline, the 110

participant levels included 62 participants in Level 1, 28 participants in Level 2, 16

participants in Level 3, and 4 participants in Level 4. At the conclusion of the three

follow up office visits following the patient engagement guideline, there were 0

participants in Level 1, 3 participants in Level 2, 32 participants in Level 3, and 75

participants in Level 4. This data indicates that prior to guideline implementation, 82%

of the participants were in a less activated level of 1 and 2, whereas post guideline

implementation, 97% of the participants were in the more highly activated levels 3 and 4.

Refer to Table 3.

Table 3

Pre- and Post-Patient Engagement Guideline Implementation PAM Levels

Number of participants at each level		
	Pre-implementation	Post-implementation
1. Level 1	62	0
2. Level 2	28	3
3. Level 3	16	32
4. Level 4	4	75

I found no unanticipated limitations or outcomes during clinical guideline

development, implementation of the patient engagement clinical guideline, or evaluation

of the effectiveness of following the clinical guideline related to patient engagement for this quality improvement scholarly project. The implications from the findings in this quality improvement project demonstrate that intentional patient engagement, which includes comprehensive education on the patient condition and potential treatments, consistent communication working with the patient as a partner, and developing the chronic back pain treatment plan one on one with the patient, leads to a higher level of patient engagement. The PAM survey scores demonstrated that following the patient engagement clinical guideline may have increased the level of patient engagement. The design choice for this quality improvement scholarly project included only existing patients. The first PAM score obtained reflects patient engagement that resulted from practice before implementation of the new patient engagement clinical guideline. The level of activation or patient engagement level is information that the provider can use as they partner with their patients to develop the back- pain treatment plan at each visit. The statistical significance of the raw data confirms that following the clinical guideline for patient engagement may allow for a higher level of patient engagement. The implications for the patient is that they are involved in developing their chronic back pain treatment plan which gives them control of their health care. Patients are three times as likely to have unmet medical needs and are twice as likely to delay medical care compared to engaged patients according to Hibbard and Green (2013). The aim of increased patient engagement is to allow patients the knowledge and confidence to pursue treatments that could decrease their level of chronic pain, so they can participate in a higher level of activity, leading to a higher quality of life.

Implications for communities from these findings is more active community members because chronic pain patients can experience a higher level of confidence and control which could be applied to other aspects of their lives such as with volunteer work. Implications for other healthcare organizations could be following the patient engagement clinical guideline in other aspects of health care such as with diabetic management. The education, communication, and treatment plan development components could be used to engage patients in most situations where a patient seeks treatment for a health condition.

Potential implications to positive social change include respect, dignity, and empowerment for the chronic pain patient because they were able to make educated decisions regarding their care because they were more involved in their treatment plan development. Pursuit of more treatments due to patient engagement could affect society because if the patients pain level is reduced, they can become more involved in the work force, in volunteering, and other activities in and outside of the home.

Recommendations

The results of this quality improvement scholarly project indicated that engaging patients through a clinical guideline during their follow up office visits by providing comprehensive education on their condition and treatment options, utilizing communication encompassing working with the patient as a partner, and developing the treatment plan with the patient, led to higher levels of patient engagement or activation as measured by the PAM survey. This project addressed the gap in practice that providers do not provide interactive risk/benefit discussions with patients regarding treatment

options. Insignia Health (2017) found that patient engagement leads to patients who believe they have an important role in self-managing care, collaborating with providers, maintaining their health functioning, and accessing appropriate and high-quality care. I recommend that providers follow the patient engagement clinical guideline when working with chronic back pain patients (Appendix B). This guideline includes detailed elements of back pain condition and treatment education, effective provider-patient communication, and development of the chronic low back pain treatment plan which may entail physical therapy, injections, spinal cord stimulation, pain psychology, and pain medications. The guideline is also in algorithm format (Appendix C) to be used per provider preference.

I also recommend that the AGREE II instrument (Brouwers, et al., 2013), be followed for any further clinical guideline development. The instrument domains provided a solid framework to guide development of a clinical guideline. The Delphi method (Gray, Grove, and Sutherland, 2017) is a recommended approach to gain the expertise of a group of professionals and to reach a consensus on a topic of interest. It would be recommended to use the Delphi method with other decisions related to clinical processes and clinical treatments in chronic pain management. The teach back method (Tamura-Lis, 2013) is recommended as an effective manner to assure that health care professionals have comprehended concepts presented in a general group and one on one learning session.

If patient engagement is an area of concern for a healthcare organization, I recommend that the PAM survey (Insignia, 2017) be used to measure the level of patient

activation or engagement before an intervention is implemented, and then be administered at intervals or at the conclusion of the intervention. I also recommend that the PAM survey be conducted with patients at designated intervals, such as bimonthly, to assess sustainment of a high level of patient engagement.

Contribution of the Doctoral Project Team

The doctoral project team was comprised of the project manager and the twelve nurse practitioners at this chronic pain clinic. The role of each of the nurse practitioners during the patient engagement clinical guideline development was to review the first draft of the proposed clinical guideline and to participate in discussions on the clinical guideline by offering their perspectives on what the clinical guideline should include. The nurse practitioners then repeated this process with the updated clinical guideline (Gray, Grove, and Sutherland, 2017). The role of the nurse practitioners during the one to one education session on all of the components of the patient engagement implementation phase included their explanation of their understanding of the key components back to the project manager (Tamura-Lis, 2013). The project components included the clinical guideline, algorithm, patient handouts, the PAM survey, the coding system for patient identification, and the comprehensive, individualized treatment plan. The role of the nurse practitioners during the implementation phase of the project was to follow the patient engagement clinical guideline with ten patients and to provide the project manager with the PAM surveys after the conclusion of the patient's third follow up office visit.

The nurse practitioners that were involved in this quality improvement scholarly project provided positive feedback on following the patient engagement clinical guideline and many have stated that the guideline has strengthened the relationship with some of their patients, more patients are pursuing treatment options they were previously hesitant to try, and that developing the treatment plan with the patient and giving the patient a hard copy of the plan at the end of the visit has enhanced continuity of care for the patient. A few of the nurse practitioners have commented that the patients have appreciated receiving a hard copy of their treatment plan and that patients have mentioned that they understand their condition and potential treatments better than they have in the past. At follow up staff meetings, the nurse practitioners have voiced that they are supportive of continuing the process of following the patient engagement clinical guideline during follow up office visits and several stated that this guideline has become their new norm.

The chronic pain clinic plans to continue following the patient engagement clinical guideline for all chronic pain patients. Patient educational tools are being developed for all chronic pain conditions and for any treatment options which are not currently available. The treatment plan for all chronic pain conditions is being developed in an electronic format and the plan will be developed by the patient and nurse practitioner at the end of each visit and a hard copy of the treatment plan will be given to the patient. I highly recommend that the chronic pain clinic continue to measure the level of patient engagement via the PAM survey on a bimonthly basis.

Strengths and Limitations of the Project

The strengths of this quality improvement scholarly project are numerous. The support of the lead physician and clinic administrator allowed a smooth process from start to finish of this project. The willingness of the nurse practitioners to partake in the patient engagement clinical guideline development, education sessions on the project components, and implementing the clinical guideline with ten chronic back pain patients was exceptional. Development of the clinical guideline utilizing the AGREE II instrument was effective and the instrument domains were comprehensive. The PAM survey measuring patient activation or engagement was a strength for this project because the tool has been validated by Hibbard et al. (2005).

Limitations to this scholarly project include the limited amount of time to continue assessing patient engagement. This scholarly project included three patient office visits in which the patient engagement clinical guideline was followed over an eight-week period. Ideally, this project would have measured data over six to twelve months. Another limitation could be the absence of patient engagement data in months prior to the implementation of this quality improvement scholarly project.

A recommendation for similar projects in the future would be to collect data via a valid measurement tool four to six months prior to project implementation and to conduct the project over a time frame of at least six months. This would give those involved more data to evaluate and would allow a measure for sustainability of the intervention implemented.

Section 5: Dissemination Plan

The first step to disseminating the work from this quality improvement patient engagement project is to review the project results with the lead physician, clinic administrator, and providers at this chronic pain clinic. I will share the recommendations as a part of this discussion. Likewise, I will share the clinical guideline on patient engagement with all appropriate staff including the providers, nurses, and clinical support staff at departmental meetings. The providers can continue following the clinical guideline with all of their chronic back pain patients. I will recommend that the PAM survey continue to be completed by all chronic pain patients during their bimonthly visits. I will work with the IT lead on development of the electronic chronic pain treatment plan. Once this electronic version is available, the electronic treatment plan can be completed by the provider, in partnership with the patient, at every office visit, and the patient will be given a copy of the treatment plan in hard copy.

Once the patient engagement guideline is implemented for all chronic pain patients at this chronic pain clinic, the guideline will be spread to the other four chronic pain clinics in the same private clinic system. Education will occur at departmental meetings at each specific clinic.

The chronic pain clinics in this metropolitan area often network at pain conferences and meetings. It would be appropriate to share the results of this quality improvement project with providers at these clinics. If providers at these clinics show interest, I will share the clinical guideline and other tools with them. Education can be provided to these clinics on request.

Analysis of Self

This quality improvement patient engagement project has been a life changing experience for me. I have changed the way I practice chronic pain management every day when I interact with my patients. I am sure to give my patients comprehensive education on their pain condition and all potential treatments to reduce their pain level. My communication techniques have changed when interacting with patients. I make sure to listen to all that my patients have to tell me pertaining to their condition. I tell each of my patients that we are working as partners in our approach to find optimal treatments to reduce their pain. I ask the patients frequently throughout each visit if they have any questions and answer these questions as thoroughly as I can. On review of the treatment plan, the patients are aware that they have significant input on what treatments they want to pursue in the attempt to reduce their pain level. As a result of this scholarly project, I share study results more often with my patients on treatment options and explain to them what evidence-based practices are.

This scholarly project has peaked my interest in continuing to assess gaps in practice at this chronic pain clinic, and once gaps are identified, to discuss this with the providers. I am sharing more studies with other providers when discussing treatment options for patients. I plan to continue reviewing the literature on patient engagement and other areas identified as having a gap in practice and to collaborate with other providers on bringing best practices into the clinic to address these gaps. At some point I will volunteer to present at meetings and conferences regarding the issue of lack of patient engagement and its impact on the patient.

My experience as a project manager was positive. I was fortunate to have experience in health care administration and used many learned techniques when interacting with the nurse practitioners on clinical guideline development and implementation. I am now seen by other providers as a resource for evidence-based practice questions and other research-related topics. As a result of this scholarly project I hope to be a champion at this chronic pain clinic of research and education. I will be open to assisting other nurse practitioners if they pursue their doctorate in nursing practice. I have become a better nurse practitioner clinically as a result of this scholarly experience.

This patient engagement project will continue. The initial project required for doctorate may be completed, but the work from this project will continue and I will use its concepts to approach all types of chronic pain. The challenge to continue enhancing patient engagement and other quality improvement initiatives is always time. Ideally, these projects could be rolled out within a short time frame, but it always takes longer than anticipated. Designating time to continue this work will need to occur and, in my situation, I usually go into work early, which would be a prime time to continue this work.

I have gained many insights as a result of this quality improvement project. It was rewarding that all of the providers and the clinic lead were excited to implement the clinical guideline to enhance patient engagement. There has been much discussion at the clinic regarding this project and how it can be spread to all chronic pain conditions. This project has generated an interest in many other quality improvement areas. The clinic has

also posted a position for a research coordinator. Another insight that was recognized by the nurse practitioners as a result of this project is that there are more gaps to be addressed. Once the experience of following this clinical guideline occurred, my desire to enhance other areas of clinical practice became apparent. The other providers are also excited to embark on improvements to enhance the patient experience and to improve patient outcomes. One more insight was the practical use of electronic charting to assist with gaps in practice. Developing the treatment plan to distribute to the patient is going smoothly, and this electronic addition will be ready for all providers to use within a few months.

Summary

Patient engagement can lead to patients' better understanding of their condition and treatment options and enhanced relationships with their providers resultant from working together as partners in development of their chronic back pain treatment plan. Pursuing treatments due to enhanced patient knowledge and confidence can lead to a decreased level of pain which can increase quality of life, allowing the patient to participate in more activities in their lives. Developing and implementing a patient engagement clinical guideline has been shown through this scholarly project to produce a higher level of patient activation or engagement. The clinical guideline was composed of comprehensive education on the patient condition and treatment options, enhanced communication techniques and working with the patient in a partnership approach, and the provider and patient developing the treatment plan together. The patient engagement clinical guideline I developed, implemented, and evaluated for this quality improvement

project has guided providers in interactive evidence-based risk/benefit discussions

regarding treatment options, and has resulted in increased patient engagement as

evidenced by the PAM survey.

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Appendix A: GRADE Literature Review

Title Author Year Journal	Purpose of Study	Type of Study & Setting	Data Collection Method	Major Findings	Recommendations	Strengths & Weaknesses	Comments
Chronic low back pain patients' perceptions on self-management, self-management support, and functional ability Kawi, J. (2014) Pain Management Nursing	To describe the perceptions of chronic low back pain patients on their self-management, self-management support, and functional ability.	Qualitative study for chronic low back pain patients. Age range was 19 – 86 and length of pain was 3 months to 50 years.	Qualitative description using qualitative content analysis. The qualitative content analysis presents a summary of information regarding phenomena using everyday language and using coding and evolution of themes based on participant responses.	There is increased need for education and support of patients' mental state to facilitate self-management. Health care professionals need to be proficient in proficient in self-management support.	Need to increase awareness of patients, families, and health care professionals on the perspectives, issues, and concerns regarding self-management, self-management support preferences, and functional ability of chronic low back pain patients. More education is needed for chronic low back pain patients.	Strengths – Participant-perceived self-management and self-management support responses were found to be consistent with previous research studies. Weaknesses – level of study.	
Patient-professional partnerships and chronic back pain self-management: A qualitative systematic review and synthesis Fu, McNichol, and Marczewski (2015) Health and Social Care in the Community	To explore the influence of patient-professional partnerships on patients' ability to self-manage chronic back pain, and to identify key factors within these partnerships that may influence self-management.	Systematic review utilizing 5 data bases. 738 studies were reviewed.	Systematic review where all studies were appraised using the Critical Appraisal Skills Program.	7 themes were identified: communication, mutual understanding, roles of health professionals, information delivery, patients' involvement, individualized care, and healthcare service. Review findings suggest that a partnership between patients and professionals supports patients' self-management ability, and effective communicati	A partnership between patients and health professionals may support patients to self-manage their chronic back pain. Effective communication was highlighted as fundamental to the development of mutual understanding between patients and health professionals.	Strengths – Review of 738 studies and they explored a range of factors within the patient-professional partnerships that may influence the self-management of chronic back pain. Level of study. Weaknesses – Weaknesses – only English studies were reviewed.	

				on is a fundamental factor underpinning their partnerships in care.			
Patients' perception of chronic-pain-related patient-provider communication in relation to sociodemographic and pain-related variables: A cross-sectional nationwide study. Jonsdottir, Gunnarsdottir, and Oskarsson (2016) Pain Management Nursing	To investigate chronic-pain-related patient-provider communication in the context of sociodemographic variables, pain variables, perceived outcome of care, and satisfaction with health care providers.	Cross-sectional study via postal questionnaire measuring sociodemographic variables, perceived causes of pain, experience and duration of pain, pain characteristics, HRQoL,, health care utilization, perception of health care outcome, and patient-provider communication .754 of 1,586 participants had chronic pain.	Data was analyzed using SPSS. Descriptive statistics were used to present the sample's characteristics as means of variables included in the predisposing, enabling, need, outcome factors, and communication factors. Relationships between patient-provider communication and other measured variables were tested using bivariate and multi-variate statistics.	The more chronic pain impaired health-related quality of life, the more provider control the patients perceived in the patient-provider communication. There was a strong negative relationship between patients' perception of providers' support and openness to discussing symptoms and satisfaction with health care provider.	Nurses have an important role in working with individuals experiencing chronic pain in which effective communication is a factor for providing compassionate care. Patient-provider communication is important in successful health care delivery. Patients who perceive their providers as supportive and open to questions and discussion about symptoms and treatment options are more satisfied and perceive their health care outcome as more positive than patients who perceive more control and less support from their provider. When patients consult providers for chronic pain, it is important to assess pain in a broad spectrum and give each individual the opportunity and time to express and discuss symptoms and how they	Strengths – Number of participants. Weaknesses – level of study.	

						affect daily life.	
Evaluation of individualized quality of life and illness perceptions in low back pain. A patient education cluster randomized controlled trial.

Lochting, Storheim, Werner, Cvancarova, and Grotle (2016)

Patient Education and Counseling | To evaluate the effect of a cognitive patient education intervention compared with usual care on secondary outcomes of individual quality of life and psychological outcomes of illness perceptions and pain catastrophizing in patients with low back pain. | Cluster randomized controlled trial involving 16 physicians and 20 physical therapists in primary care. They were assigned to provide either a cognitive patient education intervention or usual treatment. Patients were followed up at 4 weeks and 12 months after treatment. 203 participants, ages 20 – 55 years old, low back pain 4 – 52 weeks. | Baseline questionnaire completed immediately, second questionnaire completed after treatment at 4 weeks, then a third questionnaire at 12 months. Descriptive statistics included means and standard deviations for continuous variables, and counts for dichotomized variables. | The cognitive patient education intervention initiated a faster improvement in illness perceptions. | A patient education intervention can be beneficial to improve illness perceptions. | Strengths – This study includes two outcome measures which have received limited evaluation in randomized control trials. Weaknesses – this was a cluster randomized controlled trail which is susceptible to methodological problems, risk of selection bias. | |
| Change narratives that elude quantification: A mixed-methods analysis of how people with chronic pain perceive pain rehabilitation.

Wideman, Boom, Dell'Elce, Bergeron, Fugere, Lu, Bostick, and Lambert (2016)

Pain Research and Management | To explore how patients perceive and experience changes in function, participation, and pain-related factors following a chronic pain rehabilitation program. | A mixed-method design, core method was qualitative. Semi-structured interviews were conducted 1 – 7 months following treatment completion. Questionnaires were administered before and after treatment and at follow-up. | Interview data was analyzed thematically. Participants' individual descriptive data was compared to established cut-scores and criteria for change. | A major theme of personal growth emerged. Participants expressed that the factors that facilitated personal growth in the analysis. | Important to encourage chronic pain rehabilitation for patient growth. | Strengths – The findings help to advance the emerging mixed-methods literature. Limitations – Qualitative data was only collected cross-sectionally, only negative factors were measured, narrow time frame for follow-up assessment. | |
| Identifying patients' beliefs about treatments for chronic low bak pain in primary care: A focus group study. | To explore patient preferences and to identify patients' beliefs about low back pain treatments. | Qualitative study using focus groups in primary care. 13 focus groups were organized with a purposive sample of 75 adults with low | Thematic analysis was conducted and NVivo was used for data management and coding. | 4 themes identified related to treatment beliefs with 4 distinct dimensions: credibility, effectiveness, concerns, | It is important to understand their low back pain before trying to engage them in treatment decisions. Addressing patients' | Strengths – Number of participants. Limitations – level of study | |

Dima, Lewith, Little, Moss-Morris, Foster, and Bishop (2013) British Journal of General Practice		back pain. Participants ranged in age from 29 – 84 years and 2/3rd's had back pain for more than 3 years.	Talk was deductively categorized as related to a recommended treatment. Then an inductive approach was taken to identify dimensions underlying participants' perceptions of particular treatments.	and individual fit. Participants' primary concern was to obtain a clear explanation of their low back pain and an understand of the causes of their back pain. Participants wanted an expert provider who could deliver suitable treatment.	illness and treatment perceptions could improve shared decision making and patient outcomes. Understanding their causes of pain was an essential prerequisite for meaningful engagement with treatment decision making.		
Spinal cord stimulation in treatment of chronic benign pain: Challenges in treatment planning and present status, a 22-year experience Kumar, Hunter, and Demeria (2005) Neurosurgery	To present an analysis of clinical predictors of outcome including age sex, etiology of pain, type of electrodes used, duration of pain duration of treatment, development of tolerance, employment status, activities of daily living, psychological status, and quality of life.	Study group of 410 patients with a mean age of 54 years and a mean follow-up period of 97.6 months. All patients went through a multidisciplinary pain clinic. The study was conducted over 22 years.	For comparisons between two groups, a two-tailed Student's t test was used to evaluate significance. Nonparametric Kaplan-Meier survival curves were used to demonstrate differences in electrode effectiveness. Fisher's exact test was used when appropriate to compare small sample sizes and dichotomous variables.	Spinal cord stimulation can provide significant long-term pain relief with improved quality of life and employment.	Use of spinal cord stimulation can provide significant long-term pain relief and improve quality of life in a variety of benign intractable pain generating etiologies.	Strengths – large sample size over a long period of time. Weaknesses – study design and level of study.	
A systematic review of the effects of exercise and physical activity on non-specific chronic low back pain	To explore the impact of back pain on society and the role of physical activity for treatment of non-specific low back pain.	A systematic review using 3 data bases and a review of 650 studies. The final review included 14 studies.	Measurements in strength, flexibility, and other areas were conducted and results evaluated in each study.	Physical therapy programs involving muscular strength, flexibility and aerobic fitness is beneficial for	A physical therapy program combining muscular strength, flexibility and aerobic exercise is beneficial for rehab of	Strengths – level of study and number of studies reviewed. Weaknesses -	

Gordon and Bloxham (2016) Healthcare				low back pain patients.	patients with low back pain.	
Systematic pharmacologic therapies for low back pain: A systematic review for an American college of physicians clinical practice guideline Chou, Deyo, Friedly, Skelly, Welmer, Fu, Dana, Kreegel, Griffin, and Grusing (2017) Annals of Internal Medicine	To review the current evidence on systematic pharmacologic therapies for acute or chronic low back pain.	Systematic review of 3 data bases with selection of randomized trials that reported pain, function, or harms of systemic medications versus placebo or another intervention.	Data was qualitatively synthesized for each medication, stratified according to the duration of symptoms and presence or absence of radicular symptoms. Analyzed whether the estimates and Cis were encompassed in the Cis from pooled estimates. Assessed the strength of evidence based on aggregate study quality, precision, consistency, and directness.	Several systemic medications for low back pain are associated with small to moderate effects on pain.	Presented a chart which reviewed how effective each of the pain medication classes were: NSAIDS – small to moderate Opioids – small to moderate Muscle relaxants – low Neuropathics - moderate	Strengths – level of study and several data bases searched. Weaknesses – Reviewing all primary literature was not feasible because of the large number of medications addressed.
The effectiveness of transforaminal epidural steroid injection in patients with radicular low back pain: Combination of pain provocation with effectiveness results Adiguzel, Tecer, Guzelkucuk, Taskaynatan and Tan (2017) Turkish Journal of	To investigate the efficacy of transforaminal epidural steroid injection on low back pain relief and functional impairments.	A qualitative study using the visual analog scale for pain, oswestry disability index, and short form 36 administered before the injection, at post-injection, and then at 12 weeks. 62 participants age 22 – 88 years.	Used G power program for statistical power analysis of variance (ANOVA). Statistical analysis performed with SPSS. Levene test used to test homogeneity of variances. Post-hoc analysis performed using Tukey test. A Cohen's d calculation between second and	Transforaminal epidural steroid injection was found to be effective in both the early period and in the mid-term.	Encouraged use of transforaminal epidural steroid injection for pain reduction and improvement of activities of daily living.	Strengths – The efficacy of the transforaminal epidural steroid injection due to disc pathologies and the visual analog scale changes was similar to previous studies. Weaknesses – No group to compare the efficacy of the injections, did not assess the

Physical Medicine Rehabilitation			12th week measurements was used to determine the effect sizes. A value of p less than 0.05 was statistically significant.			effect of symptom duration or follow-up results.	
Evaluation of a psychological intervention for patients with chronic pain in primary care. Cano-Garcia, Gonzalez-Ortega, Sanduvete-Chaves, Chacon-Moscoso, and Moreno-Borrego (2017) Journal of Frontiers in Psychology	To evaluate the efficacy of a psychological intervention with patient's experiencing chronic pain.	This was a quasi-experimental one-group pre-test and post-test, follow-up design. 40 patients ages 33 – 69 were placed in one of 3 groups.	Cronbach's alpha was used to test the reliability of the measures . To study the changes to the different dependent variables across the 3 measurement instances, checked the normality assumption using Shapiro-Wilk's test. When normal distribution was rejected, a non-parametric test (Friedman test) was used, when the assumption was accepted, calculated a parametric test (ANOVA).	Psychologic intervention of psychoeducation for pain, breathing and relaxation, attention management, cognitive restructuring, problem-solving, emotional management, social skills, life values and goal setting, time organization and behavioral activation, physical exercise promotion, postural and sleep hygiene, and relapse prevention was successful in pain management.	Encourage psychological intervention in treatment of chronic pain using a combination of psychologic methods.	Strengths – Data gathered initially, after the psychologic intervention, and 6 months later. Weaknesses – absence of a control group	
Development of the Patient Activation Measure (PAM): Conceptualizing and measuring activation in patients and consumers Hibbard, Tockard,	To describe a process for conceptualizing and operationalizing what it means to be activated and identify the process used to develop a measure for assessing activation and	Findings from a national expert consensus panel and patient focus groups to define the concept and identify the domains of activation. Items were pilot-tested and then a national	The initial set of items making up PAM were selected using Rasch analysis. Item selection was based on item fit statistics representing how much	The Patient Activation Measure is a valid, highly reliable scale that reflects a developmental model of activation. Activation appears to involve 4 stages: believing the	Engaging patients to be an active part of the care process is an essential element of the quality of care. Improving this aspect of care involves the development of a measure	Strengths – Many study designs were used to get through each step of this study. Weaknesses -Level of study.	

Mahoney, and Tusler (2004)\n\nHealth Servivces Rsearch	the psychometric properties of that measure.	probability sample was used. There were 19 participants in the focus groups age 29 – 78. The first pilot study had 100 participants ages 19 to 79. The second pilot group had 486 participants. The national probability sample included 1,515 participants.	responses to an item deviate from the model's expectations. A test-retest reliability assessment was also conducted.	patient role is important, having the confidence and knowledge necessary to take action, actually taking action to maintain and improve one's health, and staying the course under stress.	to assess patient activation, the identification and use of evidenced-based interventions to increase patient activation, and a method to hold providers and delivery systems accountable for supporting and increasing patient activation.		

Appendix B: Patient Engagement Clinical Guideline

Clinical Guideline for Patient Engagement in Development of Chronic Back Pain Treatment Plan

Scope and Purpose:

- The objective of this clinical guideline is to develop a practice guideline for nurse practitioners in the chronic pain clinic, that encourages patient engagement at each visit by educating and providing best evidence on the treatment options available.
- The health question covered by this guideline is "do chronic back pain patients who are engaged in consistent treatment plan development at each office visit have an understanding of their back pain condition and treatment options and adhere to treatment options?"
- The population that this clinical guideline will serve is chronic low back pain patients.

Stakeholder Involvement:

- The guideline assessment and development group included pain management physicians, nurse practitioners and physical therapists.
- Views were collected from chronic low back pain patients.
- The target users of this guideline will be providers who see chronic low back pain patients at a chronic pain clinic.

Rigor of Development:

- CINAHL, MEDLINE, PubMed, Cochrane Database, JoAnna Briggs Institute Database.
- Used the GRADE system to select evidence.
- The strengths of the body of evidence is that this was an exhaustive search of best practices in chronic pain management. The weaknesses of the body of evidence is that there is not extensive research on this topic.
- The method to formulate the evidence was by following the domains of AGREE II.
- Health benefits, side effects, and risks considered when formulating the recommendations.
- All evidence supports the recommendations in the guideline.

- Physicians and Nurse Practitioners at the chronic pain clinic reviewed and approved the clinical guideline for patient engagement in their chronic back pain treatment plan.
- Will update guideline as new evidence based practices evolve.

Clarity of Presentation:

- Recommendations are specific and clear.
- Different options for management of low back pain are presented including physical therapy, pain psychology, epidural lumbar injection, medications, and the neurostimulator.
- All recommendations are clear and identifiable.

Applicability:

- An algorithm was developed as a tool to implement this clinical guideline.
- Facilitators will be providers and support staff, barriers could potentially be the same.
- There should be no additional resources required for these recommendations.
- Monitoring criteria identified for this guideline. This will include reassessing the guideline for new evidence-based practices to treat chronic back pain.

Editorial Independence:

- No funding body associated with this guideline.
- There are no competing interests of this guideline development group members.

Evidence-based practice demonstrates that low back pain treatment options can reduce chronic back pain. Best practices indicate that patients who are engaged with their provider with effective patient-provider communication (Jonsdottir, Gunnarsdottir, and Oskarsson, 2016), who are educated on their back pain condition and treatment options (Kawi, 2012), feel listened to and supported by their provider (Fu, McNichol, Marczewski, and Closs, 2015), will be more engaged and adhere to their treatment plan.

Three actions can be taken to engage patients in treatment plan development:

1. Educate the chronic back pain patient on their specific condition utilizing the use of models, handouts, and verbally. Educate the patient on each of the evidence-based practice treatment options utilizing handouts and verbally. These treatment options include physical therapy (Gordan and Bloxham, 2016), neurostimulators (Kumar, Hunter, and Demeria, 2005), epidural injections (Adiguzel, Tecer,

Guzelkucuk, Taskaynatan, and Tan, 2016), pain psychology (Cano-Garcia, Gonzales-Ortega, Sanduvete-Chaves, Chacon-Moscoso, and Moreno-Borrego, 2017) , and medications (Chou, et al., 2017).

2. Conduct effective patient-provider communication by listening to the patient's symptoms, answering questions, encouraging and supporting the patient, and by taking a partnership approach (Fu, McNichol, Marczewski, and Closs, 2015). Ask the patient at the end of the visit whether they have any more questions.

3. Complete the chronic back pain treatment plan with the patient by reviewing each of the treatment options and deciding with the patient if this treatment is appropriate (Dima, Lewith, Little, Moss-Morris, Foster, and Bishop, 2013). Give the patient the treatment plan at the end of the discussion.

Appendix C: Patient Engagement Clinical Guideline Algorithm

Algorithm for Patient Engagement in Chronic Back Pain Treatment Plan Development

Patient Education on Specific Back Pain Condition   **Patient-Provider Communication**

(Spinal stenosis, ruptured disc, muscle strain, compression fracture

scoliosis, sacroiliac joint dysfunction, spondylolisthesis, spondylosis

degenerative disc disease, sciatica)

Listen

Support

Encourage Questions

Encourage Partnership

Patient Education on Treatment Options for Back Pain

1. Physical therapy
2. Pain psychology
3. Lumbar epidural injection
4. Neurostimulator
5. Pain Medication (neuropathic, NSAID, muscle relaxant, opioid)

↓

↓   ↓

Review Chronic Back Pain Treatment Plan

Physical Therapy   Pain Psychology   Neurostimulator   Epidural Injection

Pain Medication

↓

- NSAIDs (ibuprofen, naproxen, Celebrex, meloxicam)
- Neuropathic- Antiseizure/antidepressant (gabapentin, lyrica, duloxetine, amitryptiline)
- Muscle Relaxant (cyclobenzaprine, methocarbomol, tizanidine, metaxalone, orphenadrine, baclofen)
- Opioid

↓   ↓

Long acting   Short acting

(Oxycontin, MS Contin, Fentanyl patch, Exalgo, Methadone)   (oxycodone, morphine, hydrocodone, hydromorphone, tramadol)