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### Increasing Access To Interventional Pain Management Therapies For Palliative Care Patients With Cancer Through Referral System Improvement

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INCREASING ACCESS TO THE INTERVENTIONAL PAIN MANAGEMENT THERAPIES  
FOR PALLIATIVE CARE PATIENTS WITH CANCER THROUGH REFERRAL SYSTEM  
IMPROVEMENT

Submitted to the Faculty  
Yale University School of Nursing

In Partial Fulfillment  
of the Requirements for the Degree  
Doctor of Nursing Practice

Ewelina K. Gibek

April 14, 2020

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This DNP Project is accepted in partial fulfillment of the requirements for the degree  
Doctor of Nursing Practice.

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Dena Schulman-Green, PhD

April 14, 2020

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Ewelina K. Gibek, MSN, CRNA, APRN

April 14, 2020

Increasing Access to Interventional Pain Management Therapies for Palliative Care  
Patients with Cancer through Referral System Improvement

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Yale University

School of Nursing

Advisors: Dr. Ruth McCorkle and Dr. Dena Schulman-Green

## Table of Contents

<b>CHAPTER 1.....</b>	<b>5</b>
Introduction.....	5
World Health Organization Guidelines for Pain Management.....	5
Benefit of Inclusion of Anesthesia Providers on Palliative Care Teams.....	6
Background.....	7
Palliative Care.....	7
Palliative Care Team.....	9
Interventional Pain Management.....	9
Anesthesia Providers on Palliative Care Teams.....	10
Problem Statement.....	11
<b>CHAPTER 2.....</b>	<b>12</b>
Review of the Literature.....	12
Methods.....	12
Summary.....	13
Synthesis of the Evidence.....	14
Inadequate Cancer Pain Management.....	14
Interventional Therapies as Emerging Cancer Pain Relief.....	14
Barriers to Use of Interventional Therapies.....	16
Inadequate Evidence Supporting the Efficacy of Interventional Pain Management in Cancer Pain Treatment.....	16
Justification for Interdisciplinary Approach.....	17
The Referral System as a Crucial Component in the Management of Disease.....	19

<b>CHAPTER 3.....</b>	<b>21</b>
Description of Organization and Analysis.....	21
Introduction.....	21
Organizational Culture.....	21
North East Urban Hospital Affiliation.....	21
North East Cancer Hospital.....	22
Patient Population.....	22
Key Stakeholders.....	23
Anesthesia Services.....	23
Healthcare Providers at Cancer Hospital.....	25
Patients with Cancer.....	25
Analysis.....	26
Current Referral Process at Cancer Hospital.....	26
Overall Goal of the Project.....	27
Aims and Expected Outcomes.....	27
<b>CHAPTER 4.....</b>	<b>29</b>
Goal of the DNP Project.....	29
Methodology.....	29
Approach/Methods.....	29
Evaluation/Analytical Plan.....	32
Implications.....	33
Statement on Human Subjects.....	34
Timeline.....	34



Running head: REFERRAL	4
Immersion.....	34
Immersion Objective.....	34
Implementation.....	35
Evaluation.....	35
<b>CHAPTER 5.....</b>	<b>36</b>
Results.....	36
Retrospective Referral Data Review.....	36
Interviews of Referring and Receiving Providers.....	38
Pilot Phase.....	38
Pilot Phase Limitations.....	44
Additional Steps.....	45
Educational Podcast Series.....	45
Data Dashboard.....	46
Discussion.....	46
Conclusions.....	47
<b>Glossary.....</b>	<b>49</b>
<b>References.....</b>	<b>52</b>
<b>Appendices (A - G).....</b>	<b>60</b>

## CHAPTER 1

In Chapter 1, we provide an introduction of the DNP project. We offer information about World Health Organization guidelines for pain management along with a description of the role of anesthesia providers on palliative care teams. Additionally, we provide background information describing palliative care, palliative care teams and defined interventional pain management. A problem statement summarizing the DNP project was the final element of this chapter.

### Introduction

For most patients, pain is the most feared effect of cancer. If poorly controlled, pain can lead to suffering, poor nutrition, decreased compliance with treatments, and increased mortality (Sayed, 2013). Over 50% of people who are diagnosed with cancer experience physical pain (Carlson, 2016). In patients with advanced, metastatic disease, pain is present in almost 90% of cases (Sayed, 2013). Unfortunately, all types of pain (acute, chronic, and cancer) are undertreated, and poorly controlled pain has been consistently identified as one of the major problems in end-of-life care (Carlson, 2016). In North America, pain is the major reason for referrals to palliative care programs (Thai & Fainsinger, 2011). Pain is the usual hallmark of disease progression or metastatic spread, and residual pain is an increasing burden in cancer survivors as well. In 10 to 20% of cancer cases, pain is difficult to treat, frustrating, and poorly controlled.

### World Health Organization Guidelines for Pain Management

Currently, opioid pharmacotherapy is the principal treatment for cancer pain; however, when conservative treatments are unsuccessful, the least invasive interventions should be added to optimize pain relief (Jain & Jain, 2013). In 1986, the World Health Organization (WHO)

established guidelines for treating cancer pain, widely known as the WHO Pain Relief Ladder (Carlson, 2016). The ladder includes non-opioids, weak opioids, strong opioids, and adjuvant agents which are recommended based on the severity of pain and organized along three steps of the ladder (see Figure 1 below). Although WHO's guidelines have been recognized as the cornerstone for cancer pain treatment worldwide, major agencies, such as the European Association for Palliative Care and the American Pain Society have attempted to update international guidelines in response to the increasing availability of different opioid preparations and interventional procedures (Carlson, 2016).



Figure 1. WHO's cancer pain ladder for adults, adapted from WHO's Pain Relief Ladder.

Retrieved from <https://www.who.int/cancer/palliative/painladder/en/>

### **Benefit of Inclusion of Anesthesia Providers on Palliative Care Teams**

Currently, pain management guidelines have not incorporated significant advances in interventional pain management therapies, which is the domain of anesthesia providers. Interventional pain management consists of regional anesthetic and analgesic techniques. It refers to a group of minor or major surgical procedures that can be used to control acute or chronic painful conditions. These include, but are not limited to, trigger point injections, nerve

blocks, intravenous infusions, radiofrequency lesioning, botulinum toxin injections, intraspinal analgesics, and spinal or deep brain stimulation techniques. Interventional pain management procedures are often an important component of a comprehensive pain treatment program (Argoff & McCleane, 2009). Unfortunately, there are no standard guidelines recommending their use. A concerted effort of anesthesia providers and palliative care specialists is needed to make changes in pain management guidelines on a policy level.

Referral to a specialized palliative care team is often necessary for management of refractory pain and other symptoms (Swami & Allen, 2018). Refractory pain is defined as pain that responds poorly to standard, conventional treatments, and may be coupled by unwanted adverse effects associated with use of opioids or other treatments (O'Brien & Kane, 2014). A comprehensive, interdisciplinary team inclusive of anesthesia providers who are trained in provision of interventional pain management therapies could provide patients suffering from refractory pain and other symptoms with timely assessment and effective pain relief.

Consequently, by joining the palliative care team, anesthesia providers have a unique opportunity to collaborate with others in this specialty practice and to provide advanced anesthesia care to patients in need of these services. Involvement of anesthesia providers in the provision of palliative care services can promote improvements in therapeutic programs of cancer pain relief. Development of a consistent, integrated team model between anesthesia and palliative care can lead to an increased number of referrals for interventional procedures, improve pain management among cancer patients, and optimize anesthesia providers as critical partners in delivery of palliative care (Canser, 2013; de Courcy, 2009).

## Background

### Palliative Care

Palliative care emerged as a specialty in the second half of the twentieth century, focusing mainly on the care of the dying patients. Since then, it has evolved worldwide with an expanded focus to patients with serious, life-limiting illnesses. WHO (2017) defines palliative care as “an approach that improves the quality of life of patients, and their families, facing the problems associated with life-threatening illness, through prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems”. Currently, palliative care includes aggressive symptom management, psychosocial support of patients and families, and alignment of treatments with individual patient care goals (Aslakson & Bridges, 2013). Palliative care can be provided at any time and at any stage of an illness, terminal or not (chronic disease), with the goals of delivering comfort, quality of care, and support to patients and families (Swami & Case, 2018). The decision to pursue palliative care is made by the physician and the patient.

It is estimated that every year, 20 million patients could benefit from palliative care; 6% of these are children (De Lima & Pastrana, 2016). Due to an increase in the number of patients with chronic diseases, including cancer, and the growing aging population, the demand for palliative care has become a significant public health challenge (De Lima & Pastrana, 2016). The issue is worsened by the shortage of the palliative care providers. Cancer is a major contributing factor, as it is one of the leading causes of morbidity and mortality worldwide.

Results of research studies conducted in the United States show that palliative care services facilitate goals of care discussions, which are consequently associated with reduced rates of 30-day hospital re-admissions. Overall, these services can reduce hospital costs up to 45%

(O'Connor, Moyer, Behta & Casarett, 2015). Additionally, palliative care services have been shown to lower costs of care in the intensive care units, as for laboratory, radiology, and pharmacy services.

The American Society of Clinical Oncology recommends that any patient with advanced cancer (inpatient or outpatient) should receive palliative care services concurrently with active treatment within the first eight weeks of diagnosis (Ferrell, Temel, Temin, & Smith, 2017). Early integration of palliative care has been shown to improve outcomes in patients with advanced cancer (Ferrell, Temel, Temin, & Smith, 2017). Inclusion of anesthesia providers in the provision of palliative care services offers solution to a significant public health issue.

### **Palliative Care Team**

Palliative care is recognized as an essential component of healthcare services and is delivered by a multidisciplinary team. In the United States, the number of hospital palliative care teams has grown rapidly within the past decade. Currently, over two-thirds of American hospitals and over 85% of mid-to large size hospitals report having palliative care teams (Morrison, 2015). Palliative care is delivered by interdisciplinary teams specializing in managing refractory pain and other symptoms experienced by patients with life-threatening illnesses. The palliative care team manages physical symptoms through expert assessment, diagnosis and non-pharmacological and pharmacological treatment options (Morrison, 2015). The typical palliative care team is composed of palliative care medical and nursing staff, dietitians, pharmacists, chaplains, psychologists, and social workers (National Cancer Institute, 2018; Morrison, 2015).

### **Interventional Pain Management**

Interventional pain management is a discipline of medicine devoted to the diagnosis and treatment of pain and related disorders by the application of interventional techniques in

managing subacute, chronic, persistent, and intractable pain, independently or in conjunction with other modalities of treatments (Manchikanti, Boswell, Raj, & Racz, 2003). Interventional pain management dates back to the origins of neural blockade and regional anesthesia. Tuffer (1899) described the first therapeutic nerve block in pain management. The concepts of neural blockade and interventional techniques are founded on the structural basis of chronic pain.

Today, there exist advanced interventional pain management strategies effective in reducing pain in cancer patients that is refractory to pharmacologic therapy while mitigating the side effects of opioids (Moeschler, Rosenberg, Trainor, Rho, & Mauck, 2014). Interventional pain procedures target neural and non-neural pain generators. Neural blockade techniques provide excellent pain relief for neuropathic, sympathetic, nociceptive, somatic, or visceral pain (Jain & Jain, 2013).

### **Anesthesia Providers on Palliative Care Teams**

The assessment and treatment of cancer pain can be challenging and require expertise of several clinical specialties (Perez, Olivier, Rampakakis, Borod, & Shir, 2016). Anesthesia providers (physicians and nurse anesthetists) have extensive knowledge of pharmacology, clinical applications of analgesics, local and regional techniques, and combinations of sedative medications, such as ketamine, benzodiazepines and opioids (Kettler & Nauck, 2010).

In addition to pain management, anesthesia providers are well equipped to manage symptoms typical for patients requiring palliative care, such as dyspnea, nausea and vomiting, and sedative effects from medications or disease (Gavrin, 1999). For cancer patients undergoing palliative surgery or palliative bedside procedures, such as drainage of malignant pleural effusions requiring anesthesia care, anesthesia providers have an opportunity to participate in collaborating and optimizing care.

Participation of anesthesia providers in the provision of pain management services for palliative care patients could help alleviate the shortage of providers. Anesthesiologists have already recognized hospice and palliative care as a medical subspecialty. Although CRNAs administer anesthesia to palliative patients within perioperative care settings, currently, they do not have an option of obtaining subspecialty in palliative care; however, the National Board of Certification and Recertification for Nurse Anesthetists (NBCRNA) has recognized the need for a certification in nonsurgical pain management (NSPM). This subspecialty certification prepares CRNAs to administer various types of injections and to integrate physiological, pharmacological, techniques and psychological techniques for the management of acute and chronic pain outside of the operating room areas (NBCRNA, 2018). NSPM certification provides CRNAs with an opportunity to gain distinctive knowledge and a specific skillset and to potentially prepare nurse anesthetists as partners in delivery of palliative care by extending their ability to practice outside of the operating room setting.

### **Problem Statement**

The need for palliative care will increase as the number of patients continues to grow due to the aging population and rising cancer rates (Stjernswald & Gomez-Batiste, 2009). Pain management is an essential component of palliative care. Anesthesia providers, including certified registered nurse anesthetists (CRNAs), are well positioned to become active members of palliative care teams and to provide pain management services, including regional and interventional therapies to patients in the acute care setting. Due to lack of awareness of the option of interventional therapies, there have been few referrals for these services. Consequently, despite anesthesia providers' knowledge of pain management and anesthesia care delivery, they have not been optimally involved in provision of palliative care.



## CHAPTER 2

In Chapter 2, we summarize a review of the literature, including methods and synthesis of the evidence. The six themes identified through literature review are described.

### Literature Review

#### Methods

The first phase of the literature review included searching the databases PubMed, Scopus, Medline, and Embase. The search strategy included the following concepts and their related synonyms: “palliative care” (end-of-life care); “cancer” (neoplasm); “pain” (intractable pain, cancer pain, pain management, interventional pain management); “anesthesia” (anesthesiology, anesthesia, anesthetist, certified registered nurse anesthetist, anesthesiologist); “nerve blocks” (regional anesthesia, nerve blockade); “integration”; “collaboration”; “multidisciplinarity”. Articles were retrieved between October 5<sup>th</sup>, 2017 and April 5<sup>th</sup>, 2018. Limits were set to restrict the search to human related studies, English language only, and literature published after 1993 until April of 2018. The searches were run individually in each database and the retrieved abstracts were transferred to EndNote. Resources also included publications from professional organizations such as the World Health Organization, the Centers for Disease Control and Prevention, the International Association for the Study of Pain, and the National Hospice and Palliative Care Organization. The second part of the systematic search of relevant literature was performed between August 1<sup>st</sup>, 2018 and October 1<sup>st</sup>, 2018. The databases searched included Scopus, PubMed, Ovid MEDLINE, and CINAHL. The search strategy included the following concepts: “referral”; referral components”; “pain management”; “referral evaluation”; “electronic referral”. The search was limited to the English language and to articles published on or after January 2008.

## Summary

Review of the pertinent literature revealed six key themes:

1. Inadequate cancer pain management as informed by the WHO analgesic ladder (Carlson, 2016; Coyne, 2003; De Lima & Pastrana, 2016; Meuser et al., 2001; Zech, Grond, Lynch, Hertel & Lehman, 1995)
2. Interventional pain therapies as emerging complementary methods of cancer pain relief (Boys, Peat, Hanna & Burn, 1993; Canser et al., 2013; Chambers, 2008; Christo & Mazloomdoost, 2008; Edelstein et al., 2015; Kim, 2005; Klepstad, Kurita, Mercadante & Sjogren, 2015; Lynch & Simpson, 2015; Patt, Reddy & Black, 1995; Quate, Brabin & Mitchell, 2013; Zylicz, 2016)
3. Barriers to use of interventional pain therapies in the treatment of cancer pain (Aslakson, Brookman & Smith, 2013; Birthi & Sloan, 2013; Canser et al., 2013; Chambers, 2008; Coyne, 2003; Lynch & Simpson, 2015; Patt, Reddy & Black, 1995; Zylicz, 2016)
4. Inadequate evidence supporting efficacy of interventional pain management therapies in cancer pain treatment (Fine, 2015; Klepstad et al., 2015).
5. Justification for an interdisciplinary approach (Angelescu, Faughnan, Baker, Yang & Kane, 2010; Aslakson & Bridges, 2013; Aslakson et al., 2013; Canser, 2013; de Courcy, 2009; Faircloth, 2017; Fine, 2015; Gavrin, 1999; Kettler & Nauck, 2010; Lassen et al., 2015; Lynch & Simpson, 2015; Perez, Olivier, Rampakakis, Borod, and Shir, 2016, Tree et al., 2016).
6. A referral system as a crucial component in the management of chronic diseases, requiring care coordination with specialists (Brankline, Coyle, Jencks, Mullegama, &

O'Brien, 2009; Dennison, Eisen, Towers, & Clark, 2006; Kim-Hwang et al., 2010; Senitan, Alhaiti, & Lenon, 2018; Tuot et al., 2015)

### **Synthesis of Evidence**

Each of the identified themes is discussed below.

#### **Inadequate Cancer Pain Management**

Although the use of the WHO analgesic ladder has been effective in achieving pain relief in the majority of patients with cancer over the last three decades, 10 to 20% of all patients in the United States have not achieved adequate pain relief. Additionally, patients have experienced significant side effects when the WHO pain ladder has been used (Carlson, 2016; Meuser et al., 2001; Zech et al., 1995). Carlson (2016) argues that WHO guidelines are outdated because they do not include the pharmacological and interventional therapies available in contemporary pain management. Every third person receiving treatment for cancer, and at least two-thirds of those with advanced malignant disease experience moderate to severe pain; therefore, effective cancer pain management must be inclusive of all symptom management options (Meuser et al., 2001).

#### **Interventional Therapies as Emerging Cancer Pain Relief**

For some cancer patients, pain control remains inadequate despite compliance with the WHO pain ladder (Christo & Mazloomdoost, 2008). Approximately 14% of cancer patients suffer from significant, unrelieved pain even when WHO guidelines are fully implemented (Meuser, et al., 2001). The failure to obtain acceptable pain or symptom relief prompted addition of a fourth step to the WHO analgesic ladder which includes advanced interventional approaches (Carlson, 2016). Patients who suffer from intolerable side effects as a result of the standard therapies, or who are resistant to the usual management, should be offered interventional therapies as treatment options (Birithi & Sloan, 2013). Moreover, patients should be identified

and referred to specialists in pain management in early stages of their disease (Lynch & Simpson, 2015), allowing interventional treatments to be implemented alongside standard pain management rather than as a separate step (Birthing & Sloan, 2013; Carlson, 2016). Specific anatomically-guided techniques can be recommended based on knowledge of condition prevalence, pain etiology, and usual presentation (Fine, 2015). Based on epidemiological data, it can be reasonably surmised how many patients can benefit from specific nerve blocks. For example, 20% of the patient population suffering from upper gastrointestinal, pancreatic cancer, hepatic, bladder or cervical cancers could benefit from celiac plexus or hypogastric plexus blocks (Fine, 2015).

Interventional pain therapies can play a major role in the treatment of palliative pain, particularly for 8 to 11% of the cancer patient population (Birthing & Sloan, 2013; Canser et al., 2013; Chambers, 2008; Coyne, 2003; de Courcy, 2009; de Courcy, 2011; Kim, 2005; Lynch & Simpson, 2015; Zech et al. 1995). Minimally invasive treatments such as nerve blocks (temporary/permanent), epidural/spinal analgesics, and peripheral nerve infiltration can provide significant pain relief with minimal adverse effects (Birthing & Sloan, 2013; Canser et al., 2016; Chambers, 2008; Coyne, 2003; De Courcy, 2009; Faircloth, 2017; Kim, 2005; Zylicz, 2016; Lynch & Simpson, 2015). Celiac plexus block has been successful in 80 to 90% of patients with pain related to pancreatic cancer (Coyne, 2003; Chambers, 2008; Faircloth, 2017; Kim, 2005; Lynch & Simpson, 2015). In a study of patients with pancreatic cancer, the use of this block significantly decreased pain, nausea, and opioid requirements (Mercadante, Catala, Arcuri & Casuccio, 2003).

### **Barriers to Use of Interventional Therapies**

Despite the attempts of contemporary guidelines to integrate multiple pain management modalities, interventional therapies remain underused in cancer pain treatment (Patt, Reddy & Black, 1995). Contributing factors and barriers to the use of interventional therapies are related to lack of knowledge about blocks by non-interventional pain physicians, to lack of good referral networks, and to the perception that the effects of a nerve blockade are not as effective as reported (Aslakson, Brookman & Smith, 2013). Authors of multiple articles discuss the absence of programs to educate patients and providers about the role of the interventional pain treatments (Chambers, 2008; Coyne, 2003; Zyllicz, 2016). Additionally, lack of pain specialists and inadequate consultations between palliative team and anesthesia ultimately affect the number of referrals for interventional procedures (Birathi & Sloan, 2013; Canser et al., 2013; Coyne, 2003; Lynch & Simpson, 2015).

### **Inadequate Evidence Supporting the Efficacy of Interventional Pain Management in Cancer Pain Treatment**

There is a lack of evidence supporting use of interventional pain management therapies in treatment of cancer pain. Randomized controlled trials in studies of cancer pain management is scarce for ethical and logistical reasons (Carlson, 2016; Kim, 2005). Some of the factors include use of convenience samples, difficulty controlling for extraneous variables, and having an ethical responsibility to provide optimal pain relief to all patients. Cluster randomization has been recommended to overcome some of the challenges regarding randomized controlled trials studying cancer pain relief (Carlson, 2016). As a result, current knowledge is partially based upon case studies or case series. The number of reports is low, which could be affected by selective reporting of successful cases or lack of perceived need to report a routine treatment

(Klepstad et al., 2015). Continued clinical experience and well-controlled studies are needed to appropriately select patients and improve outcomes (Carlson, 2016).

### **Justification for an Interdisciplinary Approach**

Pain management is an essential component of palliative care. Anesthesia providers, namely anesthesiologists and certified registered nurse anesthetists (CRNA), are prepared to manage acute and chronic pain (American Association of Nurse Anesthetists, 2017). Anesthesia providers are experts in interventional procedures such as nerve blocks, neurolytic blocks, and neuraxial analgesia, and could therefore play a significant role in cancer pain management.

Growing evidence has demonstrated support for anesthesia providers' involvement in the provision of palliative care services (Canser, 2013; de Courcy, 2009; Faircloth, 2017; Fine, 2015; Gavrin, 1999; Lynch & Simpson, 2015; Zylicz, 2016). Anghelescu, Faughnan, Baker, Yang & Kane (2010) identified that strong collaboration between pain and palliative care services has particular benefits for pain management. Development of partnership programs between pediatric oncology programs, pain and palliative care services, and hospice agencies can facilitate early evaluation and decisions to use blocks as an earlier intervention at the end-of-life, and improve the quality of care (Anghelescu et al., 2010). Chambers (2008) stated that introduction of regular, joint working sessions between pain specialists and palliative care teams resulted in a significant increase in the number of interventional procedures being carried out. Canser et al. (2013) described a collaborative relationship between a palliative care service and an anesthesiology department that led to an increase in the number of patients offered interventional therapies. Further improvements included performing blocks when pain was less complex and placement of intrathecal catheters with implanted drug infusion pumps (Canser, 2013).

As described by Tree et al. (2016), the multispecialty approach can have numerous beneficial effects, from enabling patients to receive the most appropriate treatment to delivering such treatments in a timely fashion. The best example of multidisciplinary is a combined specialty clinic in which patients are jointly examined by professionals from two or more specialties (Tree et al., 2016). Decreased time to diagnosis, decreased patient anxiety levels, and increased patient satisfaction are achieved in multidisciplinary clinics compared with other settings.

Perez, Olivier, Rampakakis, Borod, & Shir (2016) described implementation of such an interdisciplinary approach for cancer pain management. In this study, patients were simultaneously treated by a team consisting of a palliative care physician, a nurse clinician specializing in oncology and palliative care, an anesthesiologist specializing in interventional pain procedures, and a radiation oncologist. Use of this model has led to decreased reported pain levels and severity of other symptoms (e.g., fatigue, nausea, depression, anxiety). In addition to traditional pain management, 60% of patients received other analgesic therapies, out of which interventional pain procedures were the most common. Additionally, consumption of short acting opioids decreased by 52%.

Similar initiatives of structured and funded collaborations between specialist palliative care and pain services have been successfully implemented in the United Kingdom (O'Brien & Kane, 2014) and Norway (Bell, 2015). These clinic models are robust, cost-effective, and provide high-quality coordinated service to patients with problematic pain (Bell, 2015).

The interface between palliative medicine and anesthesiology is still evolving, and consistent relationships between them remain uncommon. Fine (2015) emphasized that healthcare providers need to acknowledge “highly problematic lapses in fully operationalizing

the interdisciplinary model that has become the foundation of modern-day oncology, pain medicine, and palliative care” (p.42). The author recommended a relationship among disciplines that would address the full spectrum of needs of patients dealing with cancer pain. More studies are needed to fully examine integration of anesthesia services into palliative care teams, which would ensure consistent delivery of such therapies (Coyne, 2003; Kim, 2005; Chambers, 2008; De Courcy 2009; Birthi & Sloan, 2013; Canser, 2013, Lynch & Simpson, 2015).

### **A Referral System as a Crucial Component in the Management of Many Diseases**

Referral is defined as a process by which a healthcare professional manages a clinical condition by referring patients to other healthcare facilities due to insufficient resources (e.g., drugs, equipment, and skills) to seek assistance from a better or differently resourced facility. Referral plays an important role in the management of chronic conditions. Incorporation of evidence-based practice (EBP) in structuring referrals leads to high quality healthcare systems, improved patient outcomes and lower cost. Senitan et al. (2018) identified ten factors that an evidence-based referral system should have. The EBP referral system should be safe, timely, effective, efficient, patient-centered, and equitable. Additionally, a referral letter should be structured, referral letter guidelines should be disseminated, a central computerized system should be used, and inclusion criteria of the referred patients should be provided in a referral letter.

Referrals appear to improve quality of care. According to multiple studies focusing on chronic disease management, provision of coordinated care to patients by primary care clinicians and specialists resulted in better health outcomes in comparison with each level acting alone (Senitan et al., 2018). A survey of primary care providers demonstrated that 83.9% of primary care providers agreed that electronic referrals (eReferral) had educational value due to



opportunities inherent in frequent communication with specialists (Kwok, Olayiwola, Knox, Murphy, & Tuot, 2018). Specialists can use electronic referral and consultation systems to enhance specialty care delivery with consultative communication that is highly rated by primary care providers (Tuot et al., 2015). Unfortunately, there are no research studies examining referral systems involving interventional pain management therapies; however, other referral systems can be used as models for the purpose of education and analysis.

## CHAPTER 3

In Chapter 3, we provide an organizational description and analysis. We offer information about the Cancer Hospital, its patient population, key stakeholders, anesthesia services, and healthcare providers. We discuss current referral process at the Cancer Hospital and the overall goal of the project along with aims and expected outcomes.

### Organizational Analysis

#### Introduction

North East urban hospital is a non-profit, 1,541-bed acute and tertiary care hospital. It includes Children's Hospital, Psychiatric Hospital, Cancer Hospital and the long-term care center. The hospital has two inpatient campuses and is the primary teaching hospital for a major medical school (XXXX, 2018). The hospital is a member of state's leading healthcare system, consisting of five delivery networks distributed across the state, and large medical group, a physician foundation of primary care and medical specialists (XXXX, 2018).

#### Organizational Culture

In its vision statement, North East hospital specifies that it enhances the lives of those it serves by providing access to integrated, high-value, patient-centered care in collaboration with others who share the values of the organization. The values include integrity, patient-centered care, respect, accountability, and compassion, through commitment to innovation, teaching, research, and service to communities (XXXX, 2018).

#### North East Urban Hospital Affiliations

The North East Hospital System is affiliated with a major, a private research university. Founded in 1701, the university is one of the oldest institutions of higher education in the United States (XXXX, 2018). The hospital is also affiliated with academic specialty group, which is the

clinical practice of the university's faculty members. It is one of the largest academic multispecialty group practices in the United States, with more than 800 physicians practicing in 160 specialties and subspecialties. It has a reputation as a major referral center for the state and throughout the region (XX, 2018).

### **North East Cancer Hospital**

Cancer Hospital is a large comprehensive cancer facility affiliated with North East urban hospital that provides both inpatient and outpatient care in one hospital. Smilow is the largest provider of cancer care in the state, treating over 45% of the 20,000 patients diagnosed with cancer annually in the state (XXX, 2020). Currently, the hospital has 13 multidisciplinary cancer programs, 168 inpatient beds, 12 operating rooms, and 100 infusion chairs. Additionally, the hospital offers an array of clinical trials as well as many specialty services such as survivorship care, social work, prevention education, integrative medicine, pain management, a cardio-oncology service, support groups, a cancer boutique, exercise and nutrition support, and complementary services including therapeutic massage, and relaxation imagery (XXX, 2020).

### **Patient Population**

Cancer Hospital provides care to patients with various cancers at different stages of the disease. Some of the most common cancers treated at the hospital include breast, lung, prostate, skin, head and neck, colon, thyroid, uterine and pancreatic (Figure 2).

2018 Top Ten Cancer Sites					
[ ]					
		MALE		FEMALE	
PROSTATE	15.5%	500	1195	32.1%	BREAST
LUNG & BRONCHUS	12.4%	399	402	10.8%	LUNG & BRONCHUS
MELANOMA	8.1%	261	226	6.1%	THYROID
ORAL CAVITY & PHARYNX	6.1%	197	191	5.1%	CORPUS & UTERUS
COLORECTAL	6.0%	192	189	5.1%	BRAIN & CNS
NON HODGKIN'S LYMPHOMA	5.3%	171	182	4.9%	COLORECTAL
URINARY BLADDER	4.9%	159	165	4.4%	NON HODGKIN'S LYMPHOMA
BRAIN & CNS	4.7%	151	160	4.3%	MELANOMA
LEUKEMIA	4.6%	147	110	3.0%	PANCREAS
KIDNEY & RENAL PELVIS	4.0%	128	106	2.9%	LEUKEMIA
OTHER	28.5%	921	793	21.3%	OTHER
		<b>TOTAL: 3,226</b>	<b>3,719: TOTAL</b>		

Figure 2. 2018 Top Ten Cancer Sites at North East Cancer Hospital. Retrieved from

<https://www.xxxxcancercenter.org/about/facts.aspx>

### Key Stakeholders

The stakeholders involved in this project include the hospital as the institution where the services are rendered, palliative care patients and patients with cancer, anesthesia providers, the pain service, the palliative care team, and other providers caring for specified patients, such as surgeons, oncologists, and advance practice nurses (APRNs).

### Anesthesia Services

The anesthesia department consists of 110 faculty members, 90 CRNAs, 76 residents, and 12 clinical fellows and postdoctoral fellows. The department has several sections including ambulatory care, non-operating room anesthesia (NORA), a post-anesthesia care unit, an adult perioperative section, obstetrics/gynecology, pediatrics, pain medicine, and cardiac anesthesia.

The perioperative adult anesthesia section is the largest and is further divided into regional, bariatrics, otolaryngology, neuroanesthesia, orthopedic and regional, pre-admission testing, thoracic and peripheral vascular anesthesia, and transplant anesthesia (XX, 2018). Specialty divisions include clinical care, critical care, obstetric, and pediatric anesthesia. Clinical services include the Inpatient Acute Pain Service and the Outpatient Center for the Assessment and Management of Pain (CAMP).

The Acute Pain Service focuses on both acute and chronic pain management. The service manages postoperative pain of the inpatient population as well sickle cell disease pain in both adults and children. This team consists of board-certified pain physicians and APRNs. CAMP is located within the musculoskeletal center and focuses specifically on the interdisciplinary treatment of musculoskeletal diseases.

The Acute Pain Service, in conjunction with the palliative care faculty at Cancer Hospital, established the Multidisciplinary Pain Program in 2017 (XX, 2018). It is co-directed by Assistant Professor in the Department of Anesthesiology and Professor of Radiology and Biomedical Imaging and of Medicine (Medical Oncology). The team includes experts from Pain Medicine, Interventional Radiology, Palliative Care, and Integrative Medicine specialties. The goals are to provide integrative pain medicine for patients who suffer from pain as a result of their cancer treatments including radiation, chemotherapy, surgery, and pain caused by the disease itself (XXX, 2020). The program offers a variety of pain management options, which may include oral pain medications or interventional procedures that include trigger point injections, nerve blocks, and tumor ablations. The pain medicine team also offers implanted pumps that deliver pain medications directly to the source of pain in the body (XX, 2020). The Pain Clinic (where the interventional pain management therapies are administered) is open once

a week and is staffed by board-certified pain physicians as well as advanced practice nurses. Patients are offered interventions only, such as nerve blocks, injections, or spinal infusion pump placement. For pharmacological therapies, patients see their palliative care team. Patients can be referred to the clinic by the palliative care team, surgeons, and other providers. Currently the clinic gets very few referrals, and they are inconsistent.

### **Healthcare Providers at the Cancer Hospital**

The Palliative Care team at North East hospital includes physicians specializing in palliative care, nurse practitioners, clergy, bereavement coordinators, psychologists, and social workers (XXX, 2020). The team provides comprehensive interdisciplinary care to patients and their families and specializes in end-of-life supportive care, which may include issues such as pain, nausea, shortness of breath, fatigue, medication and/or treatment side-effects. The providers also address psychosocial issues such as depression, anxiety, disruption of family life or financial concerns, and offer social work services and spiritual support for the patients and their families (XXX, 2020). Patient care involves ongoing evaluations, physical assessments, and discussion of symptoms and goals.

Cancer Hospital has a large team of providers consisting of oncologists, surgeons, nurse practitioners, social workers, and other staff members. All practitioners working on the palliative care team and throughout the Cancer Hospital can refer patients to the Pain Clinic where interventional pain therapies are offered.

### **Patients with Cancer**

Patients with cancer will directly benefit from the proposed DNP project because the goal of the project is to improve access to highly specialized interventions, to optimize pain

management, and ultimately improve their quality of life. The demographics of patients cared for at the Cancer Hospital were described in the patient population section.

### **Analysis**

North East urban hospital is a complex organization. There is a system in place to provide interventional therapies to palliative care patients; however, patients who could benefit from the interventions currently are not referred to the appropriate services effectively. The focus of this project, therefore, is to improve the referral system for patients who can benefit from these services. The identified barriers include ineffective communication between referring and receiving providers and inadequate knowledge level about the referral system. Developing a consistent working relationship between all parties may take significant effort and coordination. Support of several stakeholders (e.g., pain service, palliative care team, surgeons, APRNs) will be very important in the project development. Education of the referring providers about the service will help increase the referral rate and help will raise awareness about the existing program.

### **Current Referral Process at the Cancer Hospital**

Presently, the referral process to the pain service mostly takes place via electronic medical record (EPIC). Providers send a generic referral form with patient information to the clinic. Sometimes, providers refer via telephone or walk the information over to the clinic. The criteria required for referral include that the patient: 1) must be a Cancer Hospital patient; 2) has pain from active disease; or 3) has residual pain from prior cancer treatment. No other information is included in the electronic referral form. Nurses at the clinic review the referral requests by evaluating patients' medical records, which can be an extensive process. Once the patient is deemed appropriate, the patient is contacted by the clinic to schedule an appointment.

The patient is also asked to complete a form detailing their medical conditions and the reason for the referral. Subsequently, patient is seen in the clinic, and at that time the intervention to treat pain is completed. Following the visit, appointment notes are placed in EPIC where they can be viewed by the referring providers.

Currently, limited number of patients are benefiting from the services of the Smilow Pain Clinic. Referring providers lack good understanding of the referral criteria as well as the treatments offered by the clinic. The clinic hours are limited to only one day a week, which affects ability of patients to utilize the service.

### **Overall Goal of the Project**

The overall goal of this project is to improve the current referral system of patients to the Pain Clinic, and as a result to improve access to highly specialized pain management interventions. This goal will be achieved through a comprehensive assessment of the current referral system, evaluation of retrospective referral data, interviewing of the selected referring and receiving providers, dissemination of findings to the key stakeholders, and implementation of an intervention which may strengthen the existing protocol and increase referral rates. The assessment report will serve as a foundation to develop evidence-based strategies and action plans which will improve the referral system and improve service integration. Results of the assessment are anticipated to raise awareness about the importance of referrals, to motivate reflection, and to generate interest in strengthening the referral system.

### **Aims of the Project and Expected Outcomes**

The aims of this DNP project focusing on the integration of the anesthesia/pain service with the palliative care team are:

1. To conduct a two-phase review of the literature (detailed in Chapter 2) pertaining to:



- a. Palliative care, interventional pain management therapies, and involvement of anesthesia providers;
  - b. Protocols for referral of patients for interventional pain management therapies, general protocols for referral for treatment, components of a protocol, and protocol evaluation.
2. To assess and evaluate the current referral system at the Pain Clinic regarding the frequency of its use, whether there is an opportunity to use the clinic more frequently, and the interventions provided via the following methods:
    - a. Retrospective chart review of patients referred to the Pain Clinic;
    - b. Assessment of the frequency of use;
    - c. One-on-one semi-structured interviews with providers referring patients to the Pain Clinic and the receiving providers.
  3. To disseminate findings to appropriate stakeholders, strengthen the current referral system, and improve service integration through application of the assessment findings, evidence-based strategies and action plans.
  4. To evaluate the effectiveness of the intervention geared towards increasing the referral rate by assessing the referral rate after implementation of the intervention.

## CHAPTER 4

In Chapter 4, we summarize the goal of the DNP project. We discuss methodology, implications, timeline, and immersion details.

### Goal of the DNP Project

The overall goal of this project is to improve the current referral system of patients to the Smilow Pain Clinic, and as a result, to improve access to highly specialized pain management interventions. This goal will be achieved through a comprehensive assessment of the current referral system, evaluation of retrospective referral data, interviewing of the selected referring and receiving providers, dissemination of findings to the key stakeholders, and implementation of an intervention which may strengthen existing protocol and increase referral rates. The assessment report will serve as a foundation to develop evidence-based strategies and action plans which will improve the referral system and improve service integration. Results of the assessment are anticipated to raise awareness about the importance of referrals, to motivate reflection, and to generate interest in strengthening the referral system.

### Methodology

#### Approach/Methods

Approach to Aim 1. To conduct a two-phase review of literature (reported in Chapter 2) pertaining to:

- a. Palliative care, interventional pain management therapies, and involvement of anesthesia providers.
- b. Protocols for referral of patients for interventional pain management therapies, general protocols for referral for treatment, components of a protocol, and protocol evaluation.

The literature review is described in Chapter 2.

Approach to Aim 2. To assess and evaluate current referral system at the Pain Clinic and the frequency of its use, via the following methods:

- a. Retrospective chart review of patients referred to the Pain Clinic. A seven-month retrospective referral data review was conducted covering the period between 9/1/2018 and 3/31/2019. Collected information was organized in a tabular format and categorized according to referring providers, patient disposition post-screening, patient disposition post-referral, and most common diagnoses. Additionally, information about referring and receiving providers was organized based on their referral rates.
- b. Assessment of the frequency of use and whether there is an opportunity to use it more frequently. Referral data used to assess how many patients were being referred to the Pain Clinic during the specified time period. Provider interviews were conducted to help elucidate referral patterns. This strategy enabled identification of opportunities to increase referrals. Additionally, the reasons why the patients were not referred were discussed during provider interviews.
- c. Interviews of providers referring patients to the Pain Clinic and of providers receiving referrals. The Referral Systems Assessment and Monitoring (RSAM) Toolkit was adapted and utilized with permission to assess and evaluate functioning and performance of providers' use of the current referral system. RSAM was developed to assist health and program managers to obtain and use information on the performance of their referral systems.

The RSAM has two main components: 1) a referral system assessment to obtain an in-depth examination of referral performance and assess overall functioning of the referral system; and 2) referral system monitoring for routine monitoring of referrals. The RSAM

examines various components of the referral system, including referral networks, protocols, processes and procedures, referral documentation, and data collected and barriers to referral completion. This tool was originally designed to assess and monitor HIV/AIDS referral systems but can be adapted for any type of referral system. The RSAM provides clear, step-by-step instructions to assist managers in deciding which component to implement, which tools to use, how to adapt the tools, how to use the tools for data collection, and how to analyze, interpret, and use the information generated (Negroustoueva, de la Torre, & Hyslop, 2013).

For the purpose of this DNP project, the Referral System Assessment was used to examine how the referral system was structured, whether appropriate written referral protocols and guidelines exist, the processes providers follow to refer patients, and barriers to referral initiation and referral completion. The assessment involved two parts, including interviews of the key service providers involved in the referral system and review of the relevant documents. Key service providers were identified based on the retrospective chart review. Referring and receiving providers as well as receiving practitioners (Pain Clinic) were interviewed (12 providers total). The referring providers (9 providers) to be interviewed were chosen based on the following criteria: high referrers (3 providers), average referring providers (3 providers), low referrers (3 providers). Three receiving providers (2 anesthesiologists and 1 APRN) consistently working at the clinic were also interviewed.

RSAM questions were adapted and focused on the following areas: background characteristics of the organization; characteristics of the referral network; referral system monitoring; and referral system processes, including referral protocol, data quality and

use, client confidentiality and satisfaction, and respondent recommendation (Negroustoueva, de la Torre & Hyslop, 2013) (Appendix A, Appendix B). Data obtained from the interviews were synthesized. Aspects of the referral system were classified into three categories of identified barriers, recommendations, and a proposed pilot plan. A list of areas requiring improvements was generated. This report was subsequently shared with the stakeholders and used to plan an appropriate pilot intervention.

Approach to Aim 3. To disseminate findings to appropriate stakeholders and to strengthen the current referral system through application of the assessment findings and evidence-based strategies.

The stakeholders include the hospital as an institution where the services are rendered, palliative care patients and patients with cancer, anesthesia providers, the pain service, the palliative care team, and other providers caring for these patients, such as surgeons, oncologists, and advance practice nurses (APRNs). An assessment report was created, and recommendations were made for the areas of the referral system identified as needing improvement. These recommendations are clearly stated in the assessment report and were subsequently presented and discussed with key referral stakeholders. Involving stakeholders in the analysis process will increase their familiarity with these issues. Results of the assessment are anticipated to raise awareness about the importance of referrals, to motivate reflection, and to generate interest and commitment in strengthening the referral system. Based on data gathered from the assessment, evidence-based strategies and action plans were developed to strengthen the referral system and improve service integration. For the purpose of the pilot, a selected group of stakeholders was chosen.

### **Evaluation/Analytical Plan**

The nature of this DNP requires satisfactory completion of each aim in a satisfactory manner in order to proceed to the next step of the project. To assess and evaluate the achievement of each aim, tables were completed to document completion of each aim. The findings were used to guide implementation of changes to the referral system and subsequent evaluation of its outcomes. Additionally, upon the completion of the pilot, referral rate data were evaluated and compared with the rate prior to implementation of the intervention.

### **Implications**

Implementation of the intervention targeting the existing referral system may result in an increased number of referrals to the Pain Clinic, which subsequently may translate into more palliative/cancer patients benefiting from the highly specialized pain management interventions the clinic team offers. Increased access to services may result in increased patient satisfaction, improved pain control, and decreased opioid use. As the country deals with the opioid crisis, interventional pain management therapies in patient populations with extensive pain control needs must be considered as part of the solution strategy. As discussed in Chapter 1, interdisciplinary models of service integration between palliative care and anesthesia providers specializing in interventional pain management resulted in a 25% decrease in opioid consumption (Perez, Olivier, Rampakakis, Borod, & Shir, 2016). Similar initiatives in the United Kingdom and Norway resulted in robust, cost-effective clinic models offering high-quality coordinated service to patients with problematic pain (Bell, 2015).

Interdisciplinary relationships that address the full spectrum of needs of patients dealing with cancer pain require more consistent efforts than currently in place. Lack of a well-structured referral system negatively influences access to services. Fine (2015) emphasized that healthcare

providers need to acknowledge “highly problematic lapses in fully operationalizing the interdisciplinary model that has become the foundation of modern-day oncology, pain medicine, and palliative care” (p.42). Therefore, this project can offer new understanding of how to improve referral systems, which, if successful, it could be replicated nationwide. On a broader scale, project findings could inform other institutions, promote increased access to care and offer a sustainable avenue for decreasing opioid use in this patient population.

### **Statement Related to Human Subjects**

This is a quality improvement project. The retrospective chart review will not put patients at risk and does not require North East hospital’s institutional review board to approve it because de-identified data will be used. A quality improvement project application was submitted to the Nursing Research Committee at the hospital and subsequently approved for implementation.

### **Timeline**

Proposal Defense: 12/05/2018

Project Elements: retrospective chart review (9/1/2019 -9/30/2019); interviews of the referring and receiving providers (10/1/2019 -11/15/2019); data analysis/assessment report (11/16/2019 - 12/15/2019); assessment report dissemination (12/16/2019 – 1/15/2020); pilot (1/28/2020- 2/28/2020); final project write-up (3/1/2020-3/30/2020)

Leadership Immersion: 9/1/2019- 4/30/2020

Submission of the Manuscript: 3/30/2020

Oral Presentation: 4/30/2020

## **Immersion**

### **Immersion Objective.**

The objective of the immersion was to pilot an intervention geared towards the improving Pain Clinic referral system and to assess effectiveness of the intervention (See Appendix D). The time frame for the immersion is 9/1/2019 to 2/28/2020.

The aim of the immersion was to evaluate whether the number of referrals to the Pain Clinic increased following the pilot as well as the number of patients treated with interventional pain management therapies.

### **Implementation.**

The immersion site was North East hospital. Specifically, the project targeted patients of the Cancer Hospital who could be referred to the Pain Clinic.

Dr. Dena Schulman-Green oversaw the project on site. The implementation phase consisted of the following stages:

1. Development of an intervention geared towards improving the referral system and education of the referring providers (11/16/2019-1/15/2020)
2. Pilot of the improved referral system (1/28/2020-2/28/2020)

### **Evaluation.**

During the final month of the immersion (3/1/2020 – 3/31/2020), data pertaining to the number of referrals were collected and compared with information gathered during the retrospective referral data review prior to the implementation. Data collected included referring providers, patient disposition post-screening, patient disposition post-referral, and most common diagnoses (See Table 1 in Chapter 5). Additionally, information about referring and receiving providers were organized based on their referral rates (See Table 2, Chapter 5).



## CHAPTER 5

In Chapter 5, we discuss the summary of the retrospective referral data review and interviews of referring and receiving providers. The pilot phase is described along with the limitations, additional steps, discussion and conclusions.

### Results

#### Retrospective Referral Data Review

Permission to conduct the Quality Improvement project was received from the Nursing Research Committee at North East hospital in February of 2019 (Appendix C). Subsequently, referral data were obtained from the Pain Clinic with the help of the medical director and the administrative staff. The dataset was sent in an encrypted email via secured server and was stored on a password-protected computer. The dataset covered the months of September 2018 through March 2019. The dataset included the following information: patient name; medical record number; referring provider; diagnosis; date of the referral; intake date; appointment date; and reasons for not completing the referral. A total of 109 referrals was noted for the given timeframe.

To understand referral patterns, data were carefully reviewed and categorized according to referring providers, patient disposition post-screening, patient disposition post-referral, and most common diagnoses (Table 1).

Referring Providers	Patient Disposition Post-Screening (n)	Patient Disposition Post-Referral (n)	Most Common Diagnoses of Clinic Patients (n)
<ul style="list-style-type: none"> <li>• Medical oncologists</li> <li>• Palliative care specialists</li> <li>• Surgeons</li> <li>• APRNs/PAs</li> </ul>	<ul style="list-style-type: none"> <li>• Patient inappropriate: Not otherwise specified (11)</li> <li>• Patient inappropriate: No cancer history (8), Medication wean (2)</li> <li>• Patient referred to palliative care (3)</li> <li>• Referral made in error (2)</li> <li>• Patient hospitalized (1)</li> </ul>	<ul style="list-style-type: none"> <li>• Patient refused appointment (27)</li> <li>• Patient difficult to reach or unreachable (3)</li> </ul>	<ul style="list-style-type: none"> <li>• Pain (16)</li> <li>• Head and neck cancers (11)</li> <li>• Lung cancer (10)</li> <li>• Lymphoma (8)</li> <li>• Colon cancer (5)</li> <li>• Pancreatic cancer (5)</li> <li>• Multiple myeloma (5)</li> <li>• Metastatic back pain (5)</li> </ul>

Table 1. Results of Retrospective Review of 109 Pain Clinic Referrals 9/1/2018 – 3/31/2019

Additionally, providers were grouped based on the number of referrals (high, average, low referrers) (Table 2).

Provider Category	Number of Referrals (n)	Number of Providers
High-referring	5-11	4
Average-referring	3	3
Low-referring	1-2	61

Table 2. Breakdown of the Provider Grouping Based on the Referral Rates

It was noted that a large group of providers representing a variety of specialties was referring patients. Referring providers included palliative care specialists, medical oncologists, surgeons, advanced practice registered nurses, and physician assistants. A small group of providers (7 providers) consistently was referring patients with referral numbers ranging between 3-11 for the time period of seven months. The rest of the providers were referring inconsistently, with a referral number ranging between 1-2 between September 2018 and March 2019.

Additionally, the latter group of providers had large numbers of inappropriate referrals. This

finding was consistent with literature findings and supported the need for an educational intervention geared towards the referring provider base.

### **Interviews of Referring and Receiving Providers**

Based on the referral data evaluation, referring providers were grouped according to their referral rates (high, average, low). Three representatives from each group were selected for the interviews, in addition to three receiving providers (Pain Clinic providers). A total of twelve providers were interviewed using an interview guide with open-ended questions and related probes. Responses were organized in a table according to the interview questions. Table 3 highlights the key dimensions of information collected during the interviews. Selected questions were included with pooled answers and quotes from the three groups of providers (high, average, low referrers).

Data revealed: varying degrees of understanding of the referral process and its components among providers; consistent expression of the need for education about the referral process, patient selection, and interventions the clinic provides; and opportunities to incorporate data use to drive the referral process. Findings were consistent with the need for an educational intervention for providers pertaining to the referral process.

QUESTION	HIGH REFERRERS	AVERAGE REFERRERS	LOW REFERRERS
<b>Please describe how you have heard about the services that are offered at the Smilow Pain Clinic?</b>	<ul style="list-style-type: none"> <li>• Member of multidisciplinary team</li> <li>• Sought it out through connections with other specialty providers (anesthesia, radiology, surgeons)</li> </ul>	<ul style="list-style-type: none"> <li>• In-service by Smilow Pain Clinic providers</li> <li>• Clinic located in the same setting provider practices</li> </ul>	<ul style="list-style-type: none"> <li>• Assumed hospital would have it (no formal education)</li> </ul>
<b>Please describe method(s) and processes you use to refer patients.</b>	<ul style="list-style-type: none"> <li>• EPIC</li> <li>• Telephone</li> <li>• Walk-over</li> </ul>	<ul style="list-style-type: none"> <li>• Referral in EPIC</li> <li>• Walk-over</li> </ul>	<ul style="list-style-type: none"> <li>• EPIC</li> <li>• RN call</li> </ul>
<b>Are you aware if there is an agreed upon, formal process as to how the referral process should look like between referring and the receiving providers?</b>	<ul style="list-style-type: none"> <li>• Yes, discussed it with clinic director</li> </ul>	<ul style="list-style-type: none"> <li>• Not sure</li> <li>• No</li> </ul>	<ul style="list-style-type: none"> <li>• No</li> </ul>
<b>If there is no formal agreement do you think it would be helpful</b>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> </ul>
<b>Do you have any recommendations on how the referral system could be improved?</b>	<ul style="list-style-type: none"> <li>• Education (easily accessible, provider friendly) about the services clinic provides and clinic contact information</li> <li>• Education about specific referral criteria</li> <li>• EPIC optimization (linking specific</li> </ul>	<ul style="list-style-type: none"> <li>• EPIC optimization/prompt to get patients into the clinic sooner (screening tool to alert referring providers that the patient is a candidate would be helpful)</li> <li>• Educate patients about the clinic services, coordinate times of their other clinic appointments</li> </ul>	<ul style="list-style-type: none"> <li>• Increase clinic availability</li> <li>• Add roaming service</li> <li>• Link postsurgical patients to appropriate local services</li> <li>• Assist with methadone program</li> </ul>

	<p>diagnoses with referral prompt, e.g., neuropathy, chronic back pain, intractable pain)</p> <ul style="list-style-type: none"> <li>• Increase interaction between PC and Pain team</li> </ul>	<p>so they have them on same day</p> <ul style="list-style-type: none"> <li>• Provide in-service to APPs who also see patients</li> <li>• Clarify organizational pain management processes and guidelines for chronic/acute/cancer pain</li> </ul>	
<b>What are the factors affecting your referral rates?</b>	<ul style="list-style-type: none"> <li>• Lack of understanding of how beneficial interventional pain management therapies are</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of knowledge about referral criteria</li> </ul>	<ul style="list-style-type: none"> <li>• Provider does not have interventional pain management background</li> </ul>
<b>How would you rate your knowledge and understanding of the services provided in the clinic?</b>	<ul style="list-style-type: none"> <li>• “Good”</li> </ul>	<ul style="list-style-type: none"> <li>• “Need more information”</li> </ul>	<ul style="list-style-type: none"> <li>• “Additional brief in-service about the clinic would be very helpful”</li> </ul>
<b>What could possibly improve/enhance your referral rates even more?</b>	<ul style="list-style-type: none"> <li>• Provider believes patients who could benefit from the clinic services are being referred</li> </ul>	<ul style="list-style-type: none"> <li>• “Education about who should be referred”</li> </ul>	<ul style="list-style-type: none"> <li>• “More education about the clinic services”</li> </ul>
<b>In terms of referral process from the perspective of interdisciplinary collaboration (anesthesia/interventional pain management and palliative care):</b>			
<b>Do you think this referral process can bring about a sustainable change in terms of increasing access to care, improving patient outcomes and satisfactions?</b>	<ul style="list-style-type: none"> <li>• Yes</li> </ul>	<ul style="list-style-type: none"> <li>• Yes (provider continues to refer because from the ethical standpoint patient has more treatment options)</li> </ul>	<ul style="list-style-type: none"> <li>• Yes (“Referral number can consistently increase, knowledge level and comfort of referring providers will increase,</li> </ul>

			referrals will be timelier”
<b>How could the collaboration be improved?</b>	<ul style="list-style-type: none"> <li>• “It is important to educate all medical oncology staff, share data, easy to reach interventional therapies providers will improve referral”</li> </ul>	<ul style="list-style-type: none"> <li>• “Advanced cancers should go to PC, they can decide if pain service should be involved”</li> <li>• “Acute pain patients and patients who have potentially curable disease or disease with which they can live for a long time should get interventional pain management referral”</li> </ul>	<ul style="list-style-type: none"> <li>• Linking outpatient with inpatient settings</li> </ul>
<b>Can you identify barriers impeding collaboration?</b>	<ul style="list-style-type: none"> <li>• Integration between pain/palliative care, oncology and interventional is lacking</li> </ul>	<ul style="list-style-type: none"> <li>• “Getting providers together is difficult due to time constraints and demanding schedules. Departmental meeting, etc. are the possible options where information could be shared”</li> </ul>	<ul style="list-style-type: none"> <li>• “Providers are overloaded because of the complex needs of patients”</li> </ul>

Table 3. Interview Data Summary

### Pilot Phase

The pilot phase of the DNP project consisted of the following steps:

1. Creation of the summary report
2. Dissemination of the report to stakeholders
3. Designing an educational intervention addressing the needs of referring providers
4. Implementation of the educational intervention
5. Evaluation of the referral rate after the implementation of the educational intervention for one month.

Both referral and interview data were used to create a summary report. The report included findings identified through retrospective referral data analysis and provider interviews.

Additionally, the report specified barriers and provided recommendations for the referral process improvement (Table 4).

Identified Barriers	Recommendations	To Be Implemented in Proposed Pilot
<b>Inadequate Education of the Referring Providers</b> (Lack of knowledge about the referral steps, clinic services, patients who can be referred, appropriate blocks for certain types of pain)	• Service-line specific in-service/workshop	Yes
	• Fast Fact Sheet (distributed to all referring providers for quick reference)	Yes
	• EPIC optimization (best practice “pop-up” if patient meets criteria)	No
<b>Lack of Data Sharing/Use</b>	• Creation of prototype data dashboard which can be easily disseminated among providers (EPIC data extraction, Tableau Reporting, FlatIron Health). Easy to navigate graphs/tables that contain information about patient demographics, interventions provided, overall utilization, narcotic/pain scores	Yes
<b>Lack of Evaluation Tool to Capture Patient Satisfaction</b>	• Creation of clinic specific evaluation tool (can be distributed at the of the visits by administrative staff or via phone call follow up). Quick evaluation tool would capture patient satisfaction with the service, as well as potential barriers encountered by patients (e.g., transportation, clinic hours, understanding of the services/treatments provided)	No
<b>Limited Clinic Hours</b>	• Expansion of clinic hours to increase accessibility and meet the needs of more patients	No

Table 4. Provider-Identified Barriers to Pain Clinic Referral and Recommendations

The report was subsequently shared with the receiving providers/stakeholders (Pain Clinic medical director and an anesthesiologist). Through a collaborative effort, the decision was made to create a Fast Fact Sheet (Appendix E) which would include the most important information pertaining to the Pain Clinic referral process. The Fast Fact Sheet serves as a quick and simple reference for referring providers. The elements of the Fast Fact Sheet included the clinic's purpose, referral process components, indications, most common procedures, clinic hours, and contact information. The content and form of the FFS was carefully curated based the providers identified during the interviews. Most providers asked for an easily accessible, simple tool that would allow them to appropriately select and effectively refer patients to the Smilow Pain Clinic. The FFS was shared with all Cancer Hospital providers via email and through the internal monthly newsletter called Direct Connect. Additionally, the webpage dedicated to the Smilow Pain Program was updated with the information.

Referral data were monitored following administration of the information for one month (1/28/2020-2/28/2020). Subsequently, referral data from February 2019 were compared to the referral data from February 2020 in order to evaluate whether the intervention had an effect on the referral rate (Table 5).

	<b>February 2019</b>	<b>February 2020</b>
Number of referrals	13	11
Diagnoses	Neuropathy (chronic pain syndrome) (n=1) Liver cancer (n=1) Lymphoma (n=2) Ovarian cancer (n=1) Rectosigmoid cancer (n=1) Cholangiocarcinoma (n=1) Melanoma (n=1) Malignant neoplasm of pancreas (n=1)	Rectal cancer (n=1) Pancreatic cancer (n=2) Uterine cancer (n=1) Lung cancer (n=3) Schwannoma (n=1) Carcinoma of scalp, skin, neck (n=1)



	Epithelioid hemangioendothelioma (n=1) Multiple myeloma (n=1) Cancer of the floor of mouth (n=1)	
Referring providers	Palliative care physicians, surgeons, medical oncologists, APRNs, PAs	Palliative care physicians, surgeons, medical oncologists, APRNs, PAs

*Table 5. Pilot Referral Data Comparison*

It was noted that the referral rate did not change significantly. There were 13 referrals in February 2019 (before the intervention) and 11 referrals in February 2020 (after the intervention). Lack of significant increase in the referral number after the intervention can potentially be related to several factors explained in the Limitations section.

### **Pilot Phase Limitations**

A few limitations to the pilot phase must be noted. Methodology used might have affected the findings. The Fast Fact Sheet was sent to all Cancer Hospital providers; however, it was not possible to identify who viewed the internal newsletter, read the email containing the Fast Fact Sheet, and subsequently used the information to enhance their referral rate. This was a major limitation in the ability to assess the effectiveness of the pilot. Additionally, the referral rate was monitored only for one month in order to stay on track with the DNP project timeline. The allotted short amount of time could have possibly affected providers' learning curve. It is possible that some of the providers who referred infrequently did not have a chance to apply newly learned information, partly because criteria for referral are very specific. Winter weather conditions and flu season could also have impacted the referral rate and patient visits. The Fast Fact Sheet was distributed in January and the referral rate was monitored during the month of February.

### **Additional Steps**

In addition to creating the FFS, further steps were taken to address other findings discussed in the assessment report, such as inadequate education of the referring providers and lack of data sharing and use. The proposed interventions and projects exceed the scope of this DNP project; however, they can be implemented at a future date.

#### **Educational Podcast Series**

Both the literature review and provider interviews highlighted the need for adequate education about the referral process and interventional pain management. Providers emphasized the need for an easily accessible, user-friendly educational program. Based on this feedback, an educational curriculum was created for a course offered through an educational podcast series. The syllabus for the proposed course is included in Appendix F. The course was designed to educate clinicians about the role of interventional pain management modalities in the treatment of cancer pain. Clinicians are provided with information about evidence supporting the use of interventional pain management in cancer pain treatment. As a result, they can gain an understanding of the indications which should be considered when referring patients for these therapies. The referral process to the Cancer Hospital Pain Clinic is thoroughly explained. Patient case studies are presented in order to support educational content. The course also incorporates patient testimonials. The course will be available to all clinicians practicing at YNHH who care for cancer patients and is recommended for all surgical oncology specialists, palliative care providers, as well as advance practice providers and nursing staff caring for the cancer patients. An introductory podcast was recorded and is available online (Anchor.fm, 2020).

### **Data Dashboard**

The second project focuses on data sharing. Currently, the pain clinic does not share information about provided interventions and patient demographics with referring providers. The data dashboard, accessible to all Cancer Hospital providers, could assist with increasing providers' knowledge the referral system and interventional pain management overall. The data dashboard could contain easy to navigate graphs/tables and information about patient demographics, interventions provided, overall utilization, as well as narcotic/pain scores. In cooperation with the Joint Analytics Data Team at North East urban hospital, a proposed data dashboard was developed (Appendix G). This prototype dashboard can be built and further developed based on the needs of the referring and receiving providers. With time, additional features can be added to monitor clinic operations.

### **Discussion**

Synthesis of the literature review, interview and pilot data revealed a consistent theme of the need for education about the referral process and interventional pain management interventions. Table 3 in Chapter 5 which summarized interview data provided strong evidence that referring providers would like to learn more about both referral process as well as interventional pain management therapies. The emerging motivation among providers was noted to use referral system more frequently, to develop stronger collaborative relationships with the team of the Pain Clinic, and to increase patient access to procedures offered by the clinic. These findings are consistent with the themes identified in literature review, where the need for consistent education and improved multidisciplinary collaboration was emphasized in majority of sources.

The time allotted for the pilot was limited to thirty days, which could have potentially affected the referral rate and providers' learning curve. Due to the specific referral criteria providers might not have the opportunity to apply newly learned knowledge and refer patients.

### **Conclusion**

The overall goal of this DNP project was to improve the current referral system of patients to the Pain Clinic, and as a result, to improve access to highly specialized pain management interventions. To achieve this goal, a comprehensive assessment of the current referral system was conducted, retrospective referral data were evaluated, and selected providers (referring and receiving) were interviewed. Subsequently, findings were disseminated to the key stakeholders, and an appropriate intervention to strengthen existing protocol and increase referral rates was chosen and implemented. For the purpose of the pilot, an educational tool Fast Fact Sheet was disseminated among referring providers and the referral rate was monitored for a period of thirty days. Number of referrals did not increase significantly after administration of the intervention. Additional interventions (educational course, data dashboard) were developed to be implemented at later time.

Overall, the project carries significant implications for palliative care patients. An effective referral system is crucial in ensuring access to interventional pain management therapies for these patients; however, due to involvement of providers representing various specialties and their lack of knowledge about interventional pain management and the referral process, the referral rate is not optimized. Further, consistent work is needed to educate providers about the interventional referral process and available interventions. Proposed interventions that maybe helpful include an educational course and a data dashboard. Additionally, this project

revealed the need for steps to improve collaboration between the specialties of palliative care and anesthesia to further advance the referral rate to the clinic.

### Glossary

<b>ASCO</b>	The American Society of Clinical Oncology
<b>APS</b>	Acute Pain Service, inpatient pain service at North East urban hospital
<b>CAMP</b>	Outpatient Center for the Assessment and Management of Pain, outpatient pain service
<b>CRNA</b>	Certified Registered Nurse Anesthetist, advance practice nurses specializing in anesthesia care
<b>General anesthesia</b>	An anesthetic used to induce unconsciousness during surgery. Once the surgery is complete, the anesthesiologist stops the anesthetic and the patient wakes up in the recovery room (XXXX, 2018)
<b>Interventional pain management</b>	Refers to a group of minor or major surgical procedures that can be used to control acute or chronic painful conditions. These include, but are not limited to, trigger point injections, nerve blocks, intravenous infusions, radiofrequency lesioning, botulinum toxin injections, intraspinal analgesics, and spinal or deep brain stimulation techniques. Interventional pain management procedures are often an important component of a comprehensive pain treatment program (Argoff & McLane, 2009)

<b>Local anesthesia</b>	Given to temporarily stop the sense of pain in a particular area of the body. The patient remains conscious during a local anesthetic (XXXX, 2018)
<b>Nerve Block</b>	An anesthetic and/or anti-inflammatory injection targeted toward a certain nerve or group of nerves to treat pain (Radiology Info, 2018)
<b>Neurolytic Block</b>	Injection of chemical agents such as alcohol, phenol, or glycerol to block pain messages and are most often used to treat cancer pain or to block pain in the cranial nerves (Pain Medicine, 2018)
<b>Neuraxial Analgesia</b>	Type of regional anesthesia that involves injection of anesthetic medication in the fatty tissue that surround the nerve roots as they exit the spine (also known as an epidural) or into the cerebrospinal fluid which surrounds the spinal cord (also known as a spinal). This numbs the patient from the abdomen to the toes and often eliminates the need for general anesthesia (Princeton Anesthesia Services, 2018)
<b>PC</b>	Palliative Care
<b>Regional Anesthesia</b>	Used to numb only the portion of the body where the surgery is performed. There are several forms of regional anesthetics, including “epidural,” which is used during labor and childbirth (XXXX, 2018)

**WHO**

World Health Organization



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## Appendix A

<b>INTERVIEW QUESTIONS FOR REFERRING PROVIDERS</b>		
<b>SECTION 1: BACKGROUND CHARACTERISTICS OF FACILITY ORGANIZATION</b>		
<p>I would like to thank you for agreeing to be interviewed about the referral system for the Smilow Pain Clinic. Your answers will help assess the referral system's performance and make recommendations for improving referrals and the continuum of care for the patients.</p> <p>(Responses, including detailed descriptions will be recorded. Questions are open-ended, and there is no limit on the amount of information you can provide.)</p>		
		<b>RESPONSE</b>
1.1	What kind of services do you provide?	
1.2	Who is your target population?	
1.3	Please describe how you know about the services that are offered by Smilow Pain Clinic?	
<b>SECTION 2: CHARACTERISTICS OF THE REFERRAL NETWORK</b>		
	<b>QUESTION</b>	<b>RESPONSE</b>
2.1	<p>Please describe method(s) and processes you use to refer patients.</p> <p>Probe: Do you use any of the following:</p> <ol style="list-style-type: none"> <li>1. EMR (EPIC)</li> <li>2. Verbal</li> <li>3. Telephone</li> <li>4. Issue a standard referral form</li> <li>5. Blank paper to write referral information</li> </ol> <p>Probe: How does this process work for you?</p> <p>Probe: Have you encountered issues related to the referral process (EPIC)?</p> <p>Probe: How do you decide who to refer (who is an appropriate referral and when)?</p>	
2.2	<p>Are you aware if there is an agreed upon, formal process as to how the referral process should look like between referring providers and the receiving service?</p> <p>If so, please describe the agreement.</p> <p>(OBTAIN copy of the agreement)</p>	
2.3	IF THERE IS NO FORMAL AGREEMENT BETWEEN SERVICES:	

	Do you think that this type of agreement would be helpful? IF SO, how or why would it be helpful?	
2.4	Is there an overall agreement/ followed guideline among all providers referring to the clinic or everyone has an individual relationship with the clinic?  IF SO, please describe.	
2.5	IF NO CONSORTIUM EXISTS:  Do you think that this is something that would be helpful?  IF SO, how or why would it be helpful?  SKIP TO SECTION 3  Which providers participate in this consortium?	
2.6	How often do consortium participants meet?  OBTAIN copy of agenda and/or minutes of last consortium or network meeting.  IF NOT AVAILABLE, NOTE WHY.	
2.7	What are the issues discussed in these meetings?	
2.8	Is this type of professional interaction helpful in increasing patient's access to services?  PROBE: How is it helpful?	
<b>SECTION 3: REFERRAL SYSTEM MONITORING</b>		
	<b>QUESTION</b>	<b>RESPONSE</b>
3.1	Please describe who identifies and assesses client needs and makes a referral? 1. Referring doctor 2. Nurse 3. Case manager	
3.2	How does the provider at the receiving service know that a patient has been referred to them?	
3.3	How do you know that a patient has completed the referral?	
3.4	Is there a system to follow up with a patient on referral? IF SO, please explain how.	

3.5	Is there a system in place to measure and record a time lapse between when a referral was made and when a patient reached the receiving Clinic?  IF SO, can you please show me the record?  Is average delay calculated?	
3.6	Who usually follows up with a patient on referral? Describe and specify.	
3.7	Are patients ever referred back to you for follow-up after referral services are received?  IF SO, please explain.	
3.8	Is there a system to inform you that a client has completed the referral?  IF SO, can you please describe this system: 1. Verbal 2. Section of referral form filled out and sent back 3. Other	
3.9	Do you obtain a permission from the client to follow up with Clinic providers? 1. How is it done? 2. Is there a formal release of information?	
<b>SECTION 4: RESPONDENT RECOMMENDATIONS</b>		
<b>QUESTION</b>		<b>RESPONSE</b>
4.1	Do you have any recommendations on how to the referral system could be improved?  IF SO, could you please tell me?  PROBE: Do you have any recommendations on how the monitoring of referrals could be improved?	
4.2	<b>FOR HIGH REFERRING PROVIDERS:</b> Based on the data evaluation, you are one of the top referring providers. What are the factors affecting your referral rates? Have would you rate your knowledge and understanding of the services provided in the clinic?	

	<p>How would you describe the relationship with receiving providers?          What could be possibly improve/enhance your referral rates even more?  <b>FOR LOW REFERRING PROVIDERS:</b>          Are there barriers that are keeping you from referring patients to the clinic?          Are any of the following issues affecting your referral rates?</p> <ul style="list-style-type: none"> <li>◇ Not knowing who the appropriate patient is to be referred</li> <li>◇ Time constraints</li> <li>◇ Referral process</li> <li>◇ Relationship with referring providers</li> </ul> <p>What could be possibly improve/enhance your referral rates?</p>	
4.3	<p><b>How do you view the referral process from the perspective of interdisciplinary collaboration (anesthesia/interventional pain management and palliative care)?</b></p> <p>Probe: Do you think this referral process can bring about a sustainable change in terms of increasing access to care, improving patient outcomes and satisfaction?</p> <p>Probe: How could the collaboration be improved?</p> <p>Probe: Can you identify barriers impeding the collaboration?</p>	
4.4	<p>Do you have any other comments that you would like to make that we have not already covered?</p>	
<p>Thank you very much for your time and cooperation.</p>		

## Appendix B

<b>INTERVIEW QUESTIONS FOR RECEIVING PROVIDERS</b>		
<b>SECTION 1: BACKGROUND CHARACTERISTICS OF FACILITY ORGANIZATION</b>		
<p>I would like to thank you for agreeing to be interviewed about the referral system for the Smilow Pain Clinic. Your answers will help assess the referral system's performance and to make recommendations for improving referrals and the continuum of care to patients.</p> <p>(Responses, including detailed descriptions will be recorded. Questions are open-ended, and there is no limit on the amount of information you can provide.)</p>		
		<b>RESPONSE</b>
1.1	What kind of services do you provide?	
1.2	Who is your target population?	
<b>SECTION 2: CHARACTERISTICS OF THE REFERRAL NETWORK</b>		
	<b>QUESTION</b>	<b>RESPONSE</b>
2.1	<p>What information do you (your clinic) record for patients referred to your clinic?</p> <p>Do you record the following?</p> <ol style="list-style-type: none"> <li>1. Name of the referring provider</li> <li>2. Original diagnosis</li> <li>3. Reason for a referral</li> <li>4. Information about the type of service given to the patient at the original provider</li> <li>5. Date of referral</li> <li>6. Date service was provided</li> <li>7. Date patient referred back to original provider</li> </ol> <p>OBTAIN copy of forms or registers that record incoming referrals.</p>	
2.2	<p>Do you refer patients back to the referring provider? Is there a specific process that serves that purpose?</p> <p>Please describe.</p>	
2.3	<p>Do you contact the originating service directly?</p> <p>IF SO, what information do you provide?</p>	
2.4	<p>Please describe the method and mechanisms that are used for patients referred to you.</p> <p>PROBE: Are any of the following used?</p> <ol style="list-style-type: none"> <li>1. Patient told verbally where to go</li> <li>2. Patient issued a standard referral form</li> </ol>	

	<p>3. Patient given form with written referral information</p> <p>4. Patient is escorted</p> <p>5. Telephone referral to your clinic</p> <p>6. Electronic referral</p> <p>7. Other</p> <p>IF FORMS ARE USED: Do incoming patients bring referral forms always, often, sometimes or never?</p>	
2.5	<p>Please describe what information do you receive from the referring providers about patients referred to you.</p> <p>1. Name of the referring provider</p> <p>2. Diagnosis</p> <p>3. Reason for referral</p> <p>4. Date of referral</p> <p>5. Instructions on how to follow up with referring provider</p>	
2.6	What do you think about these referral methods?	
<b>SECTION 3: REFERRAL SYSTEM PROCESSES</b>		
	<b>QUESTION</b>	<b>PURPOSE</b>
3.1	<p>Are there documented referral protocols or guidelines for sending patients to the Smilow Pain Clinic?</p> <p>OBTAIN a copy of referral protocols.</p>	
3.2	<p>IF REFERRAL GUIDELINES EXIST: Are these guidelines specific? Please describe.</p>	
3.3	<p>Has there been training of providers on referral protocols?</p> <p>IF SO, please describe the training: What did it cover? When did it occur? Who participated in the training? Was it effective? Has there been follow-up or refresher training?</p> <p>OBTAIN any documentation from this training that's available.</p>	
3.4	<p>Is there any mechanism to ensure the accuracy of recorded information on referral initiation and completion?</p> <p>IF NO, SKIP TO 3.7</p>	
3.5	Can you describe the process of ensuring quality of the data gathered on referrals?	

	<p>PROBE: Are any of the following used?</p> <ol style="list-style-type: none"> <li>1. Regular supervision</li> <li>2. Periodic audits</li> <li>3. Other mechanism</li> </ol> <p>PROMPT FOR DETAILED DESCRIPTION.</p> <p>OBTAIN documents related to data quality checks (reports, feedback, checklists).</p>	
3.6	When was the last time a data quality check was undertaken?	
3.7	Have any actions or improvements followed from data quality checks of referral information?	
3.8	<p>Did you calculate a referral rate and/or referral compliance rate?</p> <p>IF SO, how often? Where is it recorded? Who is it reported to?</p>	
3.9	<p>Is referral data reported to anyone in your organization or elsewhere?</p> <p>IF SO, describe what information is reported Who receives the information? How often do they receive it?</p> <p>OBTAIN copy of reporting forms and report where referral data are presented.</p>	
3.10	<p>Do you think data on referrals would be helpful to providers and program managers?</p> <p>Why or why not?</p>	
3.11	<p>Are the data on referrals ever discussed?</p> <p>How often? By whom?</p>	
3.12	<p>What is the content of these discussions?</p> <p>Were any programmatic or clinical changes made based on these discussions?</p>	
3.13	<p>Has the referral system ever been evaluated?</p> <p>IF SO, when was the last time? Who evaluated the system?</p>	
3.14	<p>Have you ever seen a copy of the evaluation report?</p> <p>IF NOT, were you informed of the evaluation results? Please describe how you were informed.</p>	

3.15	Is the name of a patient or other identifying information recorded in any reports about a referral?  IF SO, what other information, besides name is recorded?	
3.16	Is there a system to record referral outcomes for the patients' who were referred to the Smilow Pain Clinic?	
3.17	Do you regularly ask patients what they think about the referral process? 1. Was it what they wanted? 2. Did it address their concerns such as pain management? 3. Is it feasible – cost, transport hours?	
3.18	Is there a standard way to assess patients' satisfaction with the referral process?  IF SO, OBTAIN. Copy of the questionnaire or form.	
3.19	On the basis of your opinion or survey results, what would be the main reasons for patient dissatisfaction with the referral process?  PROBE: Any other reasons patients may not be satisfied?	
3.20	What are the barriers that prevent patients from completing the referral process?  PROBE: Any other barriers?	
<b>SECTION 4: RESPONDENT RECOMMENDATIONS</b>		
	<b>QUESTION</b>	<b>RESPONSE</b>
4.1	Do you have any recommendations on how to the referral system could be improved?  IF SO, could you please tell me?  PROBE: Do you have other suggestions?	
4.2	Do you have any recommendations on how the monitoring of referrals could be improved?  IF SO, could you please tell me?  PROBE: Do you have other suggestions?	
4.3	Do you have any other comments that you would like to make that we have not already covered?	
Thank you very much for you time and cooperation.		



## Appendix C

## Letter Confirming Permission to Conduct Quality Initiative Project

**TO:** Ewelina Gibek, MSN, CRNA, APRN

**FROM:** [REDACTED], RN, FAHA, Scientific Review Sub-Committee Chair  
(On behalf of the Nursing Research and Evidence-Based Practice Committee)

**DATE:** 2/13/2019

**RE:** Increasing Access to Interventional Pain Management Therapies for Palliative Care Patients with Cancer through Referral System Improvement

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Thank you for your Quality Improvement (QI) Application.

On behalf of the Scientific Review Sub-Committee of the [REDACTED] Nursing Research and Evidence-Based Practice Committee, your QI project has been reviewed and endorsed.

After committee review, the main purpose of the project was determined to improve the quality of care. Given the nature of the project, it is not seeking to generalize knowledge, generate new knowledge, or create a scientific inquiry. The project is not considered human subjects research. Your application has been entered into the [REDACTED] Office of Privacy and Corporate Compliance database. Your approval will expire in 12 months from the date of this letter.

Please note my edits in red under the purpose to validate the intent of the project as QI.

Please remember to inform me [REDACTED] when you begin work on your project and conclude work at [REDACTED]. We also ask for an abstract upon completion of the project.

Please let us know if you have any questions.

CC:  
File  
Student Faculty  
Student Preceptor

## Appendix D

<b>Yale University School of Nursing Doctor of Nursing Practice Program N998 Leadership Project Immersion Placement Form</b>	
<b>Prerequisites</b>	All required theoretical core courses and project courses
<b>Proposal Title</b>	Increasing Access to Interventional Pain Management Therapies for Palliative Patients with Cancer through Referral System Improvement
<b>Immersion Placement site</b>	XXXX XXX XXXXX XXXXXXXXX
<b>On-site Mentor</b>	Dr. Dena Schulman-Green
<b>Email</b>	Dena.schulman-green@yale.edu
<b>Phone number</b>	
<b>Brief description of Immersion</b>	<ol style="list-style-type: none"> <li>1. FFS shared with Cancer Hospital providers 1/24/2020</li> <li>2. Pilot of the improved referral system 1/28/2020-2/28/2020</li> <li>3. Evaluation of the effectiveness of the referral system (data collection, analysis) 3/1/2020-3/30/2020</li> <li>4. Submission of the final project write-up 3/30/2020</li> <li>5. Oral presentation 4/30/2020</li> </ol>
<b>Dates of the Immersion</b>	9/1/2019-4/30/2020
<b>Student Objectives for Immersion</b>	Implementation of the improved referral system Evaluation of the intervention
<b>Contract required</b>	no

Appendix E

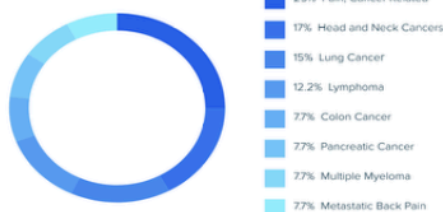
## HOSPITAL PAIN CLINIC *fast fact sheet*

**MISSION**  
*Treatment of cancer-related pain through interventional pain management therapies and approaches*

**WHO SHOULD BE REFERRED?**  
 Established Smilow Hospital patient with:

- Cancer related/cancer associated pain
- Pain as a result of cancer treatment (surgical, chemotherapy, radiation, biological)
- Non-cancer related pain (patient has cancer diagnosis)

**MOST COMMON CANCER DIAGNOSES**



- 25% Pain, Cancer Related
- 17% Head and Neck Cancers
- 15% Lung Cancer
- 12.2% Lymphoma
- 7.7% Colon Cancer
- 7.7% Pancreatic Cancer
- 7.7% Multiple Myeloma
- 7.7% Metastatic Back Pain

**WHAT IS THE REFERRAL PROCESS?**

- EPIC
- PHONE CALL
- WALK-OVER

- PATIENT SCREEN
- APPOINTMENT SET-UP

- PATIENT VISIT
- POSSIBLE INTERVENTION

- APPOINTMENT NOTES PLACED IN EPIC

➔

INDICATIONS	INTERVENTIONS
Myofascial Pain	Trigger Point Injections
Facial Pain	Trigeminal Nerve Block
Headache	<ul style="list-style-type: none"> <li>• Botox (Migraines)</li> <li>• Occipital Block (Occipital Neuralgia)</li> </ul>
Thoracic Cage and/or Rib Pain	<ul style="list-style-type: none"> <li>• Erector Spinae Plane Block</li> <li>• Intercostal Nerve Block</li> <li>• Paravertebral Nerve Block</li> </ul>
Abdominal Pain (upper: pancreatic, gastric, etc.)	Celiac Plexus Block
Abdominal Pain (lower: pelvic region)	Superior Hypogastric Block
Perineal Pain	Ganglion Impar Block
Coccydynia and/or Genital Pain	Genitofemoral Nerve Block
Neuropathic Pain	<ul style="list-style-type: none"> <li>• Spinal Cord Stimulator</li> <li>• Dorsal Root Ganglion Stimulator</li> </ul>
Joint Pain	Intraarticular Injections
Bursitis	Bursa Injections
Sacroiliac Pain	Sacroiliac Injections
Denervation	Chemodenervation and thermal denervation of various regions (celiac plexus, lumbar facet, sacroiliac joint, knee, hip, etc.)
Opioid Intolerance due to Side Effects, but with Benefit from opiate analgesics	Intrathecal Pump Trial and Potential Intrathecal Pump Implant

CONTACT INFORMATION: (203) 200 4673

HOURS OF OPERATIONS: EVERY TUESDAY 8-4

## Appendix F

## Interventional Pain Management in the Treatment of Cancer Pain Syllabus

XXXX XXX XXXXX XXXXXXXXX

**Smilow Cancer Hospital****Interventional Pain Management in the Treatment of Cancer Pain**

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**Course Description**

This course is designed to educate clinicians about the role of the interventional pain management (IPM) modalities in the treatment of cancer pain. Clinicians will be provided with information about evidence supporting the use of IPM in cancer pain treatment. As a result, they will gain an understanding of the indications which should be considered when referring patients for IPM therapies. The referral process to the Smilow Cancer Hospital Pain Clinic will be thoroughly explained. Additionally, examples of the patient case studies will be presented to support educational content. The course will also incorporate patient testimonials. This course is open to all clinicians practicing at Yale New Haven Hospital who care for cancer patients. The course is recommended for all surgical oncology specialists, palliative care providers, advance practice providers, and nursing staff caring for the cancer patients. (1.5 hour)

**Course Objectives**

At the completion of the course, the clinician will be able to:

1. Verbalize an understanding of the evidence pertaining to IPM
2. Articulate the steps of the referral process to the Cancer Hospital Pain Clinic
3. Demonstrate knowledge of indications of the referral
4. Utilize the information provided in the educational program to appropriately refer patients to the Cancer Hospital Pain Clinic

**Teaching Methods**

Series of Podcasts

**Course Instructors**

Ewelina Gibek, MSN, CRNA, APRN

Staff Certified Registered Nurse Anesthetist

XXXX XXX XXXXX XXXXXXXXX, Perioperative Services

[Ewelina.Gibek@xxxx.org](mailto:Ewelina.Gibek@xxxx.org), 203-253-1187

XXXXXX XXXX, MD

Attending Anesthesiologist, Board Certified Pain Physician

Smilow Cancer Hospital Pain Clinic

XXXX XXX XXXXX XXXXXXXXX, Department of Anesthesiology

**Course Time**

TBD 2020 (links to the podcast series will be sent to participants)

**Evaluation****Of the Participants**

Learning objectives have been identified for each podcast. Course participants will receive an email with a podcast-specific evaluation link once a podcast link is activated. Retrospective Pre-Post Evaluation Design will be used as an evaluation method. Below is an example of objectives and evaluation for the Podcast #1.

Following listening to Podcast #1 “INTRODUCTION”, the provider will be able to:

1. Describe the purpose of the Cancer Hospital Pain Clinic
2. Discuss evidence supporting the use of interventional pain management therapies in cancer-related pain
3. List the types of treatment modalities available at the Pain Clinic
4. State the possible side effects of interventions performed at the Pain Clinic

**Evaluation:**

For each of the topics listed below, please check the box under the number that indicates your level of knowledge both before and after listening to the series of podcasts:

1 = **NONE** - have no knowledge of the content

2 = **LOW** – know very little about the content

3 = **MODERATE** – have basic knowledge; there is more to learn

4 = **HIGH** – consider myself very knowledgeable

How do you rate your knowledge about the following topics?	Knowledge <b><u>BEFORE</u></b> the course				Knowledge <b><u>AFTER</u></b> the course			
	1	2	3	4	1	2	3	4
<b>Purpose of the Smilow Cancer Hospital Pain Clinic</b>								
<b>Evidence Supporting Use of IPM in cancer care</b>								
<b>Treatment modalities</b>								

Side effects								
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### **Of the Course Instructors**

An anonymous course evaluation form is to be completed for the course and instructors at the end of the course.

### **Grading Criteria**

This is a non-graded course.

### **Syllabus changes**

Course instructors reserve the right to amend the syllabus during the course.

### **Recommended Readings and Resources**

All recommended materials will be accessible via Yale University Medical Library website. Link to the references will be provided via email.

Aslakson, R., Brookman, J.C., Smith, T. J. (2013). When should nerve blocks be used for pain management? In: Goldstein, N.E., Morrison, R.S. *Evidence-Based Practice of Palliative Medicine*. (pp. 99-102). Philadelphia, PA: Saunders.

Argoff, C. E., & McCleane, G. (2009). Chapter 46 - interventional pain management. In C. E. Argoff & G. McCleane (Eds.), *Pain Management Secrets (third edition)* (pp. 357-363). Philadelphia: Mosby.

Boys, L., Peat, S. J., Hanna, M. H., & Burn, K. (1993). Audit of neural blockade for palliative care patients in an acute unit. *Palliative Medicine*, 7, 205-211. doi: 10.1177/026921639300700307

Brankline, A. L., Coyle, C. M., Jencks, K. A., Mullegama, A., & O'Brien, M. W. (2009). Practical innovations: Technology-assisted referrals. *Social Work in Health Care*, 48, 768-776. doi: 10.1080/00981380902958213

Christo, P. J., & Mazloomdoost, D. (2008). Interventional pain treatments for cancer pain. *Annals of the New York Academy of Science*, 1138, 299-328. doi: 10.1196/annals.1414.034

- Coyne, P. J. (2003). When the World Health Organization analgesic therapies ladder fails: The role of invasive analgesic therapies. *Oncology Nursing Forum*, 30, 777-783. Retrieved from Scopus.
- D'Amour, D., Ferrada-Videla, M., San Martin Rodriguez, L., & Beaulieu, M. D. (2005). The conceptual basis for interprofessional collaboration: Core concepts and theoretical frameworks. *Journal of Interprofessional Care*, 19 Supplements\ 1, 116-131. doi: 10.1080/13561820500082529
- de Courcy, J. G. (2011). Interventional techniques for cancer pain management. *Clinical Oncology*, 23, 407-417. doi: 10.1016/j.clon.2011.04.003
- Kim, P. S. (2005). Interventional cancer pain therapies. *Seminars in Oncology*, 32, 194-199. Retrieved from Scopus.
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- Mercadante, S., Catala, E., Arcuri, E., & Casuccio, A. (2003). Celiac plexus block for pancreatic cancer pain: Factors influencing pain, symptoms and quality of life. *Journal of Pain and Symptom Management*, 26, 1140-1147. doi: 10.1016/j.jpainsymman.2003.04.004
- Moeschler, S. M., Rosenberg, C., Trainor, D., Rho, R. H., & Mauck, W. D. (2014). Interventional modalities to treat cancer-related pain. *Hospital practice (1995)*, 42, 14-23. doi: 10.3810/hp.2014.12.1155

**XXXX XXX XXXXX XXXXXXXXX**  
**Interventional Pain Management in the Treatment of Cancer Pain**  
**Course Content**  
**January 2020**

- **Podcast #1: INTRODUCTION (5 min)**

This podcast will describe the general purpose of the Cancer Hospital Pain Clinic, discuss the evidence supporting the use of interventional pain management therapies in cancer-related pain, side effects, and types of modalities.

- **Podcast #2: DEEP DIVE INTO THE EVIDENCE (30 min)**

This podcast will focus on the discussion of specific themes identified through literature review:

1. Inadequate cancer pain management from the perspective of World Health Organization analgesic ladder.
2. Interventional pain management therapies as emerging complementary methods of cancer pain relief
3. Barriers to the use of interventional pain therapies in the treatment of cancer pain
4. Randomized trials controversy
5. Justification for the interdisciplinary approach
6. Referral systems as crucial component in an effective cancer pain management

- **Podcast #3: CASE STUDY: PATIENT WITH PANCREATIC CANCER (10 min)**

This podcast will discuss case study of a patient with pancreatic cancer. Case study will include description of:

1. Background information
2. Interventional pain management treatment modality that was used
3. Supporting evidence
4. Patient outcome

- **Podcast #4: CASE STUDY: PATIENT WITH NEUROPATHIC PAIN (10 min)**

This podcast will discuss case study of a patient with neuroblastoma. Case study will include description of:

1. Background information
2. Interventional pain management treatment modality that was used
3. Supporting evidence
4. Patient outcome

- **Podcast #5: PATIENT TESTIMONIAL (5 min)**

This podcast will be a recording of an interview with a patient of the clinic. Patient will share his personal story and describe his experience of benefitting from interventional pain management therapies. The testimonial will solidify the treatment offered.



- **Podcast #6: PATIENT TESTIMONIAL (5 min)**

This podcast will be a recording of an interview with a patient of the clinic. Patient will share her personal story and describe her experience of benefitting from interventional pain management therapies. The testimonial will solidify the treatment offered.

- **Podcast #7: INTERVENTIONAL PAIN MANAGEMENT AND POLICY IMPLICATIONS (15 min)**

This podcast will describe the role of interventional pain management in cancer care as the country is facing opioid crises. Policy implications will be discussed from the perspective of the recently introduced bills, such as:

1. H.R.6 (Support for Patients and Communities Act)
2. Prescription Drug Monitoring Programs (PDMP)
3. HHS-5 Point Strategy (U.S. Department of Health & Human Services 5-Point Strategy to Combat the Opioid Crisis)

- **Podcast #8: REFERRAL PROCESS TO THE SMILOW PAIN CLINIC (10 min)**

This podcast will discuss the steps of the referral process to the clinic as well as the resources available for the clinicians to help with the process.

Appendix G

