

Running head: CHRONIC LOWER BACK PAIN

Needs Assessment for Practice Change in Chronic Lower Back Pain Management

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This practice inquiry project has been approved for meeting partial requirements for the Doctor of Nursing Practice Degree at the University of Hawai'i Hilo
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Abstract

Problem: Treatment of chronic lower back pain is challenging and results in a significant economic burden of direct and indirect costs. Health care delivery that is aimed to treat acute diseases does not always address the needs of individuals experiencing chronic conditions.

Aims/Objectives: Assess the current management of chronic lower back pain by utilizing quality improvement surveys and provide improvement recommendations based on the results of the surveys.

Design: Project design and methods were guided by the use of the Chronic Care Model (CCM).

Participants: A convenience sample of 50 chronic lower back pain patients and one pain management physician.

Setting: A private practice pain management clinic with two

locations on the island of O’ahu in Hawai’i. **Data Collection:** Paper and pen surveys were used for descriptive and quantitative analysis of likert-scale and demographic survey answers.

Surveys used for data collected included the Patient Assessment of Chronic Illness Care

(PACIC) and the Assessment of Chronic Illness Care (ACIC). **Results:** The PACIC results

indicated a need for improvement in follow-up/coordination of care. The ACIC results indicated

a need for improvement in decision support for clinicians. **Recommendations:** Improving

communication between interdisciplinary team members and providers associated with chronic

lower back pain management would improve both the follow-up/coordination of care and

decision support for clinicians.

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Needs Assessment for Practice Change in Chronic Lower Back Pain Management

Chapter 1

The practice of medicine is as much an art as a science. Healthcare outcomes have the opportunity to be enhanced by cohesiveness and creativity between patient and provider. As will be discussed in the pages that follow, evidence has shown that patients who have the opportunity to collaborate with healthcare providers when developing a treatment plan experience better outcomes and satisfaction with their medical care (Chou & Huffman, 2007). A number of situations can strain the patient and provider relationship, including chronic diseases that are difficult to treat and may never lead to complete resolution (Melzack et al., 1965). Lower back pain is an uncomfortable sensation that is often unrelated to a specific pathologic cause, such as; tumor, infection, fracture, deformity, an inflammatory disorder, or radicular syndrome (Balagué, Mannion, Pellisé, & Cedraschi, 2012). The challenges of treating chronic lower back pain can lead to frustration for not only patients, but also healthcare providers (Chou et al., 2007). Incorporating the art of medicine, and building on patient and provider collaboration, may lead to improved outcomes for chronic lower back pain treatment.

The sensation of physical pain is a normal experience for human beings. Most individuals experience pain for a short period of time before the natural healing process improves and resolves the sensation. However, there are instances when pain does not improve with time and can remain present for months, or even years. The International Association for the Study of Pain defines chronic pain as an uncomfortable sensation that persists beyond the time frame for normal tissue healing, usually not lasting more than three months' duration (Treede, 2018). For the majority of individuals, pain resolves within a short period of time. There are areas of the human body that are more susceptible to the uncomfortable sensation of pain. The lower back is a

common area to experience pain with an 80% lifetime prevalence (Smith, Littlewood, & May, 2014). Eight out of every ten humans will experience lower back pain during their life (Deyo, Cherkin, Conrad, & Volinn, 1991; Smith et al., 2014). Although lower back pain is common, treatment can vary between healthcare practices and providers (Chou et al., 2007).

Treatment of chronic lower back pain is complicated. Interventions that provide relief for one person may not elicit the same response for another. Solitary treatment of chronic lower back pain with medication may limit improvement and ability to cope with the condition (Chou et al., 2009). Medications can be utilized to address pain, but a national effort is underway to address the rate of prescribing high-risk medications to address chronic non-cancerous conditions. Opioids have been the most commonly prescribed medication for managing lower back pain (Kea, Fu, Lowe, & Sun, 2016). About half of all opioid overdose deaths in the United States involve a prescribed opioid medication (Centers for Disease Control and Prevention [CDC], 2017a). Medications that were once prescribed to improve quality of life by reducing pain are leading to deadly consequences. The average opioid dose and duration prescribed by healthcare professionals is dangerously high and increases the risk of tolerance, dependence, misuse, and death (CDC, 2017b). Improving the management of chronic lower back pain is necessary to reduce the utilization of opioid medication for pain management.

Background

Ronald Melzack has investigated the physiologic process of pain since 1965 when he began collaborating with a colleague, Wall, and developed the gate control theory of pain (Melzack & Wall, 1965). Melzack and Wall developed the unique concept, at the time, that the physiologic process and experience of chronic pain differs from acute pain. Acute pain is a protective process in cases of injury (Melzack et al., 1965). Gate theory states that when injured,

the sensation of pain may inhibit a person from performing certain activities during the healing process, thereby allowing the body to recover without interruption or repeated injury. Chronic pain differs from acute pain in that the body does not return to homeostasis at the resolution of tissue repair. For those suffering from chronic pain, there is a new baseline sensation that can limit activity and overall well-being (Chou et al., 2007).

As previously mentioned, lower back pain affects up to 80% of individuals at one point in their life (Deyo, Cherkin, Conrad, & Volinn, 1991; Smith et al., 2014). Lower back pain is a common experience, and more often than not the sensation does not require medical attention. Deyo et al. (1991) stated that 95% of acute lower back pain cases resolve without significant intervention. However, cases of persistent lower back pain have been on the rise (Freburger et al., 2009). A growing number of individuals are experiencing lower back pain that does not improve with time. About five to ten percent of patients who experience acute lower back pain go on to develop disabling chronic lower back pain (Meucci, Fassa, & Faria, 2015). Freburger et al. (2009) illustrated that lower back pain was the second most common reason for adult disability in the United States. The noted disability not only affects the healthcare system, but also burdens the economy with the loss of productivity and work hours.

The direct and indirect costs related to chronic lower back pain are staggering. Direct healthcare costs related to management of lower back pain entail provider services, medical devices, medications, diagnostic imaging, and hospital services (Dagenais, Caro, & Haldeman, 2008). Direct medical expenses also include the costs associated with obtaining medical treatment, such as transportation to and from appointments by use of a personal vehicle or bus fare. Another example of direct medical expenses related to chronic lower back pain includes

the renovation of a home to accommodate pain-related disabilities including assistive devices for transportation such as a wheelchair or walker (Dagenais et al., 2008).

Indirect costs related to chronic lower back pain include employment and productivity absenteeism, which amounts to two-thirds of the total cost associated with lower back pain (Dagenais et al., 2008; Qaseem, Wilt, McLean, & Forciea, 2017). Individuals experiencing unrelieved pain may not be able to meet work-related expectations, such as keeping up with demands at work or being able to attend work at all. The total economic burden of lower back pain in the United States is about 87.6 billion dollars (Dieleman et al., 2016). Treatments for lower back pain were systematically reviewed in 2009 by Dagenais, Roffey, Wai, Haldeman, and Caro, finding a median cost of \$13,015 per quality-adjusted life year. Additionally, the researchers identified a lifetime range in healthcare costs from merely \$304 to a substantial \$579,527. Indirect costs, such as transportation to medical appointments and lost work hours, outweigh direct costs related to lower back pain within the estimate of economic cost associated with chronic lower back pain (Maher, Underwood, & Buchbinder, 2017). The economic burden of chronic lower back pain necessitates creative avenues for management of this chronic condition.

Treatment of chronic pain is challenging, especially with no recognizable cause or pathology linked to the disorder (Maher et al., 2017; Searle, Spink, Ho, & Chuter, 2015). Not only is treatment a challenge, but outcome success is limited. Complete pain relief is rare even with the use of chronic opioid therapy (Chou et al., 2009). Focusing on pain level for opioid treatment outcome does not show promising findings. Chronic opioid therapy has been shown to provide a marginal reduction in pain level by only two to three points on a ten-point scale (Furlan, Sandoval, Mailis-Gagnon, & Tunks, 2006; Kalso, Edwards, Moore, & McQuay, 2004;

Qaseem et al., 2017). The over-use of opioid medication in the management of chronic pain has been the primary driving factor in the current opioid epidemic in the United States (Chou et al., 2009). Prescribing opioid medication for treating chronic and non-terminal conditions often leads to disastrous outcomes. Opioids can offer effective relief of acute pain, but risks of tolerance and dependence in the setting of chronic non-cancer pain are the significant reasons opioid medication is not recommended for treatment of non-cancer pain (Chou et al., 2009). Risk of addiction to opioid medication increases 15 times when used for more than three consecutive months (CDC, 2017a). About half of all opioid overdose deaths in the United States involve a prescribed opioid medication (CDC, 2017a). The average opioid dose and duration prescribed by healthcare professionals is dangerously high and increases the risk of tolerance, dependence, misuse, and death (CDC, 2017a). The United States has begun to address opioid use and misuse as a health crisis requiring collaboration between providers and patients for safe and effective treatment of pain. The United States Federal government has declared a state of crisis regarding opioid use (The Federal Response to the Opioid Crisis, 2017). The CDC (2017b) published guidelines for prescribing opioid medication for chronic pain to reduce the number of individuals who abuse, misuse, or overdose from these medications. Additionally, the American Medical Association (2018) has created a Task Force to address the opioid epidemic. One of the four recommendations made by the Task Force focuses on access to non-opioid pain management from healthcare payers, public and private, in addition to pharmacy benefit management companies. As alternatives to opioid medication, the American Pain Society and the American College of Physicians support manual therapy, acupuncture, massage, yoga, exercise, and cognitive behavioral therapy before the utilization of opioid medication (Chou et

al., 2007; Maher et al., 2017). Optimizing non-opioid management of chronic lower back pain would benefit the individual sufferers and the healthcare system as a whole.

Chronic disease is now the main cause of disability and the reason patients seek medical attention (Holman & Lorig, 2004). Holman and Lorig (2004) explain that the current health care system is designed to treat acute ailments instead of diseases that require continuous follow up. The difficulty with treating chronic diseases, such as chronic lower back pain, is that there is no cure. Management of symptoms and patient education assume a greater priority in management of chronic lower back pain. Less than half of the physician practices in the United States provide the recommended care for chronic diseases and slightly over half of patients receive best practice treatment (Casalino et al., 2003). A gap, or chasm, has been identified between evidence based practice and administered practice in persons afflicted with chronic conditions. Management of chronic diseases requires the patient to become an active participant in their care with the aid of the health care provider (Holman & Lorig, 2004). Health care providers have a responsibility to assist patients in learning how to manage their chronic conditions.

Problem Statement

Improving chronic care management, especially for individuals suffering from chronic pain, is imperative to improving outcomes and overall well-being. Misuse of opioid medication has reached epidemic proportions because of the convenience of pharmaceutical intervention to address pain. In fact, treatment of chronic lower back pain with medication alone, especially with the use of opioid medication, has proven to be dangerous. Improving the patient and provider approach to chronic lower back pain management has the potential to result in a reduction of opioid use, improved function, and reduced pain.

Problem Significance

Lower back pain is a common condition that will affect most people at least once in their lifetime. Estimates vary, but studies in developed countries show a prevalence of up to 33% of individuals affected by lower back pain and a one-year prevalence up to 65% (Chou et al., 2007). In the United States, lower back pain is the fifth most common reason for seeking medical attention (Chou et al., 2007). As previously mentioned, most cases of lower back pain resolve without intervention. The cases of lower back pain that do not resolve within three months are at a greater risk for developing into chronic lower back pain (Chou et al., 2007).

Chronic lower back pain, similar to other chronic diseases, requires ongoing medical attention and frequently does not focus on cure of the malady. Management of chronic lower back pain focuses on empowering individuals in disease management, education, providing treatment options, and improving function (Holman et al., 2004). The patient assumes particular responsibilities in managing their condition. These responsibilities include proper use of medication, behavior change to improve or slow disease progression, adjustment to economic and social consequences, coping with the emotional consequences, and interpreting symptoms accurately (Holman et al., 2004). Examining the patient and provider experience within a chronic pain management clinic provides an opportunity to identify weaknesses or barriers in treatment.

System and Population Impact

The prevalence of chronic lower back pain is an economic burden and includes expenses related to healthcare encounters combined with the loss of work productivity (Dagenais et al., 2008; Gore, Sadosky, Stacey, Tai, & Leslie, 2012). Data has shown that the frequency of provider visits has not changed in the past decade, but the costs associated with lower back pain

have substantially increased (Balagué et al., 2012). The growing cost of treating lower back pain is becoming a national concern. Not only does an individual endure suffering from ongoing pain, but the community as a whole is affected by the loss of work hours and employability, which leads to the sufferer's dependence on government assistance (Shmagel, Foley, & Ibrahim, 2016). If an individual is unable to remain employed because of the severity of their lower back pain, then that person and their family may not be able to meet basic needs such as housing, nutrition, and medical insurance.

One study found that about half of individuals experiencing chronic lower back pain, who depended on government-subsidized health insurance, required at least ten health care visits in one year (Shmagel et al., 2016). In other words, the study showed that half of the individuals experiencing chronic lower back pain, who relied on government assistance, sought medical attention on almost a monthly basis. The same study by Shmagel et al. (2016) revealed characteristics associated with chronic lower back pain to include individuals with an age greater than 50, less than a high school education, annual household income less than \$20,000, recipients of disability income, moderate to severe depression, sleep disturbances, and medical comorbidities. Thus, the characteristics of individuals suffering from chronic lower back pain seem to correlate with characteristics of individuals within disadvantaged socioeconomic groups.

Chronic lower back pain not only affects individual patients, but also the nation as a whole. Improving function and reducing pain related to chronic lower back pain may allow individuals to improve or maintain their employability. Remaining employed improves the likelihood that individuals can meet basic needs such as housing, nutrition, and medical insurance without depending on government assistance. Improving the management of chronic lower back pain may also reduce the frequency of interaction with healthcare providers.

Reducing pain level and improving function for individuals experiencing chronic lower back pain can positively affect employability while reducing costs associated with healthcare and government aid.

Goal

The overarching goal of this project is to improve the quality of chronic lower back pain management within the Hawai'i Institute of Pain's O'ahu offices.

Specific Aim 1. Identify gaps and opportunities to provide effective chronic lower back pain management in the patient population at Hawai'i Institute of Pain's O'ahu offices.

Objective 1. Offer project participation during a follow up appointment for patients experiencing chronic lower back pain.

Objective 2. Give patients a copy of the Patient Assessment of Chronic Illness Care survey to complete after their appointment and anonymously submit at the front desk.

Objective 3. Collect surveys at the end of the project period and organize responses using an Excel spreadsheet.

Specific Aim 2. Identify gaps and opportunities to provide effective chronic lower back pain management from the healthcare providers' perspective at Hawai'i Institute of Pain's O'ahu offices.

Objective 1. Offer project participation during staff meeting.

Objective 2. Provide the Assessment of Chronic Illness Care survey to each of the physicians practicing at the Hawai'i Institute of Pain.

Objective 3. Compile results of the Assessment of Chronic Illness Care survey by averaging the responses and imputing data into an Excel spreadsheet.

Specific Aim 3. Propose proactive management of chronic lower back pain management by utilizing findings from surveys.

Objective 1. Utilize results from Specific Aim 1 and Specific Aim 2 to identify the areas in most need of quality improvement.

Specific Aim 4. Disseminate findings to Hawai'i Institute of Pain staff and make recommendations on how to improve the quality of care for chronic lower back pain treatment management.

Objective 1. Present survey data at the annual staff education meeting in December of 2019, or at one of the twice monthly regularly scheduled staff meetings.

Objective 2. Present recommendations for quality improvement of chronic lower back pain management.

Objective 3. Propose ongoing patient and provider evaluation using the Patient Assessment of Chronic Illness Care and the Assessment of Chronic Illness Care surveys.

Objective 4. Results of the two surveys, demographic data, and recommendations will be presented into a brochure to be distributed to The Clinic staff members.

Chapter 2

Conceptual Framework

Chronic Care Model. The Committee on Quality Health Care in America (2001) illustrates that health care systems designed to address acute episodes of disease do not provide the same benefit to patients with chronic diseases. Healthcare providers can maximize treatment of chronic lower back pain by focusing on the evidence-based aspects of care that affect chronic diseases. The Chronic Care Model (CCM) is a primary-care based framework focused on guiding the delivery of care of patients with chronic diseases (Bodenheimer, Wagner, & Grumbach, 2002; Committee on Quality Health Care in America, 2001; Glasgow, Whitesides, Nelson, & King, 2005b). As treatment of chronic diseases can be complex, the model serves as a framework to guide treatment and maximize patient benefit. By utilizing this model, providers can examine the quality of care given to patients within each of the six major aspects detailed in the CCM. Healthcare practices utilizing the CCM to guide chronic disease care are associated with improved outcomes (Tsai, Morton, Mangione, & Keeler, 2005).

Treatment of chronic diseases requires ongoing healthcare intervention for education, monitoring, and intervention. Instead of acute diseases that resolve after intervention, chronic disease management focuses on maintaining function while preventing complications and exacerbations (Wagner, 1998). In chronic disease management, the patient must assume an active role in treatment and the healthcare provider supports their self-management practices by using systematic assessments, behavioral support, and treatment guidelines (Holman & Lorig, 2004). A meta-analysis of 112 studies covering the use of at least one element of the CCM in treatment of depression, diabetes, asthma, and congestive heart failure showed beneficial effects on the processes of care and clinical outcomes across all conditions (Tsai et al., 2005).

Interestingly, the meta-analysis did not identify a single aspect of the CCM to be more beneficial than the others. Each study that incorporated one of the six attributes of the CCM showed improvement in chronic disease management. Studies that incorporated more than one aspect of the CCM did not show a statistically significant advantage and did not appear to provide more than an additive effect.

Audits and surveys have shown that chronically ill patients are not satisfied with their care, have poor disease control, and are not receiving effective therapy (Bodenheimer et al., 2002). Continuous investigation of a practices' healthcare delivery is integral to quality improvement. Patient with chronic lower back pain could benefit from a practice utilizing assessment tools to identify areas in need of quality improvement to better manage chronic diseases. As portrayed in the CCM image (see Appendix A), addressing the six major components of chronic disease management can lead to productive interactions between informed, activated patients and a prepared, proactive practice team. Improved outcomes are the result when these elements are addressed. This project utilizes the Patient Assessment of Chronic Illness Care (PACIC) to satisfy the objectives of Specific Aim 1, the patient perspective, and the Assessment of Chronic Illness Care (ACIC) to satisfy the objectives of Specific Aim 2, the provider perspective.

Community resources. Community resources are useful in the self-management of chronic diseases. Healthcare providers have the opportunity to provide information to patients regarding available resources for information or activities related to their health condition. Solberg, Crain, Sperl-Hillen, Hroschikoski, Engebretson, and O'Connor (2006) note that medical groups and health plans often implement community activities and resources designed to support and improve quality of care. Community resources influence the patient by providing

knowledge and context for their condition and has potential to lead patients toward better self-management practices. Although the CCM was developed decades ago, addressing community resources remains a factor in providing quality care. Value-based payment necessitates health care providers' use of community resources to improve care (Berwick, 2019).

The PACIC survey asks the patient to rate how often their provider offers or reinforces community resources in question nine, “encouraged to go to a specific group or class to help me cope with my chronic illness,” question ten “encouraged to go to a specific group or class to help me cope with my chronic illness,” question 17, “encouraged to attend programs in the community that could help me,” question 18, “referred to a dietitian, health educator, or counselor,” and question 19, “told how my visits with other types of doctors, like the eye doctor or surgeon, helped my treatment” (Glasgow et al., 2005a, p. 444). The ACIC more directly evaluates the use of community resources in Part 2 of the survey covering three subsections; linking patients to resources, partnering with community organizations, and use of regional health plans in chronic illness guidelines (Bonomi, Wagner, Glasgow, & VonKorff, 2002).

Health organizations. The health organizations aspect of the CCM prioritizes leadership to support and encourage changes that improve the standardization of best practices (Solberg et al., 2006). This aspect of the CCM model is not generally visible to patients and therefore was not a primary focus for the PACIC tool (Glasgow et al., 2005a). However, question five does ask the patient how well their care is organized. Health organization is Part 1 of the ACIC. This section illustrates that the management of chronic illness is more effective if the overall organization where care is provided is oriented and led with a focus on chronic illness care (Bonomi et al., 2002). Part 1 asks healthcare providers to rate their practice on the following related subjects; organizational leadership in chronic illness care, goals for chronic care,

improvement strategies for chronic illness care, incentives and regulations, senior leadership effort, and an organization's benefits.

Self-management support. Supporting the self-management behavior of patients is necessary for successfully treating chronic diseases (Wagner, 1998). Healthcare providers have the ability to prioritize patients' confidence and skill level in preventing and managing disease exacerbations. This is accomplished by partnering with the patient, providing educational resources, and guiding them through the process of managing a chronic illness (Holman & Lorig, 2004). Technology advancements since the CCM was initially developed provide multiple avenues for patients to improve their health. For example, wearable devices such as pedometers or wristwatches with heart monitors allow the patient to become more aware of their health status (Berwick, 2019).

The PACIC has multiple questions that relate to the self-management of chronic diseases including; question one, "asked for my ideas when we made a treatment plan," question four, "given a written list of things I should do to improve my health," question seven, "asked to talk about my goals in caring for my illness," question 8, "helped to set specific goals to improve my eating or exercise," question 11, "asked questions, either directly or on a survey, about my health habits," question 13, "helped to make a treatment plan that I could do in my daily life," question 14, "helped to plan ahead so I could take care of my illness even in hard times," and question 15, "asked how my chronic illness affects my life" (Glasgow et al., 2005a, p. 444). The ACIC addresses self-management support of chronic diseases in Part 3a and notes that effective support can assist patients and families in coping with the challenges associated with chronic diseases (Bonomi et al., 2002). This part of ACIC is evaluated by examining the documentation and

assessment of self-management activities and needs, support for self-management, patient and family concerns, and effective behavior change and peer support.

Delivery system design. The delivery system of a healthcare organization impacts the level of care that is given and success of treatment plans. Solberg et al. (2006) expands the focus of treatment from the individual visit to the pre- or post- visit and interim between visits for information organization and patient outreach. The PACIC asks patients two questions regarding delivery system design; question 16, “contacted after a visit to see how things were going” and question 20, “asked how my visits with other doctors are going” (Glasgow et al., 2005a, p. 444). The ACIC covers delivery system design in Part 3c with questions related to team functioning and leadership, appointment system, follow-ups, planned visits, and continuity of care (Bonomi et al., 2002).

Decision support. Decision support focuses on the healthcare providers obtaining the most updated evidence-based information and disseminating that information to patients. This includes specialty consultation, evidence-based protocols or practice guidelines, education for providers, and asking patients what therapies have been effective (Solberg et al., 2006). The PACIC covers a number of questions relating to decision support including; question two, “Given choices about treatment to think about,” question three, “Asked to talk about any problems with my medicines or their effects,” question six, “shown how what I did to take care of my illness influenced my condition,” and question 12, “sure that my doctor or nurse thought about my values and my traditions when they recommended treatments to me” (Glasgow et al., 2005a, p. 444). The ACIC addresses decision support in Part 3b by asking healthcare providers to what degree their organization uses evidence-based guidelines, involves specialists in

improving primary care, educated providers in chronic illness care, and informs patients about existing guidelines (Bonomi et al., 2002).

Clinical information systems. Clinical information systems influence how a practice is able to efficiently deliver care. This aspect of healthcare encompasses health information technologies such as order entry, programmed guideline reminders, and electronic health records (Chaudhry et al., 2006). Chaudhry et al (2006) found that the major efficiency in improving clinical information systems was reduced utilization of care. The process of clinical information systems indirectly effects patients and, as such, is not included in the PACIC tool. The ACIC details the use of clinical information systems as the ability to access useful information regarding patients and patient populations with chronic conditions. This ability is a critical feature of effective organizations (Bonomi et al., 2002). The ACIC addresses this section in Part 3d with questions regarding the patient registry, provider reminders, feedback, information regarding patient subgroups, and patient treatment plans.

Literature Synthesis

Assessment of current literature focused on recommendations for managing chronic conditions. Google Scholar, CINAHL, and PubMed were used in database searches. Terms used to search for articles included: “chronic condition management,” “chronic care model,” “Institute of Medicine Quality Chasm,” “patient assessment of chronic conditions,” “assessment of chronic illness care,” “cost of chronic disease management,” “patient centeredness low back pain,” “patient safety,” “quality aims timeliness,” “customer service healthcare,” “institute of medicine efficiency,” and “institute of medicine equity.”

Optimizing treatment of chronic conditions, including chronic lower back pain, require evaluation of the current healthcare system. In 2017, the United States spent about \$3.5 trillion

dollars on healthcare (Buttorff, Ruder, & Bauman, 2017; Fanjiang, Grossman, Compton, & Reid 2005). In 2014, six in ten adults in the United States had at least one chronic condition with four in ten having multiple chronic conditions (Buttorff et al., 2017). The vast number of individuals affected by chronic conditions increases the utilization of healthcare services. Ninety percent of the multitrillion dollar annual investment in healthcare is spent addressing chronic and mental health conditions (Buttorff et al., 2017).

The best-known practices in managing chronic conditions have no effect on patient outcomes if the system itself does not actively incorporate new research into practice. Batalden and Davidoff (2007) propose that quality improvement entail the combined and unceasing effort of healthcare providers, patients, family members, payers, researchers, planners, and educators toward making changes that lead to improved outcomes, system performance, and professional development. About thirty to forty percent of every dollar spent on healthcare is attributed to misuse, overuse, underuse, unnecessary repetition, system failure, insufficient communication, and overall inefficiency (Lawrence, 2005). The ineffective use of healthcare funds is staggering and compounded by an aging population whose chronic diseases are developing earlier secondary to poor nutrition and sedentary lifestyles (McPhail, 2016; McPhail, Schippers, Marshall, Waite, & Kuipers, 2014). The pages that follow detail the six aims identified by the Institute of Medicine for healthcare improvement. These aims provide a solid foundation for addressing the major concerns in healthcare and managing chronic diseases.

Six Aims in Transforming Healthcare in America. The IOM proposed six aims for improvement in healthcare interactions. The aims include patient centeredness, safety, timeliness, effectiveness, efficiency, and equity (Committee on Quality Health Care in America, 2001). This literature review will focus on exploring the six aims for improvement in healthcare.

Information gleaned from the review may be used in improving the management of chronic lower back pain for patients being seen by the Hawai'i Institute of Pain practice. Areas of improvement will be further guided by the patient and provider surveys administered in this project's Specific Aim 1, Objective 2 and Specific Aim 2, Objective 1.

Patient centeredness. Patients are integral to the practice of medicine, however, they have not always been the primary focus (Committee on Quality Health Care in America, 2001). Focusing treatment on achievable interventions is necessary for adherence to the treatment plan. Surveys, qualitative, and observational research has demonstrated that healthcare providers often prescribe treatments without considering the preference of the patient (Dellasega, Añel-Tiangco, & Gabbay, 2012; Sheridan, et al., 2012). Identifying what is achievable requires interaction and discussion with the patient. Improving patient and provider communication regarding healthcare is gaining attention from the research community. What has been established, is that shared decision making and motivational interviewing facilitate patient-centered care when interventions require behavior changes (Elwyn, Dehlendorf, Epstein, Marrin, White, & Frosch, 2014; Sheridan, et al., 2012).

Motivational interviewing is a useful method for healthcare providers to use in developing an achievable treatment plan. Interestingly, this method of communication was first utilized in treatment of drug and alcohol addiction (Rollnick, Miller, & Butler, 2008). Now this method of communication is being utilized in multiple healthcare disciplines. Motivational interviewing is showing promise in guiding behavior change when a patient is showing uncertainty regarding the treatment plan, such as changes in lifestyle or adherence to a pharmaceutical regime (Elwyn et al., 2014). The focus of discussion is not the prescribed treatment plan, but about how the patient feels about the recommendations. During motivational

interviewing, patients are able to voice concern, preferences, and identify personal motivation for change. There are four steps in the motivational interviewing process; engaging, focusing, evoking, and planning (Elwyn et al., 2014). The first two steps in motivational interviewing are interrelated by providing an engaging atmosphere that maintains direction, or focus, on the ultimate goal. The third step, evoking, refers to exploring the patient's motivation or change such as their concerns, ideas, and emotions related to change (Elwyn et al., 2014). The final step in motivational interviewing is planning treatment or intervention. This step encompasses the patient's solution to the healthcare concern.

In the setting of chronic lower back pain, motivational interviewing would be an appropriate modality to elicit a commitment from the patient to make lifestyle changes, such as participating in a regular strengthening and stretching program. Particularly, the patient is able to identify their personal perspective and perceived barriers to addressing their healthcare concern (Elwyn et al., 2014). For example, increasing activity to address chronic lower back pain can be accomplished by a number of options including formal physical or aqua therapies, participating in a guided exercise program at a gym or through video, or simply increasing the frequency or distance of walking (Chou et al., 2007). Motivational interviewing is the precursor to another useful patient-centeredness tool, shared decision making.

Shared decision making between a patient and healthcare provider offers an opportunity to promote patient-centeredness. As the term implies, shared decision making occurs when healthcare providers and patients come to an agreement on the best treatment plan. This decision-making option allows the patient to consider available screening and treatment options with associated risks and benefits instead of the healthcare provider dictating what the treatment plan should be (Elwyn, Laitner, Coulter, Walker, Watson, & Thomson, 2010). Providing options

and professional guidance allows the patient to maintain autonomy in making decisions that best fit their lifestyle and preferences. This method of promoting patient centeredness focuses on understanding patient's needs, perspectives, and expectations through inquiry, addressing psychosocial context, and facilitating the patient's understanding of their disease and decisions affecting their health (Epstein, et al., 2005).

The use of shared decision making can assist providers in avoiding unnecessary interventions. This includes diagnostic imaging in the setting of chronic lower back pain. Often patients may request expensive and unnecessary spinal imaging for uncomplicated lower back pain (Paterniti, Fancher, Cipri, Timmermans, Heritage, & Kravitz, 2010). Unnecessary tests may be ordered without the use of shared decision making to weigh the risks, benefits, and low-value use of imaging. Observational studies show that providers who utilize patient-centered communication methods order less diagnostic images (Epstein et al., 2005). By avoiding unnecessary diagnostics, health care providers and health plans are able to use available resources in other ways.

Both shared decision making and motivational interviewing are patient-centered methods to address healthcare concerns and have shown improved patient outcomes (Elwyn et al., 2014). A meta-analysis and systematic review of 115 trials show consistent improvement in patient's perception of risk and knowledge when utilizing decision aids and leads to greater confidence in healthcare decisions (Stacey et al., 2011). Fundamental therapeutic communication skills are necessary when using shared decision making and motivational interviewing with patients. This requires a healthcare provider to be empathetic, understanding, and trustworthy to facilitate decision making and changes in behavior (Elwyn et al., 2014). Necessary components to the

conversation are the healthcare provider's ability to respond to emotions, reflective listening, and exchanging information (Elwyn et al., 2014).

Safety. Patients do not expect to be harmed when seeking medical attention. Healthcare providers have the responsibility of educating patients on the risks and benefits related to particular treatment options, even having patients sign consent forms acknowledging that the risks of the procedure have been fully addressed before high-risk procedures such as injections or surgery (Chou et al., 2007). There continues to be occurrences of unintended patient harm with many events related to communication failures between healthcare providers involving psychological, educational, and organizational challenges (Weller, Boyd, & Cumin, 2014). Providing medical treatment for any disease requires a multidisciplinary approach and the cooperation of numerous professionals. The team-based approach to healthcare can be improved by focusing on five aspects of effective teams; team leadership, backup behavior, mutual performance monitoring, team orientation, and adaptability (Weller et al., 2014). The team leader has the responsibility of creating a positive environment prioritizing motivation, coordination, and planning (Weller et al., 2014). Professional relationships and interaction may be influenced by psychological barriers such as professional hierarchies. For patient safety, each individual involved in patient care must feel comfortable and supported when voicing concerns regarding treatment options that may cause patient harm. Mutual performance monitoring focuses on team members supporting each other through monitoring completed work, lapses, or task overload with intention to redistribute workload or provide support if necessary.

In the pain management specialty, certain patients are more complicated than others and may require greater amount of time to address concerns. Follow up appointments are set at a particular amount of time, which leads to healthcare providers running behind schedule in the

event they spend more than the allotted time on one patient (O'Malley & Reschovsky, 2011). By using mutual performance monitoring, other healthcare providers within the practice may have the opportunity to provide assistance by alleviating the workload of the provider that is running behind. If this type of occurrence persists, then redistribution of the workload would be warranted. Team adaptability is the response to changes in environment resulting in change of patient management plans (Weller et al., 2014). Lastly, team orientation is the willingness to accept another team member's perspectives and ideas into account with the overall goal to improve care for the patient (Weller et al., 2014). Communication, trust, and acceptance of constructive criticism are integral to productive team performance.

Information sharing is a predictor of team performance. A meta-analysis of 72 studies demonstrated a positive team performance based on information sharing (Mesmer-Magnus & DeChurch, 2009). Effectively addressing chronic lower back pain is dependent on communication between healthcare providers. Patients suffering from chronic lower back pain can be referred by their primary care provider to healthcare providers that specialize in treatment of chronic pain. This referral is most effective when complete patient information is received, such as insurance and demographics, medication reconciliation, attempting conservative treatments, and previously completed diagnostic imaging (Mesmer-Magnus et al., 2009). Largely, training in healthcare occurs in professional silos without interaction between disciplines. This separation leads to a lack of understanding roles, responsibilities, or priorities, and can lead to challenging and ineffective interaction of an interprofessional team (Weller et al., 2014).

The professional hierarchy has an effect on patient safety. Psychologically and culturally, medical professionals and ancillary staff follow the distinct social identity theory

linking the attributes of their particular group as positive and that of the other group as less desirable (Burford, 2012; Weller, 2012). Instead of working together for a common goal, different groups within the medical system may inherently be working against each other. Additionally, particular types of people are attracted to certain disciplines within the healthcare arena (Taber, Hartung, & Borges, 2011). This leads to a professional allegiance that may cause tension when professional groups have differing expectations about treatment plans (Hudson, 2002).

The U.S. IOM recommends that team members who work together should be trained together (Kohn, Corrigan, & Donaldson, 2000). Training as a team allows a better understanding of each team member's role and has been shown to lead to improvement in patient outcomes. For example, Meri n, Van de Ven, Mol, Houterman, and Oei, (2010) reviewed team training in the obstetrics specialty and found improved knowledge, reduction of hypoxic encephalopathy, and improvement in appearance, pulse, grimace, activity, and respiration (APGAR) scores. In addition to team training, democratic communication can reduce the potential for patient harm (Weller et al., 2014). Team structure with a flat hierarchy mitigates barriers to information sharing and creates an inclusive environment. This allows members of the team, despite title, confidence that their input or concerns will be heard by the team. Teams have the opportunity to work together and utilize each team member's expertise and experience to the advantage of optimizing patient care.

Timeliness. The IOM categorizes timeliness in two categories; customer service and resource availability (Committee on Quality Health Care in America, 2001). Attributes of customer service include wait times and effective communication. The time a patient waits for access to care influences their overall experiences. Examples of wait times include the duration

of time necessary to speak with staff over the phone, waiting in the clinic to be seen for follow up or procedures, and waiting for diagnostic imaging or interventional procedures to be authorized, performed, resulted, and reviewed. These examples of timeliness relate to organizational resources and processes, and can lead to emotional distress in patients (Gamm, Kash, & Bolin, 2007). Addressing the challenges related to timeliness requires ongoing evaluation and system improvements. Delivery of timely healthcare services is facilitated by the coordination of social, administrative, and information technologies (Gamm et al., 2007). Improving communication between patient and practice facilities has an effect on customer satisfaction. Effective communication can improve patients' overall health and quality of life, especially in chronic disease management (Arora, 2003).

Effectiveness. Effective care is defined by the IOM as evidence-based preventative interventions, diagnostics, and therapies (Committee on Quality Health Care in America, 2001). Implementation of evidence into practice is a painstakingly slow process that affects the quality of care given to patients (Committee on Quality Health Care in America, 2001). The amount of new information and research available to providers is staggering and more than any single individual can be expected to continuously review (Committee on Quality Health Care in America, 2001).

United States legislation in 2009 created a federal council on comparative effectiveness research. Comparative effectiveness research facilitates the development and synthesis of evidence which compares the benefits and harms of alternative methods in disease prevention, diagnosis, treatment, and improvement in the delivery of care (Sox & Greenfield, 2009). The purpose of comparative effectiveness research is to improve health care at the population and individual levels by assisting consumers, clinicians, policy makers, and purchasers in making

informed healthcare decisions (Sox & Greenfield, 2009). Improvement in healthcare outcomes is the ultimate goal of integrating research findings into practice.

Efficiency. The IOM recommends two actions to improve efficiency: reduce production or administrative costs and reduce quality waste (Committee on Quality Health Care in America, 2001). Excess waste is attributed to overuse of healthcare resources and medical errors, each of which lead to increased costs to provide healthcare (Kohn et al., 2000). Examination of the delivery and quality of care are methods to identify improvements that can impact the efficiency of a practice.

Equity. The aim of health equity is to improve the health and function of individuals while reducing the burden of disability, injury, and illness (Kohn et al., 2000). This aim is accomplished on the individual level and the population level. At the population level, the IOM states that the goal of providing health care is to improve health status in a way that reduces health disparities among subgroups (Kohn et al., 2000). The Committee on Quality Health Care in America (2001) further detail that equity means the quality of care should not differ from individual to individual based on personal characteristics such as race, age, gender, ethnicity, income, disability, sexual orientation, education, or location of residence.

Literature Gaps and Weaknesses

The subjective nature of pain complicates the assessment of effective intervention (Ostelo, et al., 2008; Riddle, Stratford, & Binkley, 1998; Roland & Fairbank, 2000; Stratford, Binkley, Riddle, & Guyatt, 1998). Pain level is often used as the outcome measure in research trials (Liddle, Baxter, & Gracey, 2004). However, other aspects of a person's wellbeing are also informative measures for outcome effectiveness when studying chronic lower back pain. An individual's assessment of their pain and anticipated limitations can either negatively or

positively affect outcomes. Communication of limitations and motivation are integral to provide a patient-centered approach to lifestyle changes and treatment regimen adherence. The complexity of offering treatment plans and recommendations for each individual patient has led to a lack of clarity in patient/provider interaction (Elwyn et al., 2014). Healthcare outcomes are affected by concerns of regaining function, an individual's emotional and physical ability, and to what degree they can meet social expectations and obligations (Maher et al., 2017). Response to treatment may be inhibited by anxiety and dissatisfaction, which contributes to ineffective coping behavior while promoting illness behaviors (Liddle et al., 2004; Maher et al., 2017). Outcome measures to assess the effectiveness of treatment intervention are enhanced by the use of additional variables such as functional status, well-being, work disability, and satisfaction with care (Searle et al., 2015). However, the use of multiple outcome measures limits the ability for comparisons between studies. Generalizability of research results is limited without a standard outcome measure. The absence of psychological assessment in studies focusing on pain management omits valuable information about treatment outcome.

The research focused on patient-centeredness and decision making does show obvious gaps. For the most part, a single instance of dichotomous decisions was used to measure effectiveness of decision aids (Murray, Charles, & Gafni, 2006). This does not directly correlate with management of long-term decisions necessary for diseases such as chronic lower back pain. Although individuals afflicted with chronic lower back pain are often confronted with dichotomous decisions, such as to have surgery or not, management of the disease requires ongoing lifestyle and behavior changes. Additionally, there is mixed evidence that motivational interviewing improves outcomes in treating patients with diabetes mellitus, asthma, heart

disease, and high blood pressure (Hetteima, Steele, & Miller, 2005; Söderlund, Madson, Rubak, & Nilsen, 2011).

There is an increasing gap between research findings and clinical practice (Committee on Quality Health Care in America, 2001; Lenfant, 2003; McGlynn, Asch, Adams, Keesey, Hicks, DeCristofaro, & Kerr, 2003). The delay in translation of health care research into practice affects health care providers ability to provide the best care possible. A practice may benefit from continuously examining the available literature and comparing the findings to the care that is administered in their practice.

Chapter 3

Project Description

The project was a Practice Inquiry Project, as part of a Doctor of Nursing Practice curriculum, focusing on a subgroup of patients of the Hawai'i Institute of Pain, (hereafter referred to as The Clinic), who experience chronic lower back pain. The Clinic is an interventional based chronic pain management medical office. The Clinic manages chronic pain through three offices: two offices located on the island of O'ahu and one office located on the island of Maui. The project was initiated and completed in the year 2019 through the University of Hawai'i at Hilo (see the timeline in Appendix B). Approval to perform the project at The Clinic was obtained May 7th, 2019 (see Appendix C). University of Hawai'i Institutional Review Board approval was obtained October 24, 2019 (see Appendix D for approval letter). Informed consents were offered to patients and providers with a voluntary submission and documentation of the consents, see Appendix E and Appendix F for the written informed consents.

Physical resources for the project were minimal, while the primary resource for the project was time commitment from the patient and physician participants of the practice. The supplies required for participants were printed documents provided by the project implementer. The documents necessary for each participant was a two-page questionnaire. Each page of printed documentation cost about eight cents and total printing cost was about 12 dollars for a goal of fifty participants. The cost to print the ACIC survey and consents for the providers was about one dollar. An additional expense was a secure box for patients to submit their surveys once completed. See Appendix G for the project budget chart.

Participants of the study were asked to provide either written or verbal informed consent and participation in the survey remained anonymous. The implementer's script to obtain verbal informed consent can be found in Appendix H. Responses were not used to negatively impact patient care in any way.

Project Design

The scope of the project remained within the outpatient pain management setting. The implementer was an advanced practice registered nurse in the O'ahu clinics. All clinic patients who reported lower back pain as a chief complaint within the O'ahu offices were assessed as a possible participant in the project during the data collection period. Individuals were excluded if their lower back pain was related to an active pregnancy. When inclusion criteria were met and no exclusion criteria was identified, the patient was informed about the project and had the opportunity to either consent or decline participation. The project implementer was the primary contact person for questions related to the project.

Demographic characteristics of the participants were collected with the survey and included gender, age range, marital status, education, type of health plan, and reported health status (see Appendix I). The demographic information was used to gain further insight regarding the patient population characteristics.

Patient Assessment of Care for Chronic Illness Care. The Patient Assessment of Chronic Illness Care (PACIC), Appendix J, is a publicly available, validated self-report instrument designed to assess the care received by individuals with chronic conditions and how closely their care aligns with the Chronic Care Model (CCM) (Glasgow, Wagner, Schaefer, Mahoney, Reid, & Greene, 2005a). The CCM focuses on six key dimensions of managing chronic illness. These dimensions include; organization of health care, delivery system design,

clinical information systems, decision support, community resources, and self-management support (Glasgow et al., 2005a). The PACIC is a tool, designed to complement the Assessment of Chronic Illness Care tool, and is used to identify gaps in delivery of health care in an effort to guide fundamental practice changes. Use of this tool provides an opportunity for health systems, stakeholders, and private practices to improve the quality of caring for patients with chronic diseases.

The instrument has been tested for reliability and has face, construct, and concurrent validity. After testing for reliability, the PACIC produced similar means and standard deviations in six different chronic illnesses with only one exception; diabetic patients and the follow-up coordination subscale. Additionally, PACIC scores do not have a strong correlation with specific diseases or demographic characteristics despite a possible exception for gender (Glasgow et al., 2005a).

The PACIC is useful for quality improvement by providing concise evidence of care delivery while offering an opportunity to obtain, understand, and incorporate the patient's perspective, and finally to overcome healthcare provider bias in evaluation of their own care delivery (Glasgow et al., 2005a). Patients who complete the PACIC answer questions congruent with aspects of the CCM and respond to which degree they have received specific care during the previous six months. The tool was developed to be brief and useful in numerous healthcare settings applicable to adults with chronic illnesses.

The PACIC consists of twenty questions with each item scored on a five-point scale. The patient rates care received from one (no or never) to five (yes or always) for each question as it relates to the management of their chronic illness in the prior six-month period. The PACIC in written version requires 2-5 minutes to complete and the telephone version averages about 7-8

minutes to complete (Glasgow et al., 2005a). The responses are aggregated into five subscales based on the CCM; delivery system/decision support (items four through six), goal setting (items seven through 11), problem solving/counseling (items 12 through 15), and follow up (items 16 through 20). Each scale is scored by averaging the items within the scale and the overall score is the average of all 20 items. Not all six components of the CCM were included in the PACIC as the developers did not consider patients would be able to comment on clinical information systems for organization of healthcare issues.

Assessment of Chronic Illness Care. The same group of researchers that developed the PACIC also developed the Assessment of Chronic Illness Care (ACIC) (see Appendix K). The developers of ACIC encourage the concurrent use of PACIC to provide consumer and provider assessments of chronic illness care. Organizational teams may struggle to identify deficiencies in the care they provide for patients with chronic illnesses. The ACIC is a tool for healthcare providers and teams to assess the extent of employing CCM elements into the routine care provided to their patients (Glasgow et al., 2005a). Findings of the ACIC can be used to determine areas of quality improvement according to the elements of the CCM (Bonomi et al., 2002). The ACIC focuses on six areas of chronic illness management; self-management support, community linkages, decision support, organization of care, delivery system design, and information systems. The ACIC was found to be a responsive tool in guiding quality improvement in chronic illness and a useful track progress over time (Bonomi et al., 2002). This tool also allows healthcare providers to evaluate and maintain quality improvement projects or changes.

The items addressed in the ACIC tool focus on organization of care for chronic illness (Bonomi et al., 2002). The authors note that practice assessments usually focus on measurable

data, such as blood pressure, productivity, such as number of patients seen, or process indicators, such as the number of patients who have undergone recommended screening. Practice improvement projects benefit patients by providing support in the six areas of chronic illness management.

The original ACIC was developed with 21 items with seven additional items added after practical experience in the collaborative was gained (Bonomi et al., 2002). There are six items covering health care organization, three items covering community linkages, four items covering self-management support, six items detailing delivery system design, four items covering decision support, and five items on clinical information systems. Answers to each item fall within a Likert scale ranging between “little or none” to “fully-implemented intervention.” Respondents select one of the three ratings regarding the degree to which the description applies, this results in a zero to 11 scale. For example, if the respondent selects “basic or intermediate support for chronic illness care” then they would choose the numbers three, four, or five to indicate the degree to which their practice aligns with the item. This additional selection of subscales allows for a more precise reflection of current practices. Completion of the ACIC usually requires 15-30 minutes, including reaching an agreement on scores if multiple providers are completing the same survey. For the purpose of this project, the two practicing physicians of The Clinic were asked to complete the survey.

Participants

The implementer determined participant selection through chart review and patient interview. Inclusion criteria included chronicity of lower back pain, being at least 18 years of age, and fluency in the English language including literacy. Lower back pain was considered chronic when participant reported having an average pain level of at least 5/10 on the Numeric

Pain Rating Scale (NPRS) intermittently or continuously at least four days of the week for at least 12 consecutive weeks in the most recent six-month period (Treede, 2018). Participants met exclusion criteria if they were pregnant. Participants gave verbal or written consent to participate.

Methodology for Each Specific Aim

Specific Aim 1. Identify gaps and opportunities to provide effective chronic lower back pain management in the patient population at Hawai'i Institute of Pain's O'ahu offices.

Objective 1. Patients being seen at The Clinic who had chronic lower back pain were notified of the project during a regularly scheduled clinic appointment. Patient participants were then counseled on the purpose of the project, how the data was collected and stored, and that the data was used to guide quality improvement based on the Chronic Care Model and the Institute of Medicine's six aims for quality improvement. See consent script in Appendix H.

Objective 2. Patients who desired to participate were given a copy of the PACIC survey with an attached optional demographic information sheet. The patients completed the survey in the waiting room after their scheduled appointment and submitted the survey to a lock box at the front desk before leaving the office. The surveys were not directly collected by staff members to preserve the anonymity of the participant answers.

Objective 3. The surveys were collected at the end of the project period. Responses were organized using a Statistical Package for Social Sciences (SPSS) spreadsheet to assist in data interpretation.

Specific Aim 2. Identify gaps and opportunities to provide effective chronic lower back pain management from the healthcare providers' perspective at Hawai'i Institute of Pain's O'ahu offices.

Objective 1. Physicians, total of two, at The Clinic were updated on the project including goals, PACIC, and prospective plan for data interpretation during one of the weekly staff meetings. See provider consent in Appendix F.

Objective 2. The Assessment of Chronic Illness Care survey was provided to each of the physicians practicing at The Clinic. Each physician will received an ACIC survey to complete on their own time. Physicians were allocated two weeks to complete the survey and submit back to the project implementer.

Objective 3. The results of the Assessment of Chronic Illness Care survey were compiled by imputing data into an SPSS spreadsheet. The advanced practice registered nurse (APRN) who was employed at the Hawai'i Institute of Pain's O'ahu offices did not complete the survey since she is the project implementer. Participation of the APRN in the survey had potential to influence the survey results with bias. The survey responses represented the providers' perspective on how the clinic addresses chronic lower back pain.

Specific Aim 3. Propose proactive management of chronic lower back pain management by utilizing findings from surveys.

Objective 1. Utilize results from Specific Aim 1 and Specific Aim 2 to identify the areas in most need of quality improvement. After compiling the results, the most deficient areas were identified. No more than three of the deficient areas were examined. As detailed prior, organizations that attempt more than one improvement do not necessarily achieve better outcomes at one-year follow up (Tsai et al., 2005).

Specific Aim 4. Survey findings were disseminated to Hawai'i Institute of Pain staff and recommendations on how to improve the quality of care for chronic lower back pain treatment management were made.

Objective 1. Survey data was presented at the annual staff education meeting in December of 2019. The data was compiled into graphs for visual interpretation. Comparisons were made between the PACIC results and descriptive characteristics of the chronic lower back pain population.

Objective 2. Recommendations for quality improvement of chronic lower back pain management were made. Recommendations were made to improve the care of patients experiences chronic lower back pain by utilizing the CCM and the IOM's six aims for quality improvement as guides.

Objective 3. Ongoing patient and provider evaluation using the PACIC and the ACIC surveys was recommended. The effort to provide best-practice intervention and improve patient outcomes is aided by continuously monitoring for quality. Repeated PACIC and ACIC assessments allows for close monitoring of quality improvement project progress and identification of deficient areas. The PACIC asks patients to recall the care they received in the previous six months, therefore, the survey should be repeated no sooner than every six months (Glasgow, 2005a).

Objective 4. Results of the two surveys, demographic data, and recommendations were presented to the staff through a brochure. This allowed for referencing of information covered during the project's presentation and facilitates access to the information after the presentation.

Data Analysis

The population of focus for this project was individuals experiencing chronic lower back pain and undergoing pain management at The Clinic on O'ahu. Two physician clinicians at The Clinic were offered participation in the project with the intent to obtain a well-rounded assessment of the patient management practices from not only the patient perspective but also the

provider perspective. Data review did not take place until the goal of 50 patient participants was met. One of the two physician providers submitted informed consent with the ACIC.

Data analysis emulated the work done by Glasgow et al. (2005a) in an effort to contribute to the breadth of information available regarding PACIC and ACIC for individuals experiencing chronic lower back pain. Descriptive analysis of the data was completed using SPSS software including means, standard deviation, and the distribution of scores on individual items, scales, and overall PACIC to evaluate the distributional characteristics. Standard deviation calculations were not possible with the ACIC as only one submission was obtained.

Demographic information including gender, age range, marital status, education, type of health plan, and reported health status was obtained from the patient population. Use of the demographic data was intended to inform the reviewer of the characteristics of the participant population.

Chapter 4

This chapter details the results of each project aim as accomplished through completion of the objectives. The project goal was to improve the quality of chronic lower back pain management at the Hawai'i Institute of Pain's O'ahu offices. This goal was addressed by following the four specific aims which were to 1) identify gaps and opportunities to provide effective chronic lower back pain management in the patient population at The Clinic's O'ahu offices, 2) identify gaps and opportunities to provide effective chronic lower back pain management from the healthcare providers' perspective at The Clinic's O'ahu offices, 3) propose proactive management of chronic lower back pain by utilizing findings from surveys, and 4) disseminate findings to The Clinic staff and make recommendations on how to improve the quality of care for chronic lower back pain management.

The project aims were accomplished by following specific objectives for each aim. The objectives of the first aim were to 1) offer project participation during a follow up appointment for patients experiencing chronic lower back pain, 2) give patients a copy of the PACIC survey to complete after their appointment and anonymously submit at the front desk, and 3) collect surveys at the end of the project period and organize responses using a SPSS spreadsheet. The objectives of the second aim were to 1) offer project participation during a staff meeting, 2) provide the ACIC survey to each of the physicians practicing at The Clinic, and 3) compile results of the ACIC survey by averaging the responses and imputing data into a SPSS spreadsheet. The third aim was accomplished by completion of the following objective; utilize results from Specific Aim 1 and Specific Aim 2 to identify the areas in most need of quality improvement. The fourth and final aim was achieved by the following objectives 1) presenting survey data at the annual staff education meeting in December of 2019, 2) present

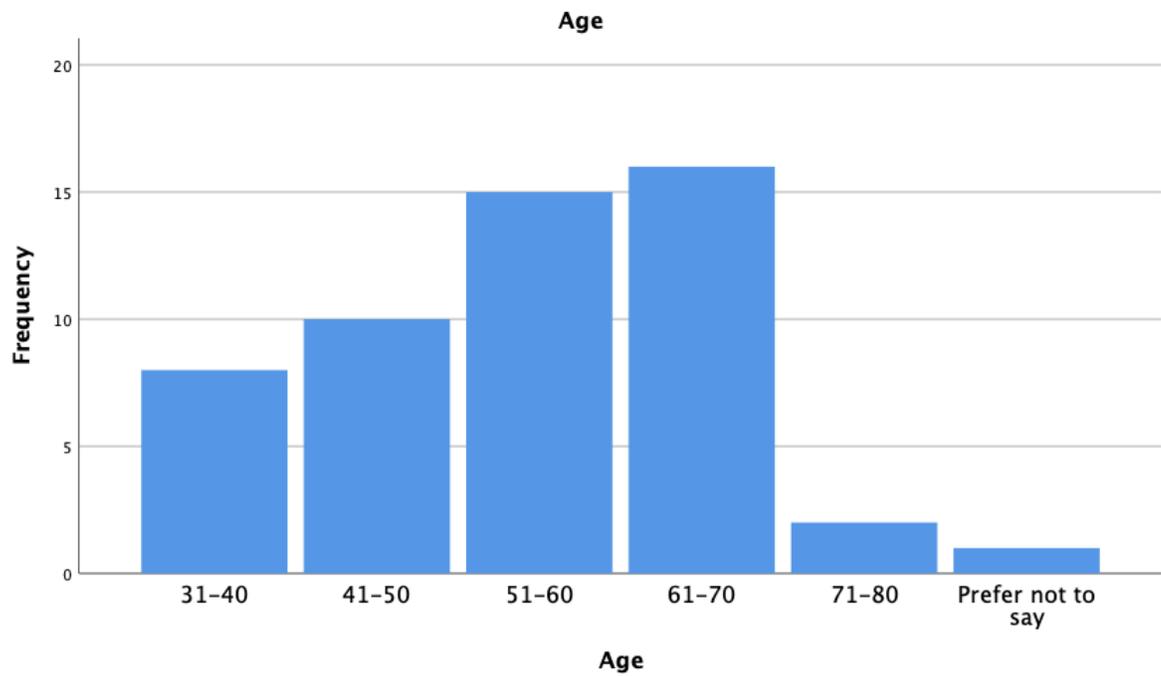
recommendations for quality improvement of chronic lower back pain management, 3) propose ongoing patient and provider evaluation using the PACIC and the ACIC surveys, and 4) present results of the two surveys, demographic data, and recommendations in a brochure distributed to The Clinic staff.

A total of 52 patients completed the demographic survey. The demographic data was not associated with PACIC surveys to ensure that responses could not be linked and remain anonymous. Demographic data gathered included participant gender, age range, marital status, education, type of health plan, and reported health status. Demographic data was obtained from participants to glean information regarding the population's characteristics.

Chapter 4 is continued on next page.

Participant demographic data results included the following: gender included 53.8% (28) male and 46.2% (24) female (see Appendix L for full data table); age range of participants is illustrated in Figure 1 with the greatest number of participants (31) in total, being between the ages of 51 and 70 (See Appendix M for full data table); marital status included 26.9% (14) “single”, 44.2% (23) “married”, 17.3% (9) “divorced”, 9.6% (5) “widowed”, and 1.9% (1) “prefer not to say” (see Appendix N for full data table).

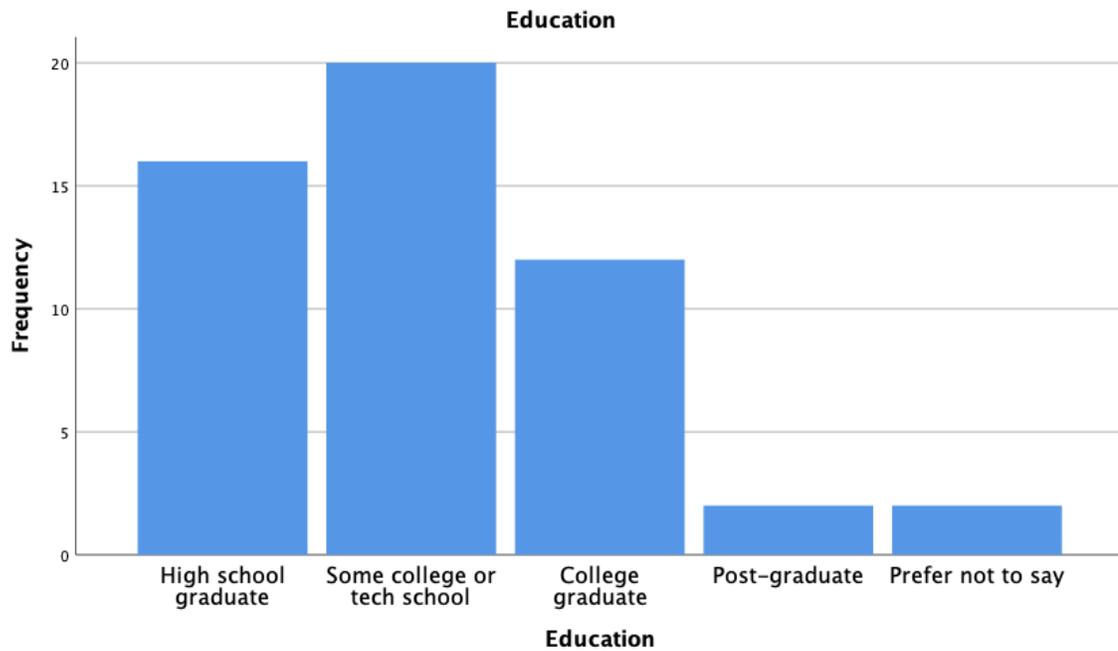
Figure 1 – Age Range of Participants



Next, participants were asked to indicate their level of education and 30.8% (16) responded with “high school graduate”, 38.5% (20) responded with “some college or tech school”, 23.1% (12) responded with “college graduate”, 3.8% (2) responded with “post-graduate”, and 3.8% (2) responded with “Prefer not to say” (see Appendix O for full data table).

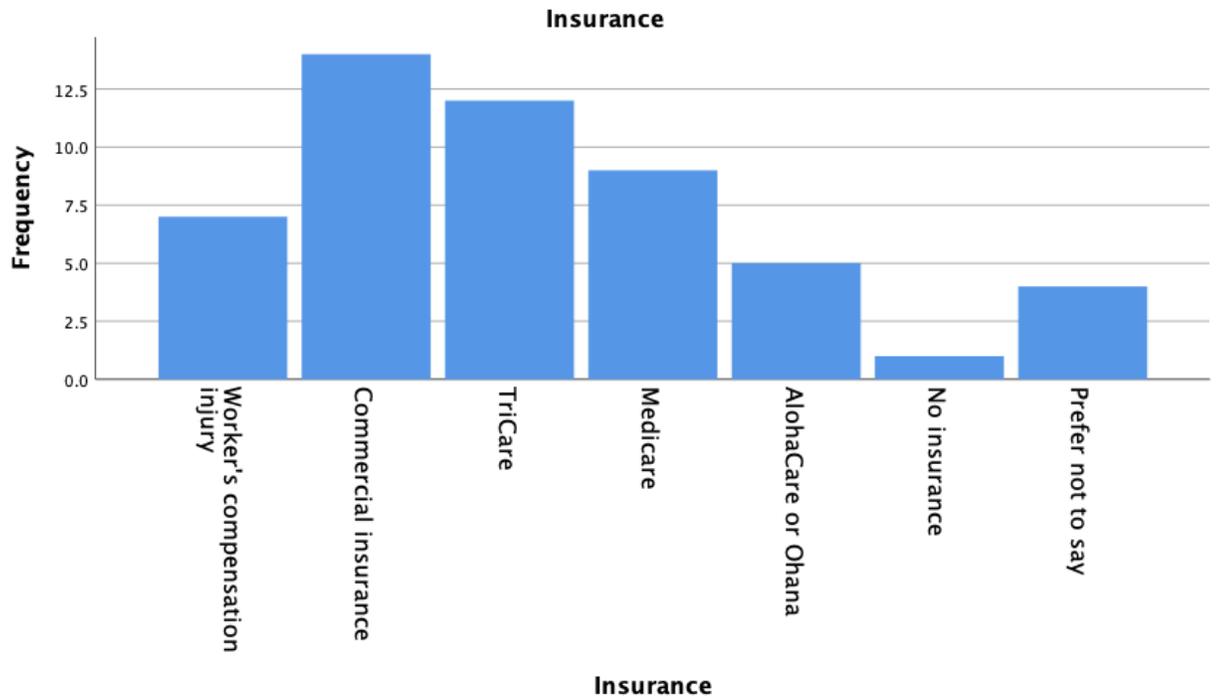
Figure 2 illustrates level of education demographic data results.

Figure 2 – Level of Education



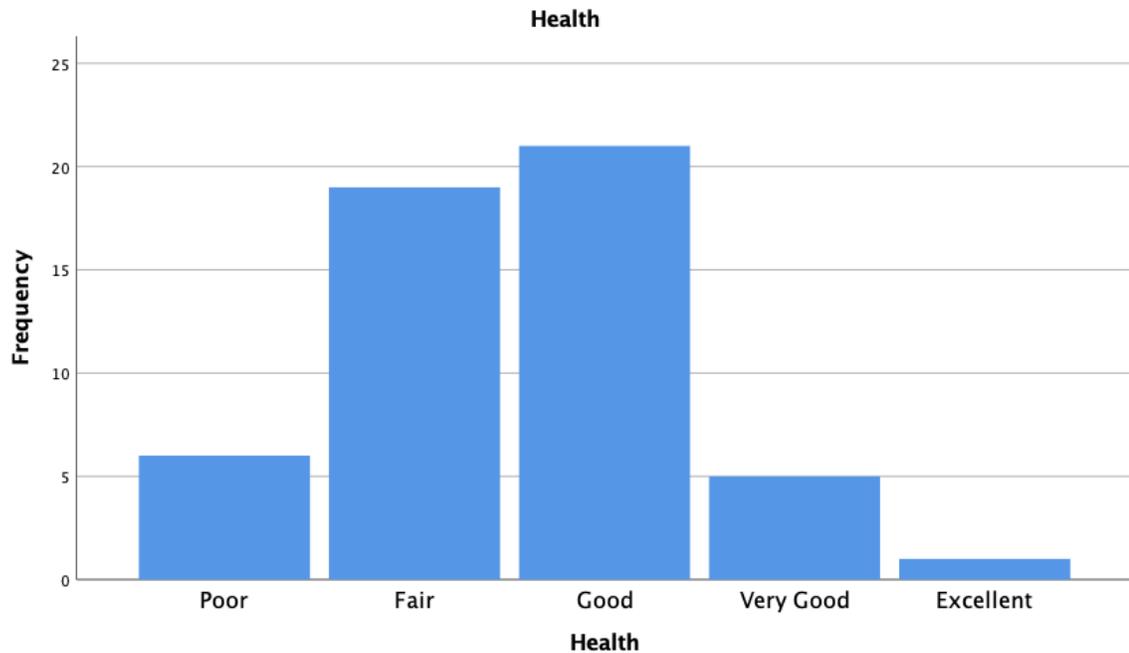
The next demographic question asked participants about their health insurance coverage. Responses included: 13.5% (7) “worker’s compensation injury”, 26.9% (14) “commercial insurance”, 23.1% (12) “TriCare” or indicated another form of military insurance by writing in “VA” or “TriWest”, 17.3% (9) “Medicare”, 9.6% (5) “AlohaCare or Ohana”, 1.9% (1) “no insurance”, and 7.7% (4) “prefer not to say” (see Appendix P for full data table). Distribution of insurance carriers is illustrated in Figure 3.

Figure 3 – Distribution of Insurance Carriers



Lastly, participants were asked to rate their health. Responses included: 11.5% (6) “poor”, 36.5% (19) “fair”, 40.4% (21) “good”, 9.6% (5) “very good”, and 1.9% (1) “excellent” (see Appendix Q for full data table). Figure 4 illustrates how participants rated their health.

Figure 4 – Health Rating



Aim #1

Identify gaps and opportunities to provide effective chronic lower back pain management in the patient population at Hawai’i Institute of Pain’s O’ahu offices. The first aim of this project was to assess the quality of lower back pain management from the patient’s perspective. This was done by utilizing the valid and reliable PACIC survey developed by Glasgow et al. (2005a). Participants were recruited during their regularly scheduled follow up appointments to address their chronic lower back pain. Participation was offered to each patient meeting inclusion criteria until a total of 52 participants was reached. Reaching this goal required a total of nine days of data collection.

As described in Chapter 3, the PACIC is a tool that examines how well the CCM aligns with treatment offered to those with chronic conditions. Five of the six key dimensions of the CCM are integrated into the PACIC and are listed as follows; patient activation, delivery system design/decision support, goal setting/tailoring, problem solving/contextual, and follow up/coordination. The analytic component of this Aim was completed by using SPSS software. Table 1 lists the mean and standard deviation (SD) for each of the categories covered in the PACIC (See Appendix R for full data table). Participants rated The Clinic best at patient activation, followed by problem solving/contextual, delivery system design/decision support, and goal setting/tailoring. Participants rated The Clinic lowest in follow-up/coordination with a mean score of 1.76 out of five.

Table 1 – Characteristics of PACIC scores

Scale	Mean	SD	n
Overall PACIC	2.56	(0.9)	50
Patient Activation	3.35	(0.7)	49
Delivery System Design/Decision Support	2.83	(0.7)	49
Goal Setting/Tailoring	2.46	(1.1)	50
Problem Solving/Contextual	2.93	(1.1)	50
Follow-up/Coordination	1.76	(1.8)	48

As a baseline comparison, the data collected from The Clinic was compared to the data obtained from Glasgow et al. (2005a). In the Glasgow et al. (2005a) study, before any quality improvement measures were implemented, management of six chronic diseases were surveyed, including hypertension, arthritis, depression, diabetes, asthma, and pain. The overall mean and SD including the pain subpopulation scores are compared in Table 2. As delineated from the

results, The Clinic’s survey outcomes aligned with other populations, including the lowest scoring category of follow-up/coordination.

Table 2 – Comparative Mean (and SD) of PACIC Summary Score and Subscale

	n	Overall PACIC	Patient Activation	Delivery System/ Decision Support	Goal Setting/ Tailoring	Problem Solving/ Contextual	Follow-up/ Coordination
Glasgow et al. (2005a, p. 441) results							
Pain	41	2.64 (1.0)	3.03 (1.2)	3.01 (1.1)	2.42 (1.1)	3.00 (1.3)	2.14 (1.1)
Overall	255	2.60 (1.0)	2.99 (1.3)	3.13 (1.1)	2.43 (1.1)	2.87 (1.3)	1.97 (1.1)
Mean (SD)							
The Clinic results							
Overall	50	2.56 (0.9)	3.35 (0.7)	2.83 (0.7)	2.46 (1.1)	2.93 (1.1)	1.76 (1.8)
Mean (SD)							

Aim #2

Identify gaps and opportunities to provide effective chronic lower back pain management from the healthcare providers’ perspective at Hawai’i Institute of Pain’s O’ahu offices. As discussed in Chapter 3, Glasgow et al (2005a) recommend the concurrent use of the ACIC tool to assess the provider’s perspective of chronic illness care when using the PACIC to obtain the patient’s perspective. Utilizing both tools limits the possibility of organizations failing to identify deficiencies in the care they provide secondary to an internal bias. Similar to the PACIC, the ACIC examines how well the components of the CCM are carried out within a practice. The ACIC encompasses the five components listed in the PACIC and includes one additional component, organization of care. Glasgow et al. (2005a) notes that the omission of organization of care from the PACIC, despite being a part of the CCM, is secondary to the patient not being involved in or having access to this aspect of their care. The goal was to obtain ACIC responses from the two physician providers at The Clinic, however, only one survey was obtained (see Appendix S for full data table). Results of the survey are

listed in Table 3 below. Standard deviation was not able to be calculated with the solitary survey. The area in most need of improvement, based on ACIC findings, is decision support. The average score for decision support at The Clinic was 3.75 with 11 being the highest score possible. Table 3 lists the ACIC results for each of the subscales.

Table 3 – Average ACIC Scores

Organization	Community Linkages	Self-Management	Decision Support	Delivery System Design	Clinical Information System	Overall ACIC
5.67	6.00	5.25	3.75	4.00	4.60	4.87

Table 4 compares the results of the ACIC at The Clinic with the results of the study by Bonomi et al. (2002). As detailed on the last page of the ACIC survey, scores between “3” and “5” are equivalent to “basic support for chronic illness care” (MacColl Institute for Healthcare Innovation, 2000, p. 9). Less than an average score of “5” on overall ACIC or any number of the subscales is a typical finding since the need to improve the quality of chronic illness care has been established (MacColl Institute for Healthcare Innovation, 2000).

Table 4 – Comparative Mean of ACIC Summary Score and Subscale

Organization	Community Linkages	Self-Management	Decision Support	Delivery System Design	Clinical Information System	Overall ACIC
Bonomi et al. (2002, p.802) combined results <i>n</i> = 90						
6.42	5.90	5.41	4.80	5.40	4.36	5.38
The Clinic results <i>n</i> = 1						
5.67	6.00	5.25	3.75	4.00	4.60	4.87

Aim #3

Propose proactive management of chronic lower back pain management by utilizing findings from surveys. Findings from the PACIC indicate that The Clinic could most improve

by addressing the follow-up/coordination construct of chronic care management. Figure 5 details each of the constructs of the PACIC and includes the corresponding questions. The focus of the follow-up and coordination construct is extending patient care beyond the time patients are in the office for treatment by maintaining contact and coordination of care between visits (Glasgow et al., 2005a). Focusing on customer service and resource availability is the Institute of Medicine’s recommendation for improving the timeliness of care (Committee on Quality Health Care in America, 2001). Actions to improve timeliness of care subsequently improve the coordination of care and follow up (Committee on Quality Health Care in America, 2001). This will be further discussed in Chapter 5.

Figure 5 – Definitions of PACIC Scale Constructs

Scale	Definition
Patient Activation (items 1-3)	Actions that solicit patient input and involvement in decision-making.
Delivery System Design/ Decision Support (items 4-6)	Actions that organize care and provide information to patients to enhance their understanding of care
Goal Setting/Tailoring (items 7-11)	Acquiring information for and setting of specific collaborative goals
Problem-Solving/Contextual (items 12-15)	Considering potential barriers and the patient’s social and cultural environment in making treatment plans.
Follow-up/Coordination (Items 16-20)	Arranging care that extends and reinforces office-based treatment, and making proactive contact with patients to assess progress and coordinate care

(Glasgow et al., 2005a, p. 439)

Aim #4

Disseminate findings to Hawai’i Institute of Pain staff and make recommendations on how to improve the quality of care for chronic lower back pain treatment management.

The above findings were disseminated to The Clinic staff on Friday, December 13, 2019. A brochure (see Appendix T) illustrating the findings was presented to the staff at that time.

Information included in the brochure covered participant demographic data, results of the PACIC and ACIC, and recommendations to improve the management of chronic lower back pain.

Summary

This chapter presented the project results in relation to the aims and objectives set forth in Chapter 1. Four specific Aims were used to guide the project which are 1) identify gaps and opportunities to provide effective chronic lower back pain management in the patient population The Clinic's O'ahu offices, 2) identify gaps and opportunities to provide effective chronic lower back pain management from the healthcare providers' perspective at The Clinic's O'ahu offices, 3) propose proactive management of chronic lower back pain management by utilizing findings from surveys, and 4) disseminate findings to The Clinic staff and make recommendations on how to improve the quality of care for chronic lower back pain treatment management.

The results for both the PACIC and the ACIC aligned with the data obtain by Glasgow et al. (2005a) for the PACIC and Bonomi et al. (2002) for the ACIC. In fact, the PACIC results for overall score and the least scoring category, follow-up/coordination, correlated between The Clinic and the pain subgroup tested in the study done by Glasgow et al. (2005a). Results of the ACIC indicate that The Clinic can improve management of chronic lower back pain by improving the decision support aspect of chronic condition management.

Chapter 5

Discussion of Data

This chapter addresses how the project's aims and objectives were accomplished based on the project results. Additional literature supporting the aims and project results will be discussed in addition to addressing the project limitations and strengths. Again, the four specific aims of the project were as follows; 1) identify gaps and opportunities to provide effective chronic lower back pain management in the patient population at The Clinic's O'ahu offices, 2) identify gaps and opportunities to provide effective chronic lower back pain management from the healthcare providers' perspectives at The Clinic's O'ahu offices, 3) propose proactive management of chronic lower back pain management by utilizing findings from surveys, and 4) disseminate findings to The Clinic staff and make recommendations on how to improve the quality of care for chronic lower back pain treatment management.

Aim #1

Identify gaps and opportunities to provide effective chronic lower back pain management in the patient population at Hawai'i Institute of Pain's O'ahu offices. The first aim of the project was accomplished by successfully completing each of the objectives which were to 1) offer project participation during a follow up appointment for patients experiencing chronic lower back pain, 2) give patients a copy of the PACIC survey to complete after their appointment and anonymously submit at the front desk, and 3) collect surveys at the end of the project period and organize responses using a SPSS spreadsheet.

A total of 50 patients at The Clinic completed the PACIC survey and this satisfied Aim #1, Objective #1 and #2. The survey assessed participant's perspectives on how The Clinic addressed five categories of CCM patient care (Bodenheimer, 2002). The five CCM categories

assessed were patient activation, delivery system design/decision support, goal setting/tailoring, problem solving/contextual, and follow-up/coordination (Bodenheimer, 2002).

The third objective of Aim #1 was completed by inputting the data obtained from participants into a SPSS spreadsheet.

Aim #2

Identify gaps and opportunities to provide effective chronic lower back pain management from the healthcare providers' perspective at Hawai'i Institute of Pain's O'ahu offices. The objectives of the second aim were to 1) offer project participation during staff meeting, 2) provide the Assessment of Chronic Illness Care survey to each of the physicians practicing at The Clinic, and 3) compile results of the Assessment of Chronic Illness Care survey by averaging the responses and imputing data into an Excel spreadsheet.

Provider participation in the ACIC survey was offered during a regularly scheduled staff meeting. Each of the physician providers were given a copy of the ACIC survey and requested to return the completed document within two weeks. One of the two physicians completed the ACIC survey. This satisfied the first and second objective of the second aim. The ACIC encompasses a total of six components which are organization, community linkages, self-management, decision support, delivery system design, and clinical information system. The overall ACIC score was 4.87 with 11 being the highest possible score. The area in most need of improvement perceived by the physician participant was decision support with an average score of 3.75.

The third objective of Aim #2 was completed by inputting the data obtained from participants into a SPSS spreadsheet.

Aim #3

Propose proactive management of chronic lower back pain management by utilizing findings from surveys. The third aim was accomplished by utilizing the results from Aim 1 and Aim 2 to identify the areas requiring quality improvement.

Improving follow-up and coordination. On a five-point scale, the overall PACIC score for The Clinic was 2.56. From highest score to lowest score, participants rated each category for The Clinic as patient activation (3.35), problem solving/contextual (2.93), delivery system design/decision support (2.83), goal setting/tailoring (2.46), and follow-up/coordination (1.76). Based on the PACIC survey results, patient participants perceive the aspect of care follow-up and coordination as the area in need of the most improvement at The Clinic.

As previously discussed, IOM practice improvement recommendations can be utilized to address the follow-up/coordination aspect of patient care. One of the six IOM practice improvement aims addresses timeliness of care. Timeliness is categorized into two areas; customer service and resource availability (Committee on Quality Health Care in America, 2001). Customer service aspects of healthcare include how effectively the team communicates with each other and the patient in addition to the wait times incurred by patients (Committee on Quality Health Care in America, 2001). The duration of time a patient waits for care influences their overall experiences. Examples of wait times include the duration of time necessary to speak with staff over the phone, waiting in the clinic to be seen for follow up or procedures, and waiting for diagnostic imaging or interventional procedures to be authorized, performed, resulted, and reviewed (Committee on Quality Health Care in America, 2001). The patient can be put under stress during prolonged wait times (Gamm, Kash, & Bolin, 2007). Improving timeliness of care for follow-up and coordination includes aspects of care such as referrals,

diagnostic imaging, and appointment reminders (Committee on Quality Health Care in America, 2001).

As discussed previously, the management of chronic lower back pain is multi-faceted and requires an ongoing interdisciplinary approach. Goals of treatment include reducing deterioration and preventing complications rather than cure of the disease (Schoen, Osborn, How, Doty, & Peugh, 2008). Effective communication diminishes as additional providers at different care sites are added to the treatment plan and this increases the risk of poor care coordination and errors (O'Malley et al., 2011; Schoen et al., 2008). Pain management is a specialty that may be called upon or require the collaboration of supporting or allopathic treatment, surgeons, primary care providers, or hospitalists (Chou & Huffman, 2007). Failure of communication, either initially or on an ongoing basis, negatively impacts patient care (Leonard, Graham, & Bonacum, 2004; O'Malley et al., 2011; Penney, Ritenbaugh, Elder, Schneider, Deyo, & DeBar, 2015; Zuchowski et al., 2015). Providers that do not have necessary information to move forward with treatment plans are likely to report inability to provide high-quality care (O'Malley et al., 2011). Issues with communication that have been identified include the referral process and lack of consistent information returned to ordering providers (Penney et al., 2015). Barriers to communication between providers has been an ongoing issue across the United States (Bodenheimer, 2008; Hussey, Schneider, Rudin, Fox, Lai, & Pollack, 2014). This gap in communication is especially evident in complementary and alternative medicine (CAM) such as acupuncture and chiropractic treatments (Penney et al., 2015). The gap is compounded by lack of CAM use disclosure to providers, inadequate interprofessional communication, and providers using medical jargon from different explanatory models (Breen, Carrington, Collier, & Vogel, 2000; Casey, Adams, & Sibbritt, 2008; Elder, Gillcrist, & Minz, 1997; Koenig, Ho, Yadegar, &

Tarn, 2012; Mainous, Gill, Zoller, & Wolman, 2000; Penney et al., 2015). Penney et al. (2015) note that primary care providers claim to not have adequate experience with acupuncture and chiropractic treatment to feel qualified to make decisions about referrals. The inadequate knowledge is noted to affect the provider's ability to provide guidance, oversight, and questioning quality controls for patients undergoing treatment. Referring or primary care providers are unable to follow up on progress without feedback from the CAM providers.

Penney et al. (2015) recommends the creation of systems to facilitate open communication to improve patient outcomes. Direct communication between primary care and other providers is relatively non-existent (Penney et al., 2015). The authors emphasize that there will be no improvement in patient outcomes or understanding without adequate communication between providers. Systematic communication pathways would improve the connection between providers. Zuchowski et al. (2015) found that the use of electronic consultations improved communication between primary care providers and specialists. By using electronic consultations, primary care providers are able to ask the specialist questions about a patient that may not necessarily require a referral to have the concern addressed. Consistency in obtaining patient feedback would also improve the awareness of referring providers. Standardizing follow up questions after a referral would improve this process (Penney et al., 2015). Both health maintenance organizations and CAM providers deferred to primary care providers as the responsible party in coordinating, accessing, and managing care. The communication barriers have been identified to contribute to ongoing chronic pain and chronic opioid therapy (Penney et al., 2015). An additional recommendation was to provide CAM providers access to the electronic medical record to submit progress notes on patient treatment (O'Malley et al., 2011; Penney et al., 2015; Zuchowski, 2015).

Research is showing the benefit of using nurse care managers to coordinate care and improve communication between providers (Gottschalk & Flocke, 2005; O'Malley et al., 2011; Nelson, 2012). Nelson (2012) explains that nurses can assist with either all enrollees in a health plan or specifically focus on the most severely ill enrollees. The intensity of services provided by the nurse aligns with the level of care necessary from low to high intensity. Low-intensity service include rerecorded telephone messages and mass mailings, medium-intensity service includes telephone conversations, and high-intensity service includes in-person visits from the nurse and increased telephone calls (Nelson, 2012). This type of frequent follow up can improve outcomes and reduce cost by assisting patients in adherence to self-care regimens such as a recommended diet and exercise, teachings on how to respond to worsening health, and supporting patients with routine medical testing (Nelson, 2012). The nurse can then communicate with the provider by conversation or written report on the patient's status (O'Malley et al., 2011). However, most payers do not reimburse for nurse care managers (Gottschalk & Flocke, 2005). Supporting providers so they can afford nurse care managers may improve communication between providers (Gottschalk & Flocke, 2005).

Barriers to communication between providers is impacted by reimbursement. For example, Medicare's fee-for-service system does not reimburse providers for coordinating with other providers and negatively impacts communication among providers while reimbursing for delivering more, and potentially unnecessary or duplicate, care (Nelson, 2012). In fact, the administrative burden and decreasing reimbursement has created additional pressure for providers to see more patients with a shrinking average face-to-face visit time of 18.7 to 10.7 minutes (Gottschalk et al., 2005; O'Malley et al., 2011). Methods to improve communication

without changing reimbursement would be the use of health information technology, accountable care organizations, and standardizing note formats (O'Malley et al., 2011).

In a study of eight countries, authors found that patients in the United States were significantly more likely to report unnecessarily duplicated tests or that their medical records or test results were not available during their scheduled visit (Schoen et al., 2008). If medical information such as history, diagnostic tests, and laboratory results are readily available for providers, then duplication of information can be avoided. Missed or delayed receipt of diagnostic reports have been identified as a serious breakdown in communication that can lead to patient harm by delayed or missed diagnosis (Gandhi et al., 2006; Singh, Giardina, Meyer, Forjuoh, Reis, & Thomas, 2013; Murphy, Singh, & Berlin, 2014). Goske, Reid, Yaldoo-Poltorak, and Hewson (2005) estimated that 70% of all medical malpractice lawsuits are secondary to poor patient-provider communication. Murphy et al. (2014) found that 59% of providers were not satisfied with how diagnostic reports were managed and 83% of providers reported delays in receiving test results. Another study found that four to eight percent of test results that were electronically delivered did not receive a timely follow up (Singh, Thomas, Sittig, Wilson, Espadas, Khan, & Petersen, 2010). The Joint Commission's National Patient Safety Goal 2 prioritizes timely communication of critical test results (Joint Commission, 2017). However, distinguishing between critical, urgent, and unexpected significant imaging results have not been standardized and thereby complicate the matter (Kwan et al., 2017). The perception of urgency complicates this type of follow-up (Kwan et al., 2017). Additionally, incidental findings occur in about 25% of tests (Kwan et al., 2017; Lumbreras, Donat, & Hernández-Aguado, 2010). Discovery of actionable results is dependent on communication between the radiologist and ordering provider.

Recommendations to improve relaying diagnostic imaging reports between provider and radiologist include establishing a closed-loop communication system (Kwan et al., 2017). Closed-loop communication includes the acknowledgement of receipt by the ordering provider including follow up action regarding the test result (Singh, Naik, Rao, & Petersen, 2008). To address lack of follow-up on pertinent results, action was taken by sending the report to two providers instead of one. Despite acknowledgment of receipt of the results, findings show that abnormal findings were less likely to be addressed secondary to diffusion of responsibility when results were shared with two providers (Kwan et al., 2017). Closed-loop communication software is emerging with the aim to notify specific concerning findings, instead of the complete report, by pager, e-mail, or through the electronic health record (O'Connor, Dalal, Sahni, Lacson, & Khorasani, 2015).

Adding patient access to records can influence communication. Electronic health records linked to patient portals are improving the direct patient access to diagnostic imaging reports (Lee, Langlotz, & Elmore, 2016; Murphy, Singh, & Berlin, 2014). Access to medical records is shown to improve identification of errors in documentation and build the patient-provider relationship (Bell et al., 2017).

The amount of incoming data for provider review is increasing. Primary care providers can receive 50 to 60 notifications on a daily basis and this information may require about one hour of review per day (Murphy et al., 2014). Information overload is becoming a concern for providers and is associated with reduced job satisfaction and potential of missing critical information (Murphy et al., 2012). Electronic signals, or flags, where patient safety is at risk can be used to inform providers that abnormal findings have not been addressed in a follow-up (Murphy et al., 2014).

The current healthcare system relies heavily on patients traveling to their providers office. This requires the patients to maintain appointment schedules and arrange their time to be available to travel to and arrive at appointments on time. Administrative issues and disruption in patient care arises when patients are late for appointments or do not show for their appointments at all (Liew, Tong, Lee, Ng, Leong, & Teng, 2009). To improve follow up, clinics have adapted to reminding patients about their appointments. Telephone and text appointment reminders significantly reduce non-attendance rates in a study of seven primary care clinics (Leong et al., 2006). Currently, The Clinic participates in a telephone reminder two days prior to the scheduled appointment. Providing appointment reminders is proposed to be useful for populations of patients who are scheduled for their next appointment in advance, such as individuals with chronic diseases (Leong et al., 2006).

Improving decision support. “Decision support” is the term used to describe the interventions necessary to improve the skills and knowledge of the providers (Wagner et al., 2001). The results of the ACIC indicated that The Clinic can most improve in decision support for clinical staff. Translating evidence into practice is an ongoing endeavor that not only requires additional studies to be completed, but also implementing the results in practice. Constant advances are being made for the clinical and behavioral interventions for chronic illness care, however, patients are not reaping the benefits of these advances (Wagner et al., 2001). The IOM has found that the gap between research and practice is influenced by two factors; 1) increase in the complexity of science and technology for patients with chronic diseases and 2) a poorly organized delivery system with constraints on the use of modern information technology affects the ability to meet care demands (Committee on Quality Health Care in America, 2001). The Committee on Quality Health Care in America (2001) stresses that

addressing the fundamental problems cannot be achieved by using the current system and states that changing the system is necessary to affect positive change.

Knowledge regarding patient population affects medical decisions. Wagner et al. (2001) found that most practices do not have an organized or standardized approach to collecting, summarizing, and reviewing aggregate or individual patient data. Disease registries that maintain information about patients, performance, and results is an integral aspect of improving decision support. Care guidelines can be better utilized when the different aspects of patient population and their medical status is better understood. Wagner et al. (2001) found that medical guidelines are more effective in influencing provider behavior change through integration of the guidelines into flowsheets, registries, and patient assessment tools used by the providers including reminders of overdue services. Using this method of guideline focused intervention improves the consistency of using best practice during patient appointments and between providers.

Decision support is also influenced by provider collaboration. Developing new relationships with related medical specialists supports future delivery of care (Wagner et al., 2001). Communication between specialties can be performed directly, through electronic modes such as email, or telemedicine consultations (Wagner et al., 2001). Wagner et al. (2001) state that the impact of increased communication to improve decision support is not well known.

Aim #4

Disseminate findings to Hawai'i Institute of Pain staff and make recommendations on how to improve the quality of care for chronic lower back pain treatment management.

The fourth and final aim was achieved by the following objectives, 1) presenting survey data at the annual staff education meeting in December of 2019, 2) present recommendations for quality

improvement of chronic lower back pain management, 3) propose ongoing patient and provider evaluation using the PACIC and the ACIC surveys, and 4) present results of the two surveys, demographic data, and recommendations in a brochure distributed to The Clinic staff members.

Project results were presented, as planned, at The Clinic's annual staff meeting in December of 2019. The presentation included information regarding the background and significance of lower back pain management, the CCM framework, demographic results, and results of the PACIC and ACIC surveys. Recommendations on how to improve chronic lower back pain management within The Clinic were presented through distribution of a brochure (see Appendix T). Staff members at the meeting included one assistant manager, two physicians, an advanced practice registered nurse from a Maui office, a newly hired advanced practice registered nurse at the O'ahu offices, one radiology technician, and three medical assistants. All project and result related questions were answered during the meeting.

Summary

This chapter detailed the project accomplishments in addressing the aims and objectives in addition to elaborating on the survey results using literature support. Project limitations and strengths were also discussed in this chapter. The four aims of this project were to 1) identify gaps and opportunities to provide effective chronic lower back pain management in the patient population The Clinic's O'ahu offices, 2) identify gaps and opportunities to provide effective chronic lower back pain management from the healthcare providers' perspective at The Clinic's O'ahu offices, 3) propose proactive management of chronic lower back pain management by utilizing findings from surveys, and 4) disseminate findings to The Clinic staff and make recommendations on how to improve the quality of care for chronic lower back pain treatment management.

Results of the first aim included patient feedback on how The Clinic managed their chronic lower back pain in the previous six months. The patient participant survey results found that The Clinic could most improve in the follow-up/coordination aspect of chronic lower back pain management. A literature review was completed to identify what specific clinic improvements could influence and improve the follow-up/coordination delivery of care and findings were included in this chapter. Improving the timeliness of care by reducing wait times not only to schedule and have appointments with a provider, but also waiting for diagnostic imaging or interventional procedures to be authorized, performed, resulted, and reviewed could be areas for improvement (Committee on Quality Health Care in America, 2001). The use of nurse case managers to coordinate care between providers is also showing promise in improving the patient experience in the area of follow-up/coordination (Gottschalk & Flocke, 2005; O'Malley et al., 2011; Nelson, 2012).

The second aim results found that The Clinic provider participant perceived that management of chronic lower back pain improvement was needed most in the area of facilitating decision support for clinicians. The Committee on Quality Health Care in America (2001) stated that the gap between research and practice is influenced by the complex science and technology for medical treatment of chronic diseases and the limitations of the current delivery system. Additionally, recommendations to integrate care guidelines into electronic medical records to alert providers of the best practice were made by Wagner et al. (2001).

Interestingly, the literature did show overlap in follow-up/coordination and decision support by improving provider coordination and communication. As previously stated, barriers to communication between providers has been an issue in the United States (Bodenheimer, 2008; Hussey, Schneider, Rudin, Fox, Lai, & Pollack, 2014). As discussed herein, deficient

communication affects patients by delaying treatment, as discussed in this chapter, and does not allow knowledge sharing between specialties. Both the follow-up/coordination and decision support aspects of chronic lower back pain management can be addressed by improving the communication between providers.

Strengths and Limitations

The primary strength of this project was the selection of the evidence-based CCM framework and data collection tools (Bonomi et al., 2002; Glasgow et al., 2005a; Wagner, 1998). The CCM provides a strong foundation to analyze both the PACIC and ACIC surveys. The CCM focuses on six areas of healthcare delivery including community resources, health organizations, self-management support, delivery system design, decision support, and clinical information systems (Bodenheimer, 2002). Each of the surveys address aspects of care that relate to the areas of the CCM listed above. The PACIC survey is publicly available and validated for self-reporting care received and how closely the care aligns with the CCM (Glasgow et al., 2005a).

An additional strength of this project is that the same researchers that developed the PACIC also developed the ACIC. This supports continuity between the surveys even though each survey was designed for a different population. Examining results from the PACIC and ACIC from the same clinic also allows for a broader understanding of the chronic care management within The Clinic. Also, use of the ACIC gives insight to clinic administrative function, an aspect of care delivery that patients do not have ready access to. Lastly, the PACIC survey and demographic information did not require extensive time to complete. Each participant elected to complete the survey prior to leaving the office after their appointment.

Collecting data from the patient population at The Clinic was facilitated by the frequency of patient appointments. Each follow-up appointment is scheduled for a 15-minute period and most patients return on a monthly basis for opiate medication refill and procedure follow-ups. The average number of patients seen per day ranges from 17 to 25 with an average weekly census of 100 patients seen by the project implementer. At the time of data collection, participants had the opportunity to develop rapport with the project implementer during their previous visits. Collecting data from 50 participants required the minimal time of nine days and data collection did not span the full clinic hours on the first and last day.

The major limitation of this project was the methodology of data collection. The project prioritized patient confidentiality by keeping the demographic information and PACIC results separated. In doing so, there was no potential to examine correlations between demographics and PACIC scores. Participants did not equally complete each survey with more demographic surveys collected when compared to the number of PACIC surveys. Unequal responses may have been avoided if the demographic survey was attached to the PACIC survey. Lastly, to preserve confidentiality, participants were not supervised by staff or the implementer when completing their survey. This may have influenced the number of participants who submitted their surveys without answering every question. The implementer is unable to determine if participants left unanswered questions because they did not understand the question or because they chose not to answer the question. The ACIC data also presented limitations. Only one of the two physicians in the practice completed the survey. The number of patients within a clinic outnumber the healthcare providers available. The limited number of healthcare providers, in comparison to patients, can lead to deficient data obtained from the healthcare provider perspectives.

Chapter 6

Implications for Practice and Directions for Future Research

Results of this project can be utilized to directly influence practice. The first two project aims assessed the areas of chronic lower back pain management that were in most need of improvement at The Clinic. For patients, improvement in follow-up/coordination was indicated. For providers, improvement in decision support was indicated. The aims of the IOM and the CCM can be used to guide practice changes to improve care quality. For The Clinic, quality improvement in communication between providers would improve care delivered to the patient in addition to improving the knowledge base between providers. As stated in Chapter 5, communication between providers is deficient and continues to affect the care delivered to patients. Improving communication between providers, facilities, and clinics will not be a simple task. The Committee on Quality Health Care in America (2001) states that improvement in management in chronic conditions requires significant changes in care delivery. The next step in addressing the problem of limited communication between providers requires a practice change, especially taking into consideration that treatment of chronic conditions, such as chronic lower back pain, requires a multidisciplinary approach (Chou et al., 2007).

A study performed by Pearson et al. (2005) found that organizations were unable to improve all six elements of the CCM within a one year time period. Clinics and facilities should therefore focus on the aspects of the CCM in most need of improvement instead of addressing all the elements of the CCM at once. Use of the PACIC and ACIC can provide not only baseline information on the status of chronic condition management, but also serves as a useful tool in reassessment of practice changes that have taken place (Glasgow et al, 2005a). Therefore,

assessing a clinic or facility's ability to address the elements in the CCM should be performed on a continuous and regular interval.

The PACIC and ACIC should continue to be utilized in combination with the CCM to assess the quality of care provided to patients with chronic conditions. The PACIC has been used in a number of subpopulations such as hypertension, depression, arthritis, diabetes, asthma, and pain (Glasgow et al., 2005a). Further research in the above subpopulations in addition to new populations will improve the breadth of information available.

Conclusion

The overarching goal of this project was to improve the quality of chronic lower back pain management within The Clinic's O'ahu offices. The first step toward this goal was to complete an assessment of the areas of chronic lower back pain management that were in most need of improvement. This was completed by use of the PACIC and ACIC tools in assessing the patient and provider perspectives on care delivery. Literature findings in combination with the project results indicate that The Clinic has an opportunity to improve the delivery of care for chronic lower back pain management. Patient participants in the PACIC survey rated The Clinic best in patient activation and in need of most improvement in follow-up/coordination. The provider participant in the ACIC survey rated The Clinic best in community linkages and in need of most improvement in decision support for clinicians. Survey results were also compared to CCM aims and IOM recommendations. Both follow-up/coordination and decision support can be addressed by improving the communication between providers in an interdisciplinary approach to health care. Results of the project including recommendations to improve patient care were disseminated to The Clinic staff through a brochure distributed during the annual staff education meeting. After implementation of practice changes based on the results, The Clinic

will benefit from continuing to use the PACIC and ACIC for reassessment purposes to further improve practice.

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Appendix A

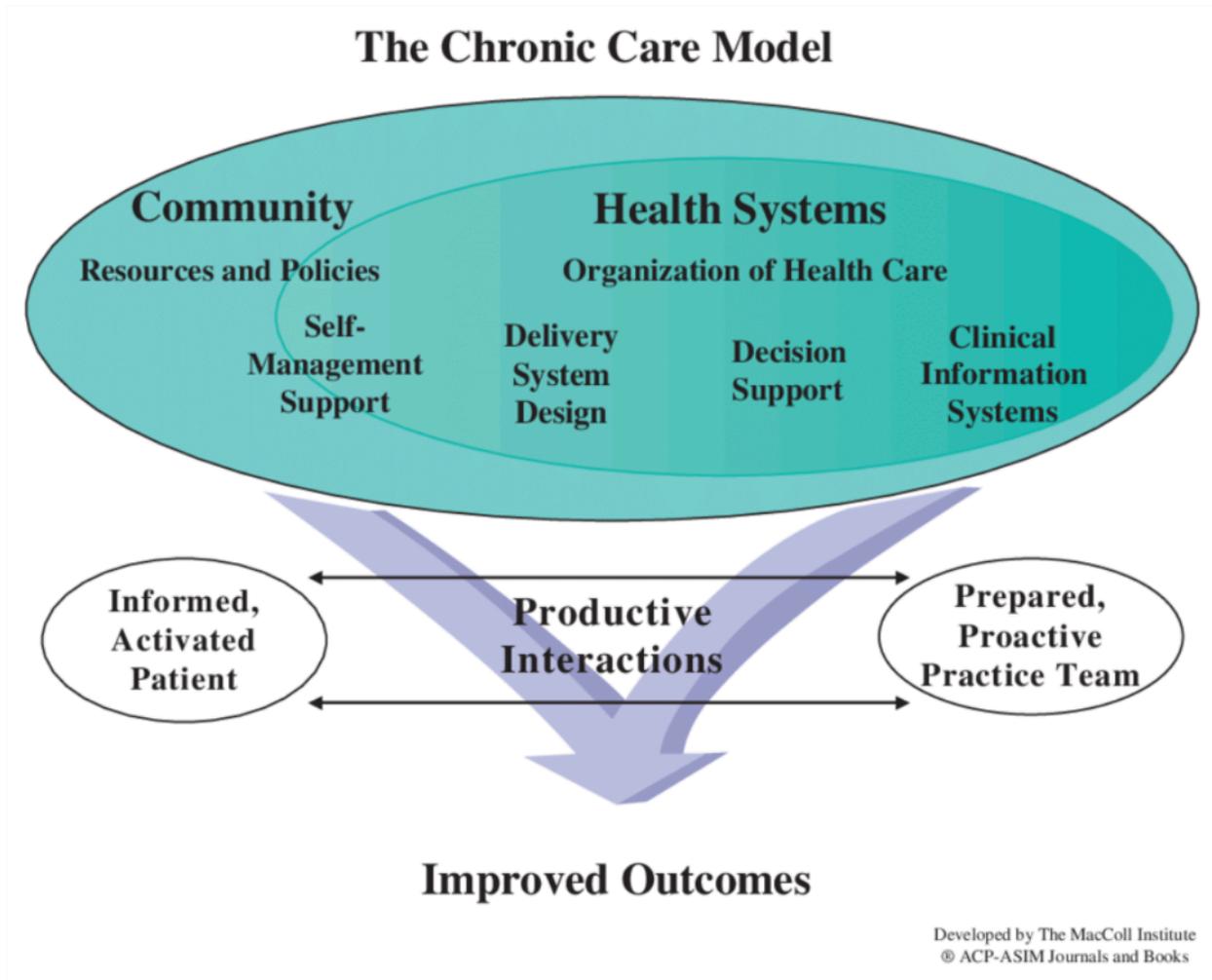


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Requestor type	Academic institution
Format	Print, Electronic
Portion	image/photo
Number of images/photos requested	1
The requesting person/organization	Laura Speth
Title or numeric reference of the portion(s)	Model for improvement of chronic illness care
Title of the article or chapter the portion is from	Chronic Disease Management: What will It Take To Improve Care for Chronic Illness
Editor of portion(s)	Edward H. Wagner
Author of portion(s)	Edward H. Wagner
Volume of serial or monograph	1
Issue, if republishing an article from a serial	1
Page range of portion	2-4
Publication date of portion	August/September 1998

Appendix B

PIP Completion Checklist	Date Proposed	Date completed
Review the PIP Guidelines for process, procedures and timelines.	August 2016	March 2020
Contact PIP Chair to discuss project topic	January 2018	1/24/18
Complete and Submit Form 1	August 2017	7/31/17, 1/17/18, 9/2018
Complete CITI training. Complete NIH training if applicable	February 2017	2/10/17
Submit PIP proposal to the SRC for review and approval.	April 2019	April 2019, September 2019
Submit final draft of the PIP proposal to Committee Chair and Committee Members	May 2019	March 2019, August 2019
Schedule an oral presentation and defense of PIP proposal with Committee Chair approval. Confirm dates with all committee members.	August 2019	April 2019, September 2019
After PIP proposal is approved send to IRB.	September 2019	September 2019
Obtain MOU and letter of support from agency where project will be conducted (required).	September 2018	May 2019
Obtain IRB approval	October 2019	10/24/19
Recruit participants	October 2019	10/31/19 – 11/13/19
Implement Specific Aim 1	November 2019	10/31/19
Implement Specific Aim 2	November 2019	11/4/19
Implement Specific Aim 3	November 2019	12/1/19
Implement Specific Aim 4	December 2019	12/19/19
Prepare final PIP draft to committee for review and feedback.	December 2019	January 2020
Schedule an oral defense of the PIP with Committee; notify DNP Program Admin Assist of defense date.	February 2020	2/12/ 2020
Disseminate PIP results and recommendations (HOKU).	March 2020	
Complete Form 3	May 2020	

Appendix C



School of Nursing

"Educating Transcultural Nursing Leaders to create sustainable healthy communities worldwide."

MEMO

To: Dr. Marcia Sakai
Interim Chancellor

From: Dr. Joan Pagan
School of Nursing Director

Via: Dr. Jim Beets
Dean of the College of Natural and Health Sciences

Via: Dr. Kenneth Hon
Interim Vice Chancellor of Academic Affairs

Message Subject:

Please review the attached affiliation agreement.

This agreement will allow our DNP student, Laura Speth, to complete required clinical hours in order to progress in the program. She will be working with Hawaii Institute of Pain this spring. Please review and process as soon as possible.

Thank you,

Dr. Joan Pagan



 Signature

Date

Dr. Jim Beets

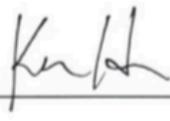


 Signature

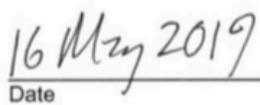


 Date

Dr. Kenneth Hon



 Signature



 Date

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Appendix D



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Office of Research Compliance
Human Studies Program

DATE: October 24, 2019
TO: Daub, Katharyn, University of Hawaii at Hilo, School of Nursing
 Pagan, Joan, University of Hawaii at Hilo, School of Nursing, Speth, Laura
FROM: Rivera, Victoria, Dir, Ofc of Rsch Compliance, Social&Behav Exempt
PROTOCOL TITLE: Needs Assessment for Practice Change in Chronic Lower Back Pain Management
FUNDING SOURCE:
PROTOCOL NUMBER: 2019-00761
APPROVAL DATE: October 24, 2019

NOTICE OF APPROVAL FOR HUMAN RESEARCH

This letter is your record of the Human Studies Program approval of this study as exempt.

On October 24, 2019, the University of Hawaii (UH) Human Studies Program approved this study as exempt from federal regulations pertaining to the protection of human research participants. The authority for the exemption applicable to your study is documented in the Code of Federal Regulations at 45 CFR 46.101(b) 2.

Exempt studies are subject to the ethical principles articulated in The Belmont Report, found at the OHRP Website www.hhs.gov/ohrp/humansubjects/guidance/belmont.html.

Exempt studies do not require regular continuing review by the Human Studies Program. However, if you propose to modify your study, you must receive approval from the Human Studies Program prior to implementing any changes. You can submit your proposed changes via the UH eProtocol application. The Human Studies Program may review the exempt status at that time and request an application for approval as non-exempt research.

In order to protect the confidentiality of research participants, we encourage you to destroy private information which can be linked to the identities of individuals as soon as it is reasonable to do so. Signed consent forms, as applicable to your study, should be maintained for at least the duration of your project.

This approval does not expire. However, please notify the Human Studies Program when your study is complete. Upon notification, we will close our files pertaining to your study.

If you have any questions relating to the protection of human research participants, please contact the Human Studies Program by phone at 956-5007 or email uhirb@hawaii.edu. We wish you success in carrying out your research project.

UH Human Studies Program, Office of Research Compliance
 Office of the Vice President for Research and Innovation, University of Hawai'i, System
 2425 Campus Road, Sinclair 10, Honolulu HI 96822
 Phone: 808.956.5007 • Email: uhirb@hawaii.edu
<https://www.hawaii.edu/researchcompliance/human-studies>
 An Equal Opportunity & Affirmative Action Institution



Appendix E

University of Hawai'i
Consent to Participate in a Research Project
Project Implementer, Laura Speth

Project Title: Needs assessment for practice change in chronic lower back pain management

You are invited to join a research project conducted by Laura Speth, MSN from the University of Hawai'i, Hilo. The project is focused on the well-being of people with chronic lower back pain and will contribute to Laura's senior project. The project uses surveys completed by patients and physicians within the Hawai'i Institute of Pain's O'ahu office. Survey responses will be used to improve care within the clinics.

What am I being asked to do? Answer 20 questions in the Patient Assessment of Chronic Illness Care (PACIC) survey. The PACIC survey requires less than 10 minutes to complete. The questions focus on the most recent 6 months of treatment of your chronic lower back pain from this office. A voluntary demographic survey will also be provided. The demographic survey consists of 6 questions and can be completed in 3 minutes.

Why is this study being done? Laura is determining areas of improvement in how this office treats chronic lower back pain. The survey results will be used to improve management of chronic lower back pain.

What are the risks and benefits of taking part in this study? Potential risks are minimal. Your identity is not included on the surveys and responses will be combined before they are presented to the staff. Results of the surveys have the anticipated benefit of practice change to improve the delivery of care for chronic lower back pain within our offices.

What will happen if I decide to take part in this study? The surveys will be given to you and completed immediately after your scheduled appointment. After you complete the survey you may place the papers in the lock box at the front desk.

Privacy and confidentiality. Completed surveys can be submitted to the lock box at the front desk. Laura is the only person with a key to the lock box. If you prefer to sign this consent, this paper will be the only link to you for participation. Signing the consent is not required.

Taking part in this study is your choice. Participation is voluntary. You can choose to take part or you can choose not to take part in this study. Your decision will have no effect on your treatment or service from the clinic. Participation in the study is complete when you submit your survey responses.

Questions. If you have any questions about this study, please email Laura at lsbeth@Hawaii.edu. You may also contact my advisor, Dr. Katharyn Daub, at Katharyn@Hawaii.edu, or the UH Nursing Program at (808)932-7067. You may contact the UH Human Studies Program at 808.956.5007 or uhirb@Hawaii.edu to discuss problems, concerns and questions; obtain information; or offer input with an informed individual who is

unaffiliated with the specific research protocol. Please visit <http://go.Hawaii'i.edu/jRd> for more information on your rights as a research participant.

If you agree to participate in this project, please sign and date the following signature page and submit with your survey responses to the lock box at the front desk.

Keep a copy of the informed consent for your records and reference.

Signature for Consent:

I give permission to join the research project entitled: *Needs assessment for practice change in chronic lower back pain management*

Name of Participant (Print):

Participant's Signature:

Signature of the Person Obtaining Consent:

Date: _____

Mahalo Nui Loa!

Appendix F

University of Hawai'i
Consent to Participate in a Research Project
Project Implementer, Laura Speth

Project Title: Needs assessment for practice change in chronic lower back pain management

You are invited to join a research project conducted by Laura Speth, MSN from the University of Hawai'i, Hilo. The project is focused on the well-being of people with chronic lower back pain and will contribute to Laura's senior project. The project uses surveys completed by patients and physicians within the Hawai'i Institute of Pain's O'ahu office. Survey responses will be used to improve care within the clinics.

What am I being asked to do? Answer 21 questions in the Assessment of Chronic Illness Care (ACIC) survey. The ACIC survey requires 15 to 30 minutes to complete and can be done individually or as a group.

Why is this study being done? Laura is determining areas of improvement in how this office treats chronic lower back pain. The survey results will be used to improve management of chronic lower back pain.

What are the risks and benefits of taking part in this study? Potential risks are minimal. Your name and organization information is requested by the creators of the ACIC in the event future contact is necessary. Benefits of participation include contributing the provider perspective of chronic illness care within the Hawai'i Institute of Pain's O'ahu offices.

What will happen if I decide to take part in this study? The surveys will be provided to you and can be completed individually or as a group. Individual survey results will be averaged to combine results. The survey should be completed in a timely manner, preferably within two weeks.

Privacy and confidentiality. Your personal information including your name, organization address, phone number, and email are requested by the creators of the ACIC. This information will not be shared with anyone outside the Improving Chronic Illness Care program within the Institute for Healthcare Improvement.

Taking part in this study is your choice. You can choose to take part or you can choose not to take part in this study. Participation in the study is complete when you submit your survey responses.

Questions. If you have any questions about this study, please email Laura at lsbeth@Hawai'i.edu. You may also contact my advisor, Dr. Katharyn Daub, at Katharyn@Hawai'i.edu, or the UH Nursing Program at (808)932-7067. You may contact the UH Human Studies Program at 808.956.5007 or uhirb@Hawai'i.edu to discuss problems, concerns and questions; obtain information; or offer input with an informed individual who is

unaffiliated with the specific research protocol. Please visit <http://go.Hawaii'i.edu/jRd> for more information on your rights as a research participant.

If you agree to participate in this project, please sign and date the following signature page and return to Laura.

Keep a copy of the informed consent for your records and reference.

Signature for Consent:

I give permission to join the research project entitled: *Needs assessment for practice change in chronic lower back pain management*

Name of Participant (Print):

Participant's Signature:

Signature of the Person Obtaining Consent:

Date: _____

Mahalo Nui Loa!

Appendix G

Project Budget		
Item	Estimated Cost/Quantity	Actual Cost/Quantity
Printing	2 page patient survey x 100 x \$0.08/page = \$8 10 page provider survey x 2 x \$0.08/page = \$1.60	\$12 \$1
Survey lock box	1 x \$35 = \$35	\$31.79
Total	\$44.60	\$44.79

Appendix H

I am currently attending the University of Hawai'i at Hilo to earn a doctorate degree in nursing. For this program, the students implement a practice improvement project. I would like to improve how our office provides care to individuals who have chronic lower back pain. I am asking for your participation in a survey to see how our office is addressing your needs related to treatment for chronic lower back pain. The survey will take about 5 to 10 minutes to finish and can be done after your visit with me today. Your answers will be kept secret and will not be linked to you. You can submit your survey to the lock box at the front desk. I am the only person who will open the lock box and see the answers. Your answers will not be shared with the other providers or staff members. Participation in the survey is voluntary and the decision to participate, or not participate, will have no effect on your medical care through this office. Results of the survey will be used to improve the care we provide to people with chronic pain. A consent form is available if you would like to provide written consent. Thank you for your time.

Appendix I

Please circle your best match and do not write your name.	
<p>Gender you identify with</p> <p>Male</p> <p>Female</p> <p>Prefer not to say</p>	<p>Education</p> <p>Less than high school</p> <p>High school graduate</p> <p>Some college or tech school</p> <p>College graduate (bachelor’s degrees)</p> <p>Post-graduate degree (master’s and/or doctoral degree)</p> <p>Prefer not to say</p>
<p>Age in years</p> <p>18-30</p> <p>31-40</p> <p>41-50</p> <p>51-60</p> <p>61-70</p> <p>71-80</p> <p>Greater than 81</p> <p>Prefer not to say</p>	<p>Health Plan or insurance</p> <p>No fault injury</p> <p>Worker’s compensation injury</p> <p>Commercial insurance (HMSA, United, etc)</p> <p>TriCare</p> <p>Medicare</p> <p>AlohaCare or Ohana</p> <p>No insurance</p> <p>Prefer not to say</p>
<p>Marital status</p> <p>Single</p> <p>Married</p> <p>Divorced</p> <p>Widowed</p> <p>Prefer not to say</p>	<p>Rate your health</p> <p>Poor</p> <p>Fair</p> <p>Good</p> <p>Very good</p> <p>Excellent</p> <p>Prefer not to say</p>

Appendix J

Please do not write your name. This survey will require about 5-10 minutes to complete. Participation is voluntary and will not influence your treatment plan with our office. Submit your completed survey to the lock box at the front desk.

T1

Your Chronic Illness Care

Staying healthy can be difficult when you have a chronic illness. We would like to learn about the type of help with your condition you get from your health care team. This might include your regular doctor, his or her nurse, or physician's assistant who treats your illness. Your answers will be kept confidential and will not be shared with anyone else.

When I received care for my chronic illness over the past 6 months, I was:

	Almost Never	Generally Not	Sometimes	Most of the Time	Almost Always
1. Asked for my ideas when we made a treatment plan.	<input type="checkbox"/>				
2. Given choices about treatment to think about.	<input type="checkbox"/>				
3. Asked to talk about any problems with my medicines or their effects.	<input type="checkbox"/>				
4. Given a written list of things I should do to improve my health.	<input type="checkbox"/>				
5. Satisfied that my care was well organized.	<input type="checkbox"/>				
6. Shown how what I did to take care of my illness influenced my condition.	<input type="checkbox"/>				
7. Asked to talk about my goals in caring for my illness.	<input type="checkbox"/>				
8. Helped to set specific goals to improve my eating or exercise.	<input type="checkbox"/>				
9. Given a copy of my treatment plan.	<input type="checkbox"/>				
10. Encouraged to go to a specific group or class to help me cope with my chronic illness.	<input type="checkbox"/>				
11. Asked questions, either directly or on a survey, about my health habits.	<input type="checkbox"/>				

T2

Over the past 6 months, when I received care for my chronic illness, I was:

	Almost Never	Generally Not	Sometimes	Most of the Time	Almost Always
12. Sure that my doctor or nurse thought about my values and my traditions when they recommended treatments to me.	<input type="checkbox"/>				
13. Helped to make a treatment plan that I could do in my daily life.	<input type="checkbox"/>				
14. Helped to plan ahead so I could take care of my illness even in hard times.	<input type="checkbox"/>				
15. Asked how my chronic illness affects my life.	<input type="checkbox"/>				
16. Contacted after a visit to see how things were going.	<input type="checkbox"/>				
17. Encouraged to attend programs in the community that could help me.	<input type="checkbox"/>				
18. Referred to a dietitian, health educator, or counselor.	<input type="checkbox"/>				
19. Told how my visits with other types of doctors, like the eye doctor or surgeon, helped my treatment.	<input type="checkbox"/>				
20. Asked how my visits with other doctors were going.	<input type="checkbox"/>				

Scoring of PACIC Scales:	
Patient Activation	Average of Items 1-3
Delivery System Design/Practice Design	Average of Items 4-6
Goal setting/Tailoring	Average of Items 7-11
Problem-Solving/Contextual	Average of Items 12-15
Follow-up/Coordination	Average of Items 16-20

Appendix K

Assessment of Chronic Illness Care Version 3	
Please complete the following information about you and your organization. This information will not be disclosed to anyone besides the ICIC/IHI team. We would like to get your phone number and e-mail address in the event that we need to contact you/your team in the future. Please also indicate the names of persons (e.g., team members) who complete the survey with you. Later <u>on</u> in the survey, you will be asked to describe the process by which you complete the survey.	
Your name: _____	Date: _____ / _____ / _____ Month Day Year
Organization & Address: _____ _____ _____	Names of other persons completing the survey with you: 1. _____ 2. _____ 3. _____
Your phone number: (____) _____ - _____	Your e-mail address: _____
Directions for Completing the Survey	
This survey is designed to help systems and provider practices move toward the “state-of-the-art” in managing chronic illness. The results can be used to help your team identify areas for improvement. Instructions are as follows:	
<ol style="list-style-type: none"> 1. Answer each question from the perspective of one physical site (e.g., a practice, clinic, hospital, health plan) that supports care for chronic illness. Please provide name and type of site (e.g., Group Health Cooperative/Plan) _____ 2. Answer each question regarding how your organization is doing with respect to one disease or condition. Please specify condition _____ 3. For each row, circle the point value that best describes the level of care that currently exists in the site and condition you chose. The rows in this form present key aspects of chronic illness care. Each aspect is divided into levels showing various stages in improving chronic illness care. The stages are represented by points that range from 0 to 11. The higher point values indicate that the actions described in that box are more fully implemented. 4. Sum the points in each section (e.g., total part 1 score), calculate the average score (e.g., total part 1 score / # of questions), and enter these scores in the space provided at the end of each section. Then sum all of the section scores and complete the average score for the program as a whole by dividing this by 6. 	
For more information about how to complete the survey, please contact:	
Judith Schaefer, MPH Improving Chronic Illness Care A National Program of the Robert Wood Johnson Foundation Group Health Cooperative of Puget Sound 1730 Minor Avenue, Suite 1290 Seattle, WA 98101-1448	tel. 206.287.2077; Schaefer.jk@ghc.org

Assessment of Chronic Illness Care, Version 3

Part 1: Organization of the Healthcare Delivery System. Chronic illness management programs can be more effective if the overall system (organization) in which care is provided is oriented and led in a manner that allows for a focus on chronic illness care.

Components	Level D	Level C	Level B	Level A
Overall Organizational Leadership in Chronic Illness Care	...does not exist or there is a little interest.	...is reflected in vision statements and business plans, but no resources are specifically earmarked to execute the work.	...is reflected by senior leadership and specific dedicated resources (dollars and personnel).	...is part of the system's <u>long term</u> planning strategy, receive necessary resources, and specific people are held accountable.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Organizational Goals for Chronic Care	...do not exist or are limited to one condition.	...exist but are not actively reviewed.	...are measurable and reviewed.	...are measurable, reviewed routinely, and are incorporated into plans for improvement.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Improvement Strategy for Chronic Illness Care	...is ad hoc and not organized or supported consistently.	...utilizes ad hoc approaches for targeted problems as they emerge.	...utilizes a proven improvement strategy for targeted problems.	...includes a proven improvement strategy and uses it proactively in meeting organizational goals.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Incentives and Regulations for Chronic Illness Care	...are not used to influence clinical performance goals.	...are used to influence utilization and costs of chronic illness care.	...are used to support patient care goals.	...are used to motivate and empower providers to support patient care goals.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Senior Leaders	...discourage enrollment of the chronically ill.	...do not make improvements to chronic illness care a priority.	...encourage improvement efforts in chronic care.	...visibly participate in improvement efforts in chronic care.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Benefits	...discourage patient self-management or system changes.	...neither encourage nor discourage patient self-management or system changes.	...encourage patient self-management or system changes.	...are specifically designed to promote better chronic illness care.
Score	0 1 2	3 4 5	6 7 8	9 10 11

Total Health Care Organization Score _____ Average Score (Health Care Org. Score / 6) _____

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Part 2: Community Linkages. Linkages between the health delivery system (or provider practice) and community resources play important roles in the management of chronic illness.

Components	Level D	Level C	Level B	Level A
Linking Patients to Outside Resources	...is not done systematically.	...is limited to a list of identified community resources in an accessible format.	...is accomplished through a designated staff person or resource responsible for ensuring providers and patients make maximum use of community resources.	... is accomplished through active coordination between the health system, community service agencies and patients.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Partnerships with Community Organizations	...do not exist.	...are being considered but have not yet been implemented.	...are formed to develop supportive programs and policies.	...are actively sought to develop formal supportive programs and policies across the entire system.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Regional Health Plans	...do not coordinate chronic illness guidelines, measures or care resources at the practice level.	...would consider some degree of coordination of guidelines, measures or care resources at the practice level but have not yet implemented changes.	...currently coordinate guidelines, measures or care resources in one or two chronic illness areas.	...currently coordinate chronic illness guidelines, measures and resources at the practice level for most chronic illnesses.
Score	0 1 2	3 4 5	6 7 8	9 10 11

Total Community Linkages Score _____ Average Score (Community Linkages Score / 3) _____

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Part 3: Practice Level. Several components that manifest themselves at the level of the individual provider practice (e.g. individual clinic) have been shown to improve chronic illness care. These characteristics fall into general areas of self-management support, delivery system design issues that directly affect the practice, decision support, and clinical information systems.

Part 3a: Self-Management Support. Effective self-management support can help patients and families cope with the challenges of living with and treating chronic illness and reduce complications and symptoms.

Components	Level D	Level C	Level B	Level A
Assessment and Documentation of Self-Management Needs and Activities	...are not done.	...are expected.	...are completed in a standardized manner.	...are regularly assessed and recorded in standardized form linked to a treatment plan available to practice and patients.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Self-Management Support	...is limited to the distribution of information (pamphlets, booklets).	...is available by referral to self-management classes or educators.	...is provided by trained clinical educators who are designated to do self-management support, affiliated with each practice, and see patients on referral.	...is provided by clinical educators affiliated with each practice, trained in patient empowerment and problem-solving methodologies, and see most patients with chronic illness.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Addressing Concerns of Patients and Families	...is not consistently done.	...is provided for specific patients and families through referral.	...is encouraged, and peer support, groups, and mentoring programs are available.	...is an integral part of care and includes systematic assessment and routine involvement in peer support, groups or mentoring programs.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Effective Behavior Change Interventions and Peer Support	...are not available.	...are limited to the distribution of pamphlets, booklets or other written information.	...are available only by referral to specialized centers staffed by trained personnel.	...are readily available and an integral part of routine care.
Score	0 1 2	3 4 5	6 7 8	9 10 11

Total Self-Management Score _____ Average Score (Self Management Score / 4) _____

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Part 3b: Decision Support. Effective chronic illness management programs assure that providers have access to evidence-based information necessary to care for patients--decision support. This includes evidence-based practice guidelines or protocols, specialty consultation, provider education, and activating patients to make provider teams aware of effective therapies.

Components	Level D	Level C	Level B	Level A
Evidence-Based Guidelines	...are not available.	...are available but are not integrated into care delivery.	...are available and supported by provider education.	...are available, supported by provider education and integrated into care through reminders and other proven provider behavior change methods.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Involvement of Specialists in Improving Primary Care	...is primarily through traditional referral.	...is achieved through specialist leadership to enhance the capacity of the overall system to routinely implement guidelines.	...includes specialist leadership and designated specialists who provide primary care team training.	...includes specialist leadership and specialist involvement in improving the care of primary care patients.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Provider Education for Chronic Illness Care	...is provided sporadically.	...is provided systematically through traditional methods.	...is provided using optimal methods (e.g. academic detailing).	...includes training all practice teams in chronic illness care methods such as population-based management, and self-management support.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Informing Patients about Guidelines	...is not done.	...happens on request or through system publications.	...is done through specific patient education materials for each guideline.	...includes specific materials developed for patients which describe their role in achieving guideline adherence.
Score	0 1 2	3 4 5	6 7 8	9 10 11

Total Decision Support Score _____ Average Score (Decision Support Score / 4) _____

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Part 3c: Delivery System Design. Evidence suggests that effective chronic illness management involves more than simply adding additional interventions to a current system focused on acute care. It may necessitate changes to the organization of practice that impact provision of care.

Components	Level D	Level C	Level B	Level A
Practice Team Functioning	...is not addressed.	...is addressed by assuring the availability of individuals with appropriate training in key elements of chronic illness care.	...is assured by regular team meetings to address guidelines, roles and accountability, and problems in chronic illness care.	...is assured by teams who meet regularly and have clearly defined roles including patient self-management education, proactive follow-up, and resource coordination and other skills in chronic illness care.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Practice Team Leadership	...is not recognized locally or by the system.	...is assumed by the organization to reside in specific organizational roles.	...is assured by the appointment of a team leader but the role in chronic illness is not defined.	...is guaranteed by the appointment of a team leader who assures that roles and responsibilities for chronic illness care are clearly defined.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Appointment System	...can be used to schedule acute care visits, follow-up and preventive visits.	...assures scheduled follow-up with chronically ill patients.	...are flexible and can accommodate innovations such as customized visit length or group visits.	...includes organization of care that facilitates the patient seeing multiple providers in a single visit.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Follow-up	...is scheduled by patients or providers in an ad hoc fashion.	...is scheduled by the practice in accordance with guidelines.	...is assured by the practice team by monitoring patient utilization.	...is customized to patient needs, varies in intensity and methodology (phone, in person, email) and assures guideline follow-up.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Planned Visits for Chronic Illness Care	...are not used.	...are occasionally used for complicated patients.	...are an option for interested patients.	...are used for all patients and include regular assessment, preventive interventions and attention to self-management support.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Continuity of Care	...is not a priority.	...depends on written communication between primary care providers and specialists, case managers or disease management companies.	...between primary care providers and specialists and other relevant providers is a priority but not implemented systematically.	...is a high priority and all chronic disease interventions include active coordination between primary care, specialists and other relevant groups.
Score	0 1 2	3 4 5	6 7 8	9 10 11

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(From Previous Page)

Total Delivery System Design Score _____ Average Score (Delivery System Design Score / 6) _____

Part 3d: Clinical Information Systems. Timely, useful information about individual patients and populations of patients with chronic conditions is a critical feature of effective programs, especially those that employ population-based approaches.^{7,8}

Components	Level D	Level C	Level B	Level A
Registry (list of patients with specific conditions)	...is not available.	...includes name, diagnosis, contact information and date of last contact either on paper or in a computer database.	...allows queries to sort sub-populations by clinical priorities.	...is tied to guidelines which provide prompts and reminders about needed services.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Reminders to Providers	...are not available.	... include general notification of the existence of a chronic illness, but does not describe needed services at time of encounter.	...includes indications of needed service for populations of patients through periodic reporting.	...includes specific information for the team about guideline adherence at the time of individual patient encounters.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Feedback	...is not available or is non-specific to the team.	...is provided at infrequent intervals and is delivered impersonally.	...occurs at frequent enough intervals to monitor performance and is specific to the team's population.	...is timely, specific to the team, routine and personally delivered by a respected opinion leader to improve team performance.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Information about Relevant Subgroups of Patients Needing Services	...is not available.	...can only be obtained with special efforts or additional programming.	...can be obtained upon request but is not routinely available.	...is provided routinely to providers to help them deliver planned care.
Score	0 1 2	3 4 5	6 7 8	9 10 11
Patient Treatment Plans	...are not expected.	...are achieved through a standardized approach.	...are established collaboratively and include self management as well as clinical goals.	...are established collaborative an include self management as well as clinical management. Follow-up occurs and guides care at every point of service.
Score	0 1 2	3 4 5	6 7 8	9 10 11

Total Clinical Information System Score _____ Average Score (Clinical Information System Score / 5) _____

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Briefly describe the process you used to fill out the form (e.g., reached consensus in a face-to-face meeting; filled out by the team leader in consultation with other team members as needed; each team member filled out a separate form and the responses were averaged).

Description: _____

Scoring Summary
(bring forward scoring at end of each section to this page)

Total Org. of Health Care System Score	_____
Total Community Linkages Score	_____
Total Self-Management Score	_____
Total Decision Support Score	_____
Total Delivery System Design Score	_____
Total Clinical Information System Score	_____
Overall Total Program Score (Sum of all scores)	_____
Average Program Score (Total Program / 6)	_____

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What does it mean?

The ACIC is organized such that the highest “score” (an “11”) on any individual item, subscale, or the overall score (an average of the six ACIC subscale scores) indicates optimal support for chronic illness. The lowest possible score on any given item or subscale is a “0”, which corresponds to limited support for chronic illness care. The interpretation guidelines are as follows:

- Between “0” and “2” = limited support for chronic illness care
- Between “3” and “5” = basic support for chronic illness care
- Between “6” and “8” = reasonably good support for chronic illness care
- Between “9” and “11” = fully developed chronic illness care

It is fairly typical for teams to begin a collaborative with average scores below “5” on some (or all) areas the ACIC. After all, if everyone was providing optimal care for chronic illness, there would be no need for a chronic illness collaborative or other quality improvement programs. It is also common for teams to initially believe they are providing better care for chronic illness than they actually are. As you progress in the Collaborative, you will become more familiar with what an effective system of care involves. You may even notice your ACIC scores “declining” even though you have made improvements; this is most likely the result of your better understanding of what a good system of care looks like. Over time, as your understanding of good care increases and you continue to implement effective practice changes, you should see overall improvement on your ACIC scores.

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Appendix L

Gender you identify with

Answer Choices	Responses	
Male	53.8%	28
Female	46.2%	24
Prefer not to say	0.00%	0
Total		52

Appendix M

Age in years

Answer Choices	Responses	
18-30	0.00%	0
31-40	15.4%	8
41-50	19.2%	10
51-60	28.8%	15
61-70	30.8%	16
71-80	3.8%	2
Greater than 81	0.00%	0
Prefer not to say	1.9%	1
Total		52

Appendix N

Marital Status	
Answer Choices	Responses
Single	26.9% 14
Married	44.2% 23
Divorced	17.3% 9
Widowed	9.6% 5
Prefer not to say	1.9% 1
Total	52

Appendix O

Education

Answer Choices	Responses	
High school graduate	30.8%	16
Some college or tech school	38.5%	20
College graduate	23.1%	12
Post-graduate	3.8%	2
Prefer not to say	3.8%	2
Total		52

Appendix P

Health Plan or Insurance

Answer Choices	Responses	
Worker's compensation injury	13.5%	7
Commercial insurance	26.9%	14
TriCare	23.1%	12
Medicare	17.3%	9
AlohaCare or Ohana	9.6%	5
No insurance	1.9%	1
Prefer not to say	7.7%	4
Total		52

Appendix Q

Rate Your Health

Answer Choices	Responses	
Poor	11.5%	6
Fair	36.5%	19
Good	40.4%	21
Very Good	9.6%	5
Excellent	1.9%	1
Prefer not to say	0.00%	0
Total		52

Appendix R

Patient Assessment of Chronic Illness Care

Question	Almost Never	Generally Not	Sometimes	Most of the Time	Almost Always	Missing	Total Answers
Q1	2% (1)	4% (2)	16% (8)	26% (13)	50% (25)	2% (1)	49
Q2	2% (1)	0% (0)	16% (8)	18% (9)	62% (31)	2% (1)	49
Q3	6% (3)	0% (0)	10% (5)	12% (6)	66% (33)	6% (3)	47
Q4	12% (6)	18% (9)	30% (15)	14%(7)	22% (11)	4% (2)	48
Q5	0% (0)	0% (0)	12% (6)	20% (10)	66% (33)	2% (1)	49
Q6	4% (2)	8% (4)	28% (14)	24% (12)	30% (15)	6% (3)	47
Q7	4% (2)	12% (6)	22% (11)	22% (11)	38% (19)	2% (1)	49
Q8	8% (4)	16% (8)	30% (15)	14% (7)	28% (14)	4% (2)	48
Q9	8% (4)	20% (10)	12% (6)	16% (8)	42% (21)	2% (1)	49
Q10	20% (10)	28% (14)	14% (7)	10% (5)	24% (12)	4% (2)	48
Q11	10% (5)	22% (11)	16% (8)	14% (7)	36% (18)	2% (1)	49
Q12	6% (3)	2% (1)	18% (9)	18% (9)	56% (28)	0% (0)	50
Q13	8% (4)	12% (6)	16% (8)	20% (10)	42% (21)	2% (1)	49
Q14	6% (3)	12% (6)	18% (9)	20% (10)	42% (21)	2% (1)	49
Q15	8% (4)	8% (4)	10% (5)	22% (11)	52% (26)	0% (0)	50
Q16	22% (11)	24% (12)	12% (6)	12% (6)	24% (12)	6% (3)	47
Q17	18% (9)	32% (16)	22% (11)	8% (4)	14% (7)	6% (3)	47
Q18	20% (10)	32% (16)	24% (12)	4% (2)	8% (4)	12% (6)	44
Q19	24% (12)	28% (14)	22% (11)	8% (4)	12% (6)	6% (3)	47
Q20	18% (9)	14% (7)	28% (14)	16% (8)	18% (9)	6% (3)	47

Patient Activation is Q1 – Q3, Delivery System Design/Practice Design is Q4 – Q6, Goal Setting/Tailoring is Q7 – Q11, Problem-Solving/Contextual is Q12 – Q15, and Follow-Up/Coordination is Q16 – Q20

Appendix S

Assessment of Chronic Illness Care at The Clinic

Organization of the Healthcare Delivery System, Question 1	5
Organization of the Healthcare Delivery System, Question 2	5
Organization of the Healthcare Delivery System, Question 3	4
Organization of the Healthcare Delivery System, Question 4	6
Organization of the Healthcare Delivery System, Question 5	9
Organization of the Healthcare Delivery System, Question 6	5
Community Linkages, Question 1	6
Community Linkages, Question 2	6
Community Linkages, Question 3	6
Self-Management Support, Question 1	6
Self-Management Support, Question 2	2
Self-Management Support, Question 3	5
Self-Management Support, Question 4	8
Decision Support, Question 1	7
Decision Support, Question 2	2
Decision Support, Question 3	2
Decision Support, Question 4	4
Delivery System Design, Question 1	6
Delivery System Design, Question 2	4
Delivery System Design, Question 3	3
Delivery System Design, Question 4	3
Delivery System Design, Question 5	4
Delivery System Design, Question 6	4
Clinical Information Systems, Question 1	5
Clinical Information Systems, Question 2	5
Clinical Information Systems, Question 3	4
Clinical Information Systems, Question 4	4
Clinical Information Systems, Question 5	5

Appendix T

Background and Significance

Lower back pain affects up to 80% of individuals at one point in their life (Smith, Littlewood, & May, 2014). About two to three percent of patients who experience acute lower back pain go on to develop disabling chronic lower back pain (Hides, Jull, & Richardson, 2001). **Fieburger et al.** (2009) illustrated that lower back pain was the second most common reason for adult disability in the United States. Economic costs related to lower back pain are staggering with a range between \$100 and \$200 billion annually in the United States (Katz, 2006).

Improving chronic care management, especially for individuals suffering from chronic pain, is imperative to improving outcomes and overall well-being. Improving the patient and provider approach to chronic lower back pain management has the potential to result in a reduction of opioid use, improved function, and reduced pain.

Framework

Healthcare providers can maximize treatment of chronic lower back pain by focusing on the evidence-based aspects of care that affect chronic diseases. The Chronic Care Model (CCM) is a primary-care based framework, focused on guiding the delivery of care of patients with chronic diseases (Glasgow, **Whitesides**, Nelson, & King, 2005; Committee on Quality Health Care in America, 2001). As treatment of chronic diseases can be complex, the model serves as a framework to guide treatment and maximize patient benefit. The six components of the CCM include community resources, health organizations, self-management support, delivery system design, decision support, and clinical information systems.

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Needs Assessment for Practice Change in Chronic Lower Back Pain Management

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(Hassan, 2017)

Surveys

- Patient Assessment of Chronic Illness Care
- Patient centered, 50 participants
 - 20 questions on a five-point scale
 - Covers patient activation, delivery system design/decision support, goal setting/tailoring, problem solving/contextual, and follow-up/coordination (Glasgow, 2005)

Participant demographic information

- Gender, age range, marital status, education, type of health plan, and reported health status

- Assessment of Chronic Illness Care
- Provider centered, one participant
 - 21 questions on an 11-point scale
 - covers organization, community linkages, self-management, decision support, delivery system design, clinical information system. (Bonomi, Wagner, Glasgow, & VonKorff, 2002)

Patient

Based on the PACIC survey results (see table below), The Clinic would improve patient care by making changes to the aspects of follow-up and coordination. The patient can be put under stress during prolonged wait times (Garrin, Kash, & Bolin, 2007). Improving timeliness of care for follow-up and coordination includes aspects of care such as referrals, diagnostic imaging, and appointment reminders. Research is showing the benefit of using nurse care managers to coordinate care and improve communication between providers (Nelson, 2012).

Characteristics of PACIC scores

Scale	Mean	SD	n
Overall PACIC	2.56	(0.9)	50
Patient Activation	3.35	(0.7)	49
Delivery System Design/Decision Support	2.83	(0.7)	49
Goal Setting/Tailoring	2.46	(1.1)	50
Problem Solving/Contextual	2.93	(1.1)	50
Follow-up/Coordination	1.76	(1.8)	48

Physician

The ACIC results (see table below) indicate that providers could benefit from improvements in decision support. "Decision support" is the term used to describe the interventions necessary to improve the skills and knowledge of the providers (Magner et al., 2001).
Wagner et al. (2001) found that medical guidelines are more effective in influencing provider behavior change through integration of the guidelines into the flowsheets, registries, and patient assessment tools used by the providers including reminders of overdue services.

Improving communication between providers influences decision support. However, communication between providers is impacted by reimbursement. For example, Medicare's fee-for-service system does not reimburse providers for coordinating with other providers which negatively affects communication among providers (Nelson, 2012).

Average ACIC Scores

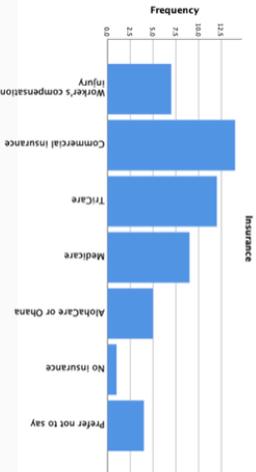
Organization	Community	Self-Management	Decision Support	Delivery System Design	Clinical Information System	Overall
Linkages	5.67	6.00	5.25	3.75	4.00	4.80
System						4.87

Recommendations to Improve Practice

- For patients
- Utilize services of a nurse case manager
 - Send text appointment reminders
 - Close the loop between radiologist and ordering provider
- For providers
- Improve communication between providers
 - Add guideline reminders to eClinicalWorks

Demographics

- 52 participants
- 53.8% (28) male and 46.2% (24) female
- Greatest number of participants were between the ages of 51 and 70
- Nearly half of participants 44.2% (23) were married
- Level of education was 30.8% (16) for high school graduates and 38.5% (20) had some college or tech school



- 75% of respondents rated their health as "fair" or "good"
- Below is the graph for insurance coverage responses