THE BARRIERS TO QUALITY PAIN MANAGEMENT
IN THE POSTOPERATIVE PATIENT

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# TABLE OF CONTENTS

Table of Contents…………………………………………………………………………..i

Abstract………………………………………………………………………………………..iii

Chapter I……………………………………………………………………………………….1

Introduction…………………………………………………………………………………..1

  Background and Significance……………………………………………………………..1

  Problem……………………………………………………………………………………..4

  Purpose……………………………………………………………………………………..4

  Research Question………………………………………………………………………4

  Conceptual Framework…………………………………………………………………5

  Definitions of Terms………………………………………………………………………5

    Quality Health Care……………………………………………………………………5

    Desired Health Outcomes……………………………………………………………5

  Quality Indicators………………………………………………………………………5

    Process…………………………………………………………………………………5

    Outcomes………………………………………………………………………………6

  Limitations………………………………………………………………………………..6

  Assumptions………………………………………………………………………………6

  Summary…………………………………………………………………………………..6

Chapter II……………………………………………………………………………………8

Literature Review……………………………………………………………………………8

Introduction…………………………………………………………………………………8

Organization of the Literature……………………………………………………………8
Chapter I
Introduction and Background

Introduction

The latest statistics from the Centers for Disease Control (CDC) indicate that in 2006 there were 46 million surgical procedures performed in the United States alone. (CDC, 2010). There is estimation that 50-75% of postoperative patients do not receive adequate pain relief (Bell & Duffy, 2009). Surgical procedures typically produce a certain amount of postoperative pain. The importance of managing this pain has become a major issue and has produced many studies. Pain management has more implications than just reducing the pain level but in doing so also preventing postoperative complications. Inability to effectively manage pain can lead to poor outcomes, such as decreased mobility, impaired respirations, longer hospital stays, and deep vein thrombosis (Richards & Hubbert, 2007). Furthermore, the inability to manage a child’s’ pain can lead to serious physiological trauma (Simons & Roberson, 2002).

Background and Significance

Pain management has been a focus for many years but in 2001 it became a focus of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). The involvement of JCAHO has elevated the need to find a clear definition of quality
indicators and measurement techniques for pain management. There have been inconsistent and incomplete measures of quality for pain management prior to the involvement of JCAHO. (Joint Commission, 2001) A study was done in 2002 by Gordon, to review the quality improvement monitoring of pain management and recommend standardized outcome measures. It was determined through this study that the measurement of practice patterns as well as patient outcomes is vital to quality pain management.

Multiple studies have been completed in the area of pain even with the identification of barriers; the practice of managing pain remains inconsistent. Studies have tried to identify many aspects of managing pain from the types of pharmacologic management of postoperative pain, perception of pain and methods of pain assessment.

There are many analgesics available today to manage pain, but many of the narcotics can produce barriers to the recovery time and create complications such as decreased respiratory rates and sedation. Non-steroidal anti-inflammatory drugs (NSAIDS) can also be used to manage pain but are often contraindicated for use due to the gastrointestinal (GI), coagulation and renal side-effects (Chen, Elliott, & Ashcroft, 2004). Cox-2 inhibitors have shown that they are more effective than opioid analgesics and are as effective as some NSAIDS. It is necessary to do more research on the Cox-2 inhibitors to evaluate the safety and efficacy in longer term use.

The combination of gabapentin and paracetamol has also been studied to provide another alternative to opioids for pain management. Studies have shown that using gabapentin or gabapentin and paracetamol preoperatively as well as postoperatively has
shown to reduce postoperative pain and increase patient satisfaction (Durmus, But, Saricicek, Toprak, & Ersoy, 2007).

The benefits of pain management in using intrathecal injections rather than general anesthesia have also been studied. It was found that the patients who had the intrathecal injections had better outcomes. They were able to ambulate earlier and for longer distances and rated their pain at lower levels (Napier & Bass, 2007).

The use of medications for infants was also studied. Ketorolac was studied to show if it was safe and effective in infants post cardiothoracic surgery. The study showed that there were no renal or haematologic complications in this group, but more studies are necessary for larger populations (Dawkins, Barclay, Gardiner, & Krawczeski, 2009).

Another significant finding in assessing the management of pain is that of the perceptions of those involved. In dealing with children postoperatively, it is important to understand pain from the child’s’ perspective and their age level. It is also equally important to understand and value the parents input when recognizing the behavior cues that their child might be experiencing pain. In a study by Simons & Roberson (2002), several barriers were identified when providing pain management to postoperative children. These barriers included not understanding the age level or behavior cues of the child, lack of open communication between the nurses and the parents and inconsistency in administering analgesics (Simons & Roberson, 2002). A study by Twycross (2008) also showed that nurses stated what the proper methods should be in assessing and managing postoperative pain but this did not cross over into practice.

While there is a special need to identify and act upon children who are experiencing postoperative pain, there is just as great a need for those patients who have
dementia or who are otherwise cognitively impaired. In one study it was identified that 67% of caretakers felt that nursing staff could not identify when the cognitively impaired patient was in pain (Buffum & Haberfelde, 2007). Nurses need to look for behavior cues in this population and also gain insight from the caregiver to determine if the patient is or may be experiencing pain.

Nurses must also make sure when assessing for pain that they have a clear understanding of what tool to rate pain would be most effective and understood by the patient. Three pain scales were tested for reliability and validity in elder Chinese patients. The scales had all shown reliability and validity in other populations but not in this one. Understanding the tools that are used in regards to different cultures is an important part of providing culturally sensitive nursing care. The Numeric Rating Scale (NRS), the Iowa Pain Thermometer (IPT) and the Faces Pain Scale Revised (FPS-R) were all tested in the Chinese elder population. All three scales were found to be reliable and the difference between the uses of them was due to personal preference. The IPT was the most preferred scale among this group (Li, Herr, & Chen, 2009).

**Problem**

Despite all of the research on managing postoperative pain, there is still inconsistency and inadequacy with its management (Gunningberg & Idvall, 2007). Additional research is necessary to identify factors that contribute to less than optimal pain management for this group of patients.

**Purpose**

The purpose of the study is to explore and compare patient and nurse perceptions of factors that affect quality of pain management.
Research Questions

1. What are patient and nurse perceptions of quality pain management?
2. How do patient and nurse perceptions compare regarding quality pain management?

Conceptual Framework

This study utilizes a conceptual framework. The main concepts for the study include: quality health care, quality measures, health care outcomes, and quality of pain management. Focus on pain management outcomes related to pharmacologic management of postoperative pain, perception of pain and methods of pain assessment will be studied. Process of pain management as well as outcomes in each area will be identified. Assessment and treatment will be included within the process. There are six indicators that are viewed for the process and outcomes together.

Definition of Terms

Quality Health Care.-- “degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge” (Gordon, et al., 2002)

Desired Health Outcomes. “the health outcomes that patients’ desire” (Gordon, et al., 2002)

Quality Indicators. (Gordon et al., 2002)

Process.

- Intensity of pain is documented with a numeric or descriptive rating scale
- Pain intensity is documented at frequent intervals
• Pain is treated by a route other than intramuscular (IM)

• Pain is treated with regularly administered analgesics and when possible a multimodal approach is used

Outcomes.

• Pain is prevented and controlled to a degree that facilitates function and quality of life

• Patients are adequately informed and knowledgeable about pain management

Limitations

Study limitations include the same purposive sample size, varied surgical procedures, various surgeons, and pain management orders.

Assumptions

Assumptions are that intensity of pain is documented with a numeric or descriptive rating scale, pain intensity is documented at frequent intervals, pain is treated by a route other than the intramuscular route, pain is treated with regularly administered analgesics, pain is prevented and controlled to a degree that facilitates function and quality of life and patients are adequately informed and knowledgeable about pain management (Gunningberg & Idvall, 2007).

Summary

Efforts to provide appropriate and quality postoperative pain management need to continue in order to attain desired outcomes for patients, healthcare providers and hospitals. The effective management of pain will likely reduce the incidence of postoperative complications and improve patient satisfaction. It is important to explore
perceptions of patients and nurses to identify the factors that affect quality pain management. If they are not, then there will continue to be inconsistent, inadequate pain management and poor outcomes.
Introduction

Adequate pain management is a major focus in the care of hospitalized patients in the U.S. in early part of the twenty-first century. There are many barriers to providing adequate pain management to the post-operative patient. These barriers range from type and dosage of medications, nurse perceptions, patient/family perceptions, pain assessment methods, and non-use of pain management standards. The ability to identify and act upon these barriers can lead to better pain management for pain experienced by post-operative patients.

Organization of the Literature

The literature will be divided into three sections. The first section is pharmacologic management of pain. The second section is perception of pain management. The third section is pain assessment methods.

Pharmacologic Management of Postoperative Pain

Chen, et al. (2004) completed a systematic review to determine the analgesic efficacy and tolerability of COX-2 inhibitors in postoperative pain control. Providing the right medication or the right combination of medications to control post-operative pain can be challenging. The types of medications that are available to aid in providing pain
relief are many. The review used a conceptual framework with the concepts of pain, surgery, postoperative pain, analgesic and trials, clinical trials and double blind (Chen et al., 2004).

The studies for this review were found using a computerized search and the Cochrane Library Database. The search was for each COX-2 that is licensed not only in the US but also in the UK. The criteria that were needed for the studies were full journal publications, double-blind designs; randomized-controlled trials (RCTs) and the patients had to have been over the age of fifteen. It was also important that the outcomes had to have had baseline postoperative pain of moderate to severe using standardized pain intensity measures. Each of the studies in the meta-analysis were done on adult patients that had established moderate to severe postoperative pain where placebo controls were also used these criteria helped to confirm internal validity. Standardized pain relief scores and pain intensity measurements for outcomes were all taken for more than 6 hours (Chen et al., 2004).

Reporting of pain in the studies reviewed was done in various ways which included: five-point pain scale, four-point pain intensity scale or a standard visual analog scale (VAS). These methods provided total pain relief (TOPAR) and/or the summed pain intensity difference (SPID). There were a total of fifty-six original articles and three systematic reviews. Out of these only 18 met all criteria necessary and were included in the review. All of these met the criteria outcomes and were all randomized, double-blind parallel-group studies. They each were also active and placebo-controlled designs. The areas that were included were dental (n=13), gynaecological (n=2) and orthopaedic (n=3) (Chen et al., 2004).
Eight of the dental surgery trials reported TOPAR or SPID values over six hours. These studies showed that the effect after six hours for those reaching 50% pain relief was more effective than placebo. When comparing the COX-2 to other active comparative medications the analgesic effect of rofecoxib 50 mg and valdecoxib 40 mg was significantly higher to codeine/paracetamol. Celecoxib 200 mg, however, was less effective than ibuprofen 400 mg (Chen et al., 2004).

Orthopaedic surgeries compared rofecoxib vs. placebo and naproxen sodium. In the trials the results for six hour post medication, showed that rofecoxib 50 mg was more effective than the placebo but there was not a significant difference between the rofecoxib and the naproxen sodium (Chen et al., 2004).

Gynaecologic surgeries compared the parecoxib 20 to 40 mg versus placebo and morphine and ketorolac. The parecoxib 40 mg injection showed significantly more effectiveness than the placebo and also the morphine. There was no difference between the analgesic effect of the parecoxib and the ketorolac (Chen et al., 2004).

Overall there were fewer reports of adverse effects in the COX-2 medications than in the other placebo or comparative medications. The analgesic efficacy of the COX-2 inhibitors provided more relief with less side effects in all the trials. The most significant exception was of the celecoxib which was less effective than ibuprofen. This study was limited in the amount of information that could be obtained. There were only three main areas that studies have been done on; dental, orthopaedic, and gynaecologic surgeries. More studies are needed to test the head to head comparison of the COX-2 inhibitors as well as their adverse events and analgesic benefits in comparison to the higher costs (Chen et al., 2004).
It is important for nurses to understand the medications that a patient receives preoperatively as well as postoperatively. This understanding will help them care for the patient and more fully understand their needs in regard to pain medications. In a study by Durmus, But, Saricicek, Toprak, and Ersoy (2007) the analgesic effects of certain medications that were given preoperatively had an effect on the pain the patients endured postoperatively. The purpose of their study was to compare the effects of a combination of gabapentin (neurontin) and paracetamol (known as acetaminophen or Tylenol) with gabapentin alone and placebo on acute post-operative pain and morphine consumption in a group of women undergoing total elective abdominal hysterectomy.

Criteria for study participants were an ASA physical status I-II. All participants had to be able to use a patient-controlled analgesia (PCA) device. The participants could not have any history of cardiovascular, respiratory, renal or hepatic disease, nor could they have any psychiatric disorders, asthma, chronic pain or substance abuse. Any patient who was on opioids on a regular basis or any other drug that had analgesic effects within the 24 hours prior to surgery was also excluded from the study (Durmus et al., 2007).

The final sample for the study included 75 participants ages 18 and above, who were going to have an elective total abdominal hysterectomy. The 75 study participants were divided equally into three groups preoperatively with Group I (n = 25) using placebo, Group II (n = 25) with gabapentin and Group III (n = 25) using both gabapentin and paracetamol in combination (Durmus et al., 2007). The total amount of morphine consumed in 24 hours postoperatively was compared among the three groups (Durmus et al., 2007).
All study participants received identical induction and anesthesia agents based on body weight. Fifteen minutes prior to the estimated completion of surgery, each participant received Morphine 5 mg over 30 minutes. The PCA device was set to deliver 2 mg of morphine with a lock-out of 15 minutes and a 4 hour limit of 35 mg. If analgesia was perceived to be inadequate at any time, the lock-out was shortened to 5 minutes (Durmus et al., 2007).

In order to further compare the three treatment modalities of placebo, gabapentin alone and gabapentin with paracetamol combination, other data were collected beyond morphine consumption. Additional data included visual analogue scale pain scores (VAS-PI), HR, mean arterial blood pressure (MAP), pulse oximeter oxygen saturation (SpO2), respiratory rate (RR), sedation levels, medication side effects, and patient satisfaction with pain control at 1, 2, 4, 6, and 24 hours postoperatively. PCA was discontinued when RR was below 12 breaths per minute or SpO2 was below 95%. If nausea and vomiting occurred, 10 mg of metoclopramide was administered intravenously (Durmus et al., 2007).

Perception of pain intensity was assessed using a visual analogue scale (VAS-PI) during rest and at movement where zero was no pain and ten was the worst pain imaginable. Sedation was assessed using the Ramsay sedation scale. Patient dissatisfaction with pain control was assessed on a four-point scale as 1 = very satisfied, 2 = satisfied, 3 = neutral, and 4 = dissatisfied. Statistical analysis was completed using statistics appropriate for comparisons and correlations of data between and among the three groups. Statistical significance was established with p values of < 0.05 (Durmus et al., 2007).
The results of this study showed that there was not a statistical difference in any of the groups in regards to postoperative mean arterial pressure (MAP), heart rate (HR) or respiratory rate (RR). During all of the evaluation times the analysis showed significantly more morphine was consumed in Group 1 (placebo) when compared to Groups II (gabapentin alone) and III (gabapentin with paracetamol), but more in Group II then in Group III with a p value of < 0.05 (Durmus et al., 2007).

The study also showed that the VAS-PI scores at rest and upon movement was higher in Group I. Between Groups II and III, Group II showed higher VAS-PI scores at 1 to 4 hours postoperatively. Sedation scores were lower in Group I until 4 hours postoperatively, however, they were higher at 24 hours. At all levels the patient dissatisfaction scores in Group I were higher than the other two groups and Group II was higher than Group III in the initial 6 hours (Durmus et al., 2007).

This study did not find any significant difference between the groups in side effects. Symptoms of nausea and vomiting were lower in Group II and Group III but it was not significantly different. The overall results showed that the gabapentin or gabapentin and paracetamol combination does provide sufficient analgesia and reduces the opioid requirement as well as increases the satisfaction of the patient when given preoperatively. The use of neuropathic pathway drugs in combination with morphine may have good efficacy. It would be necessary to complete further studies to determine if continued doses of neuropathic analgesics postoperatively could even further decrease the need for opioids (Durmus et al., 2007).

Pain control after surgery is important as it affects the patients’ ability to rehabilitate. The sooner rehabilitation can occur the better the outcomes. Good pain
management can lead to early rehabilitation, decreased length of hospital stays and fewer postoperative complications. Napier and Bass (2007) completed a study to determine if intrathecal injection was more beneficial than general anesthesia in the total knee replacement patient. The theoretical framework for this study was based on McCaffery and Pasero which labeled pain as the fifth vital sign. McCaffery and Pasero proposed that unrelieved pain can lead to longer hospital stays and more postoperative complications (Napier & Bass, 2007).

Napier and Bass’ study was a retrospective chart review. They utilized a two-group comparative design. The type of anesthesia was the independent variable. The setting for their review was in the Riverside Methodist Hospital (RHM). They had a random sample of adult patients that had knee replacement performed by the same surgeon. It was determined that the study would need at least a minimum of 62 subjects. However, there were actually 85 patient records that were included in the review. Forty-four patients had received the General Anesthesia (GA) and forty-one the Intrathecal Injection (IJ). The GA group had a 48% female inclusion and the mean age was 63.5, while the IJ group had a 66% female inclusion and the mean age was 69.8. The demographics were obtained from the medical record. They also looked at the time in the PACU (post anesthesia care unit) and the length of stay (Napier & Bass, 2007).

Tools used in the study were the Visual Analog Scale with a number 0 to 10 attached. The pain measurements were taken at arrival to the unit from PACU and 12, 18, 36 and 48 hours. Distance of ambulation was taken for the first three sessions. A linear mixed effects model in R Version 1.9.1 was used to analyze trends in pain scores between the two groups. This model allowed for examination of pain and distance
measurements. The categorical data was compared using Fisher’s Exact Test. A t test and the Wilcoxon rank sum test for normally distributed data was used to compare the PACU and hospital length of stays between the two groups (Napier & Bass, 2007).

The findings of the study are important to nursing because the patients who are more alert, responsive and have less pain upon arrival to the unit can begin their rehabilitation sooner and the nurses can start their education earlier. This ability will allow the nurse to structure time to provide the necessary teaching rather than having to provide pain medication. This study showed that ambulatory distances, and pain management was better in the IJ group than in the GA group. The distance in feet for the first two sessions were 12.6 and 32.2 for the GA group whereas, the IJ group ambulated 28.3 and 45.7 feet respectively for the first two sessions. Pain levels for the two groups were compared at PACU discharge, 12, 18, 36 and 48 hours. The results for the GA group were 3.1, 5.0, 3.9, 3.8 and 3.3 while the IJ group results were 0.1, 0.2, 1.4, 1.3 and 2.4 respectively (Napier & Bass, 2007).

The authors state that further study is needed to evaluate the preoperative functional status of the participants and also to determine how best to transition the IJ patients to oral analgesics. There is also need to study the postoperative nausea and vomiting. This study was successful in showing that Intrathecal Injection has benefits over General Anesthesia to the postoperative patient who has undergone total knee replacement. These benefits include early ambulation, better pain control, and decreased length of stay (Napier & Bass, 2007).

Pain management does not only pertain to the adult patient. Nurses must also be aware of medications used with pain management in children and infants. In a study by
Dawkins, Barclay, Gardiner, and Krawczeski (2008) the safety of using intravenous ketorolac in infants following cardiothoracic surgery was examined. The purpose of this study was to determine the safety of using ketorolac in infants and its impact on the renal and haematologic values. The conceptual framework included the concepts of: safety, analgesia, infant, renal and haematologic stability.

The study was a retrospective case-controlled chart review. Charts of 113 patients were reviewed but 75 were excluded. The final study included a total of 38 infants of less than six months of age. The infants were in one of two groups. The first group included the infants who received at least two doses of ketorolac and the second group was the control group who did not receive ketorolac. The study included patients less than six months old who had undergone cardiothoracic surgery from January 2004 to April 2007. The participants in the first group were age-matched with a patient to form the second group. Any patient, who had functionally univentricular physiology or with an allergy to ketorolac or other nonsteroidal anti-inflammatory drugs or aspirin were excluded from the study. Other exclusion criteria included any patients, who had renal impairment or were preoperatively anemic (Dawkins et al., 2008).

Data analysis was done by chart reviews and medication administration record reviews. Details that were gathered were the age, weight, sex, diagnosis, dose, number of doses, length of ketorolac therapy, use of additional analgesics and number of blood transfusions. Other data needed was the levels of blood urea nitrogen, serum creatinine, haematocrit, haemoglobin and platelets which were all within 24 hours prior to surgery, 24 hours after surgery and prior to the ketorolac administration and a minimum of 24 hours after the ketorolac. Comparison of the mean differences in serum creatinine and
blood urea nitrogen, any haematologic complications and the difference between uses of analgesics was done using Student’s t-test. A p value less than 0.05 was determined to be statistically significantly different (Dawkins et al., 2008).

As stated each group had 19 patients. The mean age of the ketorolac group was 3.2 months while the control groups mean age was 2.8 months. The mean weight of the ketorolac group was 4.7 kilograms compared to 4.4 kilograms of the control group. There were 14 males and 5 females in the ketorolac group and 8 males and 11 females in the control group. The study did not find any difference between groups in regards to the blood urea nitrogen and serum creatinine values. There was also no significant difference between groups in the haemoglobin and haematocrit levels (Dawkins et al., 2008).

In conclusion of this study, there are limitations and more studies need to be done. There is a potential for bias with this study and it would have less potential for bias if a prospective, randomized, controlled study was done. The study did show that intravenous ketorolac can be used safely in infants for pain management. (Dawkins et al., 2008)

**Perception of Pain Management**

Medication in regard to postoperative pain management is a very important factor. It is also very important to understand perceptions that arise in managing pain. Twycross (2008) conducted a study to determine if the perceived importance of pain management affected the quality of pain management practices. This study was based on theoretical concepts which included: perceptions, pain, practice and priority (Twycross, 2008).

Twycross (2008) conducted her research in a children’s surgical ward in the English Midlands. All 16 of the nurses on the ward were invited to participate in the study, however due to scheduling and other restraints only 13 participated in being
observed and 12 completed the questionnaire. The nurses’ ages ranged from 20 to 49 and five had less than five years experience in children’s nursing. The patients on the ward ranged from ages 0 to 16 years.

The study was composed of observation and paediatric pain training needs questionnaire (PPTNQ). The PPTNQ was developed by Twycross for this study using information from a Hicks and Hennessy (1996) training needs questionnaire (TNQ). The questionnaire takes information in an indirect manner. The nurses are asked to rate the perceived criticality of each pain task on a scale of 1 to 7, with 1 being low criticality/performance. The author did not state the validity and reliability in this study. However, it is stated that the items in the PPTNQ reflect current best practice and this indicates that the questionnaire has content validity. A panel of experts was also consulted for the face and content validity as well as the readability of the tool. The nurses were observed for a period of three to four months for two to four shifts each. During this observation field notes were taken and compared to the checklist which was then compared to the questionnaire. Only 12 questionnaires were completed from the 13 nurses (Twycross, 2008).

Ten areas were compared to check for correlation between perception of importance and actual practice. The ten areas were:

1. Ascertaining previous experiences of pain

2. Using a pain assessment tool

3. Using behavioral indicators

4. Using physiological indicators

5. Using non-drug methods
6. Administering analgesic drugs
7. Reassessing pain
8. Documentation
9. Communicating with children and parents
10. Seeking advice from the multidisciplinary team

In areas 1, 2, 5, 9, and 10 it was determined that although the nurses rated their criticality high, it did not translate into practice. In areas 3 and 4, it was possible that the observational data techniques could have affected these results. Areas 6 and 7 had inconsistencies in the relationship between the perception and practice (Twycross, 2008).

This study showed that while nurses perceive the importance of pain management, this perception did not translate in the way they practiced. Although, Twycross does state that the priority that the nurses place on pain management is one reason for sub-optimal practice in this area, it certainly is not the only reason. More study needs to be done; it is overly simplistic to expect that placing a high importance on managing pain will translate into practice in and of itself (Twycross, 2008).

Perception of pain is not only important from the nurses or patients standpoint but also from the point of view of the caregivers or family members of those patients who have dementia. Buffman and Haberfelde (2007) conducted a study to look at the families’ perceptions of professional caregivers’ pain management in persons with dementia. The study was based on a conceptual framework with the main concepts of Alzheimers, pain, analgesia, dementia and caregivers. There were several assumptions that were made that were the basis of the study and they were: pain is under recognized in patients with advanced dementia, preexisting pain persists when patients move between settings,
unrecognized pain continues to be unrecognized after patients move to other settings, without anyone to advocate for patients their needs including pain may go unnoticed, and family caregivers are included in their care. With those assumptions in mind, Buffman and Haberfelde (2007) posed to answer two questions:

1. What are family caregivers’ perspectives on their communication with professional caregivers about pain management when their family members with dementia enter unfamiliar healthcare settings?

2. What are family caregivers’ perspectives about pain management once their family members with dementia have entered these new settings?

This study used an exploratory survey method with a convenience sample. This sample included family caregivers of persons with dementia. The survey was done at the regional Alzheimer’s Association conference in California, November 2003. This conference had a total of 196 attendees, 65% (n=128) healthcare professionals and 35% (n=68) were family caregivers. Of the 68 family caregivers, 34 (50%) responded to the survey. Out of the 34 respondents, 14 met the inclusion criteria. The surveys were all anonymous and therefore did not contain any other demographic data (Buffman & Haberfelde, 2007).

A member of the conference was asked to distribute a survey during the registration. The participants were asked not to identify themselves and return the completed survey to a receptacle at the registration area. Completion of the survey implied consent. The face validity of the survey was done by three healthcare professionals who were family caregivers and two Alzheimer’s Association lay members. The survey posed six items and the first two forced the respondent to skip to later
questions. There were five items that were dichotomous, three of which required further explanation. The last item was qualitative and required a write-in answer. Calculations were done for frequencies and Wilson’s technique was used for content analysis (Buffman & Haberfelde, 2007).

During data analysis, it was noted that only 12 of the 14 respondents were actual respondents. The results of the survey questions were compiled for 12 actual respondents, who met the inclusion criteria. Six respondents reported that they did and 6 reported that they did not have discussions about pain with professional staff and 4 were confident that staff could detect pain. Of 9 respondents who answered all of the survey questions, 6 reported that pain was well managed and 5 had been told of changes to the patient's pain management (Buffman & Haberfelde, 2007).

Question 6 was an open question asking what the caregiver thought would be an ideal way to manage the pain of those with dementia who are placed in an unfamiliar setting. These answers were placed into themes and there were six different themes identified. These six themes were: regular observation and assessment, timely and consistent pain medication administration, communication/information exchange with family caregivers, staff education, alternative methods and psychosocial support (Buffman & Haberfelde, 2007).

In summary this study, although limited in areas, did provide some implications for further research and practice. Continued staff education was one of the big areas needing improvement and communication between the staff and the caregiver was also lacking. It is important to talk with the family caregiver to learn about the patients’ usual response to pain and the management of it before the dementia and since the dementia.
The family caregivers are a valuable asset in determining the needs of the patient with dementia and healthcare workers need to utilize that asset. By doing so, the quality of life can be improved (Buffman & Haberfelde, 2007).

In looking at how to manage post-operative pain it is important to also look at the views from expert nurses. Richards and Hubbert (2007) performed a pilot qualitative study to understand how expert nurses care for, manage and assess the patients with postoperative pain. A conceptual framework based on the Dreyfus model of skill acquisition was used for the recruitment and data analysis. This model expresses that expert practice is situational as well as holistic. Benner (2001) validated the Dreyfus model for nursing. Benners’ framework was utilized for this study because of her beliefs of the qualities of expert nurses and the wealth of knowledge that they possess and belief that the knowledge needs to be recorded.

Benner believes that expertise is acquired after 5 or more years of working in similar situations. So for the purpose of this study registered nurses who had a minimum of 5 years experience in a general surgery area were chosen. Three expert nurses were chosen to participate in the study. The ages ranged from 43 to 46 years of age. The highest educational level reported within the group was a bachelor of science in nursing degree. The nurses were recruited from an acute-care unit from an urban hospital in the Western United States (Richards & Hubbert, 2007).

The design for the study was a phenomenological approach which focused on detailed perceptions of the nurses being interviewed. The participants were interviewed on two separate occasions. The first interview was to gain knowledge of the expert
nurses’ practices with a series of questions. The second interview was to validate the findings (Richards & Hubbert, 2007).

The results of the interviews yielded four popular themes. The four themes were: considering the whole person, the independent art of nursing, accepting what the patient says and commitment to surgical nursing. In the first theme, considering the whole person, all of the nurses stated that the first and most reliable indicator for pain was the patient’s report of pain. The three nurses expanded on this by stating that they must also look beyond the statement of pain and also look at the behavioral and physiologic indicators to complement the pain assessment (Richards & Hubbert, 2007).

The second theme, the independent art of nursing, showed a natural progression from the first theme of identifying the pain to now knowing how to manage the pain. Managing pain for these expert nurses did not just focus on pharmacologic interventions but that medication was not the first choice for any of the nurses. They focused on non-pharmacologic interventions such as positioning, ice, heat, relaxation, distraction even addressing fear that the patient may be having. They also spoke to the art of nursing as not just passing medications but to understand what the medication will do to the patient, what is the plan of care for the patient and understanding the best approach to accomplishing that plan of care (Richards & Hubbert, 2007).

The third theme, accepting what the patient says, is important and addresses biases of those nurses as well as other members of the healthcare team. The nurses have had to deal with putting their biases aside to care for the patients. It is possibly the ability for the expert nurses to recognize their own biases and put them aside for the benefit of
the patient, that makes the difference between how they practice compared with less experienced nurses (Richards & Hubbert, 2007).

The final theme, commitment to surgical nursing, showed that all three participants truly believed in their nursing practice. They all have stayed in surgical nursing because of the outcomes that they can immediately see due to their nursing care. Pain management is a priority and to do this effectively allows better outcomes for the patients. The patients are able to ambulate sooner, have return of their bowel movement earlier and overall have fewer complications (Richards & Hubbert, 2007).

This study has provided some insight into the practice of pain management by expert nurses. The study was very small and therefore the findings cannot be generalized. Further research can be done using a similar approach with a larger sample size. Experiences of expert nurses would be good teaching references in pain management programs to allow newer nurses to learn how to best deal with postoperative pain management (Richards & Hubbert, 2007).

After looking at different methods for providing postoperative pain management and perspectives from different angles, it is also important to see if the perspectives of the nurses, the patients and the documentation are aligned. Gunningberg and Idvall (2007) completed a study to answer that question. The concepts that were used for this study included: intensity, expectations, quality of care, actions, communication, trust and environment.

The study was conducted in two departments, general surgery (GS) and thoracic surgery (TS), at a Swedish university hospital. There were 121 patients and 47 registered nurses included in the study. The patients were almost equally divided between units with
61 in GS and 60 in TS, and the nurses were 28 from GS and 19 from TS. Patients had to be at least 18 years of age, oriented to time and place, able to understand Swedish and have a minimum of 24 hour stay after surgery to be included in the study. The gender for the GS group was n=31 of women and n=30 men. For the TS group, n=18 women and n=42 men. The nurses were mostly women n=44 (Gunningberg & Idvall, 2007).

This study used a descriptive comparative design. The patients were given a questionnaire, the Strategic and Clinical Quality Indicators in Postoperative Pain Management (SCQIPP). The questionnaire included 14 items with four subscales of communication, action, trust and environment. The items were scored on a 5-point scale, with 1 meaning strongly disagree and 5 meaning strongly agree. The nurses also had a questionnaire which mimicked the patients’ questionnaire with the exception of one question that was not able to be adjusted for comparison (Gunningberg & Idvall, 2007).

The GS patients completed their questionnaire on the second day postoperatively while the TS patients completed theirs on the third postoperative day. A number rating scale (NRS) of 0 to 10 was used for patients to rate their pain, with 0 being no pain and 10 being the worst pain. A satisfaction scale of 0-10 was also utilized, with 0 being low and 10 being high (Gunningberg & Idvall, 2007).

In order to compare the responses of the patients with those of the nurses, the Wilcoxon matched pairs test was utilized. The Friedman tests followed by the Wilcoxon matched pairs test was used to compare the responses of the patients, the nurses and the patient records. Comparison between groups was done using the Mann-Whitney U-tests and chi-squared analyses. Significance was indicated with P-values below 0.05. In order to determine high quality of care the score for each single item in the SCQIPP would
have to exceed 4.5. The reliability of instruments in this study had a Cronbach’s alpha of 0.88 and was satisfactory (Gunningberg & Idvall, 2007).

In regards to the patient assessments, the mean scores for each individual item on the SCQIPP were varied between 3.9 and 4.8 for the GS group and 3.9 and 4.7 for the TS group. High quality was determined in four GS items and five TS items, by a score that exceeded 4.5 (Gunningberg & Idvall, 2007). The worst pain the patients experienced during the past 24 hours was rated with mean values of 5.7 (GS) and 4.2 (TS). However, their overall satisfaction with the pain treatment they received was 8.8 (GS) and 8.9 (TS) (Gunningberg & Idvall, 2007).

In comparison, the mean scores for the nurse assessments for each individual SCQIPP item were, 3.6 to 4.7 for GS and 3.9 to 4.9 for TS. The high quality of care scores showed three for the GS group and five for the TS group. The nurses assessment for the patients worst pain experienced in the last 24 hours showed 4.5 (GS) and 3.7 (TS), which were both lower than what the patients reported. Comparison of the results between the two groups (GS and TS) showed that the GS group reported significantly more pain in the past 24 hours. The nurses’ assessments showed significant difference in three items, where the TS nurses assessed items higher, indicating higher quality of care (Gunningberg & Idvall, 2007).

Fifteen percent of the patients in GS and twenty percent of the TS patients reported higher pain than they expected and these patients rated pain management quality lower than those who did not. A significant finding was that the pain level documented in the patient record was significantly lower than the patients’ report of pain, but was
similar to the nurses’ record. Pain intensity levels were recorded more frequently in the GS patient records than the TS records (Gunningberg & Idvall, 2007).

This study showed many areas for improvement in managing postoperative pain. There were some limitations of the study in that the questionnaires were given on different postoperative days between the two groups which could have affected the pain intensity results for the last 24 hours. Different surgical procedures could also affect this result. The study also suggests that it is important to understand what information concerning pain does the patient need preoperatively and how often pain management should be done postoperatively. Having the patient set pain goals could also be beneficial in managing their pain (Gunningberg & Idvall, 2007).

**Pain Assessment Methods**

Managing postoperative pain begins with assessment. There are many parts to doing that assessment, from talking with the patient, taking vital signs, observing the patients actions and having them rate their pain. There are several tools available for patients to rate their intensity of pain. The tools have been researched and the reliability and validity of them have been tested. There are some limitations to the tests that were done, such as the population they were tested on, cognitive levels, and age of the participants. The purpose of a study by Li et al. (2009) was to find the reliability and validity of using three different pain measurement tools on Chinese elders postoperatively. The concepts used for this study included: postoperative pain, pain intensity and assessment measurement.

This study had a convenience sample of 180 Chinese elders (age range from 65 to 95 years). Recruitment for the study occurred over 10 months and 424 patients were
initially enrolled. Out of those that were enrolled 198 signed the consent form. Eighteen of the patients were not able to participate for various reasons. The study took place at a university-affiliated hospital in Guangzhou, China. The participants needed to have an American Society of Anesthesiology (ASA) score of < 3 and were not expected to have a hospital stay of at least 3 days postoperatively. All participants needed to speak and read Chinese fluently. The participants also needed to have only one incision and not have chronic pain issues (Li et al., 2009).

Intraclass correlation coefficients (ICCs) that had been estimated by Pearson’s correlation coefficients, was used to present the reliability for the three selected pain scales to be used for the study. The reliability was found to be inappropriate for the calculation of the test-retest in this study since the dynamic state of the postoperative pain decreases with time. The validity of the scales was assessed by correlation among the scales, the interaction between the scales, by time, and pain. Calculations were done by analysis of variance and the use of patient controlled analgesia (PCA) was considered using the analysis of covariance (Li et al., 2009).

The Mini Mental State Examin(ation (MMSE) was utilized to determine cognitive function. There were three scales utilized to assess pain intensity. All end-points for the scales were worded the same to provide the ability for comparison. The end-points were “no pain” and “the most intense pain imaginable”. The scales were all on separate papers and all printed in 14-point bold type. The first scale was the Faces Pain Scale Revised (FPS-R), which was originally developed for use in children. This scale has 6 faces that are scored from 0-10 and in a horizontal format. The faces show neutral expression to grimacing expression. This scale has been shown to be satisfactory in use for adults in
prior studies, but has been more difficult for some elderly with cognitive impairment. The next scale used was the Numeric Rating Scale (NRS), this scale has been tested for validity and reliability studies in previous research. The NRS uses a number scale from 0-10 and is on a vertical format. The final scale utilized was the Iowa Pain Thermometer (IPT); this scale utilizes seven different pain descriptors and response options between words. This scale is also aligned with a thermometer to help with conceptualization (Li et al., 2009).

Scale reliability was performed preoperatively and each consecutive postoperative day. ICC’s were calculated for each scale for current pain, and previous worst and least pain. Scale validity was checked using Spearman correlations which included 9 pairs for each of the 3 postoperative days. These were strongly correlated with a p < .01. The reliability and validity of the scales in this study were significant (Li et al., 2009).

The study results showed that men preferred the IPT while women preferred the FPS-R. The IPT was preferred by both educational levels and there were no differences shown in relation to age or cognitive status. Although it was not significantly different, the cognitively impaired preferred the FPS-R, while the cognitively intact preferred the IPT (Li et al., 2009).

This study showed that the three scales used where all reliable and valid. Any of the scales could be used in the older and diverse population. While these three scales have shown their reliability and validity in this study and previous studies, it is still important to consider diversity, age, gender, educational and cognitive levels whenever utilizing a pain intensity scale. There were limitations in this study related to the various types of procedures as well as the type of anesthesia they underwent (Li et al., 2009).
Adults are usually the main focus when thinking and studying about pain control. It is equally important to consider the younger generation as well and how nurses manage their pain. In a study by Simons and Roberson (2002), poor communication and knowledge deficits were examined as obstacles to managing children’s postoperative pain. Phenomenology was the methodology utilized for this study. A phenomenological study is to evaluate things as they are lived. The main purpose for this study was to determine the perceptions of the nurses and the parents of childrens’ pain management after surgery.

The study was done at a tertiary referral centre in the United Kingdom. There were 20 matched sets of nurses and parents. Inclusion criteria was that the nurse had to deliver most of the care to the child in the first 48 hours after surgery and the childs’ parent must have been able to speak and read English. Any child that had neurological deficits was excluded from the study. The study was performed by interviews with the nurses and interviews with the parents (Simons & Roberson, 2002).

Microsoft Word for Windows version 7 was used to transcribe the interviews. Recursive comparative analysis was used to analyze the comparative data. Once the themes were identified with the recursive comparative analysis then they were checked by two expert nurses for validation. Interviews were only done with the nurses and the parents, but more validity could have been given to the study if the childrens’ perception of their pain was included (Simons & Roberson, 2002).

There were two distinct themes that arose from the data collected. The first was communication and the second was knowledge deficits. Communication was often not complete between the nurses and the parents. The study found that the parents were given
information preoperatively but there was no evidence to show that there was an understanding of the information given. The parents also did not feel that they could approach the nurse in many cases. The nurses did not communicate as often as they should have because they felt that the parents already had an understanding of the pain management and if they had any questions they would ask. The communication in regards to pain management was ineffective (Simons & Roberson, 2002).

Knowledge deficits was the second area that was identified as lacking. This study showed that nurses had knowledge deficits when it came to managing pain in children. The areas identified were that of understanding that parents are a valuable resource for identifying when their child is in pain, as well as the nurses not fully helping the parents to understand the role of morphine in the management of pain in the child. Parents also showed areas of knowledge deficits particularly with understanding their child’s developmental level and how they would or would not express pain that they are experiencing. Some very young children expect that their parents know when they are in pain and therefore do not verbalize it. Parents were not able to pick up on the nonverbal cues that their child may be experiencing pain. The parents also had significant knowledge deficits concerning the use of morphine. The concerns were in regards to side-effects, overuse, and the concept of the morphine pump (Simons & Roberson, 2002).

This study helps to recognize some significant areas that nurses must be aware of when managing postoperative pain in children. The nurses need to be comfortable with the knowledge of morphine use in the younger patient and be able to educate the parents about that use. They also must understand when and how it is best to educate the parents, understanding that they are anxious about the event their child is undergoing and that
they may need repeated information and checking for understanding of what has been taught. Nurses also must value the knowledge of the parents and their input on when the child is in pain. Overall, there needs to be clear, effective ongoing communication between the nurse and the child’s parents during the postoperative period in order to manage the pain of children (Simons & Roberson, 2002).

In managing postoperative pain it is important to understand the patient and their pain experience preoperatively. If a patient has chronic pain and is already utilizing pain medications, how will they respond to pain management methods postoperatively? The increasing number of opioid tolerant patients is creating an area of concern with managing their acute postoperative pain. In a study by Bourne (2008), she attempts to determine the current practices of London hospitals in regards to pain management in the opioid tolerant population. The concepts in her study include: opioid tolerance, opioid withdrawal, patient controlled analgesia and postoperative pain.

Data collection was done by a questionnaire format. The questionnaire was mailed to the nurses in 23 hospital-based pain services in London. There were 10 responses. These were from four hospitals that had acute and chronic pain services and six from acute pain service hospitals (Bourne, 2008).

Validity and reliability of the questionnaire was not mentioned. The questionnaire required yes/no responses with one open-ended question. The areas addressed in the questionnaire included: protocols for the management of postoperative pain in opioid tolerant patients, practice for opioid tolerant patients with postoperative pain, use of PCA for patients who are receiving all forms of opioids preoperatively, management of
postoperative pain for patients who do not receive PCA, and prn pain management for patients who take regular doses of opioids (Bourne, 2008).

All ten hospitals in the study reported that they do not have a protocol for opioid dependent cancer patients but the one out of the ten does have a protocol for opioid dependent patients. It also revealed that nine of ten had a regular practice for opioid dependent patients. The same method of PCA usage was not utilized for patients who were on all forms of opioids preoperatively in any of the ten respondents (Bourne, 2008).

Five of the ten respondents reported that if a patient did not receive a PCA that they received epidural pain management. Two of these five respondents reported that additional prn opioids were administered. Seven of nine respondents reported that when continuing their usual opioids for patients that they also increased the prn and the regular doses (Bourne, 2008).

In summary, methods for managing pain in the opioid tolerant patients were varied among the hospitals, however there were some limitations in identifying these individual patients. The goals identified for this population are to: provide good pain relief, avoid side effects and prevent withdrawal. It is important for nursing to understand the complexity of this type of patient and that their tolerance may require them to have more pain medications in order to provide the same amount of pain management as the patient who does not have a tolerance (Bourne, 2008).

Regardless of the medication used, the perceptions of involved parties or the methods of managing postoperative pain, it is important to understand what the barriers or the factors are in providing effective pain management. One study was done in Iran with nurses to identify these barriers and factors (Rejeh, Ahmadi, Mohannadi, Anooseh,
This qualitative research study was done to determine the nurses’ perception of the barriers and facilitators to postoperative pain management. The concepts for this study included: postoperative pain, nursing, the patient, barriers and factors.

The study consisted of a sample of 26 nurses. Bedside nurses comprised 16 members of the sample while four were head nurses, four were supervisors and two were matrons. All of the participants worked in a general surgery area of three different hospitals in Tehran city. The ages of the participants ranged from 23 to 50 with an average of 33.45. Gender Nursing experience ranged from 2 to 26 years with a mean value of 10.6 years. Twenty-two nurses had baccalaureate degrees and 4 had masters degrees. There were 24 females and 2 males in the study (Rejeh et al., 2008).

Individual interviews were conducted with each participant. The interviews were tape-recorded with permission and lasted from 60 to 120 minutes each. The interview consisted of open-ended questions. The data was analyzed using the method of content analysis. Units of meaning were extracted and then line-by-line coding was done. The participants were able to view the transcripts and the emergent themes that were identified in order to validate the correctness of their experiences. The conformability and the credibility of the data were enhanced by the maximum variation of sampling (Rejeh et al., 2008).

This study produced two main themes, which were barriers and factors to manage postoperative pain. The barriers that were identified were: powerlessness, policies and rules of organization, physicians leading practice, time constraints, limited communication, and interruption of activities. The factors that were identified were:
nurse-patient relationship, nurses’ responsibility, the physician as a colleague and the nurses’ knowledge and skill level. The one theme that recurred more than any other in this study was the nurse-patient relationship (Rejeh et al., 2008).

This study, although performed in Iran, showed many of the same themes that have been evident in other pain management studies. These themes crossed international lines and between all groups of people. Maintaining good nurse-physician and nurse-patient relationships is an important part of pain management. These two areas impact the other barriers and factors that were identified. Iranian nurses identified what they can do and do all they can, but even at the best they are only able to provide “limited pain management” with their current barriers (Rejeh et al., 2008).

Summary

The areas of pharmacologic management of postoperative pain, perception of pain and methods of pain assessment have all been individually studied. In the area of pharmacologic management of postoperative pain, it has been shown that there are still areas needing further research. The efficacy and tolerability of COX-2 inhibitors need to be studied for the benefits of longer term use (Chen et al., 2004). The use of gabapentin or combination of gabapentin with paracetamol also needs further study to determine if repetitive doses continue to provide pain relief in place of opioids (Durmus et al., 2007). Intrathecal injections compared to general anesthesia has shown to produce better outcomes in the arthroplasty patient, but more studies would need to be conducted to determine if this method would provide the same outcomes in other procedures (Napier & Bass, 2007). The use of ketorolac in infants has shown not to have any adverse effects, but its use in larger populations still needs to be studied (Dawkins et al., 2008).
Many investigators have examined nurses’ knowledge and perceptions of the effective pain management. Connecting the link between what nurses know in regards to pain management with how they practice has been identified as an area needing more research. It is also important to understand what beliefs or perceptions nurses hold in regards to administration of pain medication (Twycross, 2008). Research needs to be done to determine the education that nurses have in regards to assessing pain in the patient with advanced dementia or with other cognitive deficits (Buffman & Haberfelde, 2007). Another area needing further study is the amount of knowledge expert nurses can contribute to their co-workers (Richards & Hubbert, 2007). Further study needs to be done to determine needs and consistency in the assessment, documentation and management of postoperative pain (Gunningberg & Idvall, 2007).

Methods of pain assessment can include many areas such as tools used for pain ratings, resources to use to help identify pain, predisposing factors/conditions in patients that require extra care and barriers to performing good assessments. Research has been done to validate pain scales in general including the use of them and preference in the Chinese elder population, but more study needs to be done on other distinct populations. It is also important to continue to study the use of the pain scales in general populations to support the validity and reliability of them (Li et al., 2009) Children cannot always utilize pain scales or are too young to understand the pain and verbalize the need for intervention. Further research needs to be done to identify the challenges of managing pain for children and to help identify the education that both nurses and parents need (Simmons & Roberson, 2002) Another population that has been identified as having inconsistent pain management is the opioid tolerant patients. Research has identified that
there are definite inconsistencies and practices when providing pain management to these patients. More research is needed in order to identify barriers as well as any protocols that are working effectively (Bourne, 2008) Some barriers to overall pain management has been identified which include policies, time constraints, communications, interruptions and lack of physician support (Rejeh et al., 2008) Additional studies would be needed to identify consistency of these barriers throughout the healthcare field and best practices by organizations who have achieved successful outcomes.

In conclusion, there are many barriers that hinder providing quality of care in managing pain in the postoperative patient. These barriers include pharmacologic management, perceptions of pain management and methods of assessing pain. These barriers have a direct correlation to the six quality indicators identified for pain management. The validity and reliability of pain rating scales is important in the documentation of the intensity of pain experienced. Understanding the importance of assessment and reassessment of pain intensity and documentation of such is also important to provide interventions when needed.

In addition, knowledge of medications used for pain management preoperatively, intraoperatively and postoperatively is important for understanding how to continue to manage pain on a regular basis. The knowledge of medications ordered is important for understanding how to best provide pain relief while still being able to maintain function and quality of life, which leads to improved outcomes. Identifying the knowledge deficits of patients and their families is a very important aspect in providing quality health care in regards to pain management.
The proposed study will examine the current pain management practice which will include the assessment, attitudes, communication, documentation and methods used. The study will also attempt to fill in some of the gaps about each of these areas. The goals of this research study will be to move towards reducing and/or removing the barriers to providing quality pain management in the post operative patient. Removing the barriers and improving this practice will lead to better patient outcomes, decreased costs and improved patient satisfaction. The study methodology follows in chapter three.
Chapter III

Methods and Procedures

Introduction

This study will attempt to identify barriers that impact providing quality health care for pain management in the postoperative patient. The study will look at the six quality indicators: intensity of pain is documented with a numeric or descriptive rating scale, pain intensity is documented at frequent intervals, pain is treated by a route other than intramuscular (IM), pain is treated with regularly administered analgesics and when possible a multimodal approach is used, pain is prevented and controlled to a degree that facilitates function and quality of life, patients are adequately informed and knowledgeable about pain management (Gunningberg & Idvall, 2007). The identification of these barriers will be through the SCQIPP instrument provided to patients and the nurse caring for the patient as well as through chart review. Identification of the barriers is important in order to determine how to address each barrier and provide education. Improving patient experience and outcomes is the ultimate goal in identifying and acting upon the barriers that prevent quality pain management in the postoperative patient.

Setting and Sample

The study will take place at Bloomington Hospital in Bloomington, Indiana. The sample population for this study will include nurses and patients from two separate nursing units. One of the nursing units is orthopedics/neurosurgery, which has 26 nurses.
The second nursing unit is a short stay unit and has 15 nurses. Inclusion criteria for nurses include that they must have an RN license, provide direct care to postoperative patients, and work a minimum of 12 hours per week.

The proposed sample size of patients will be 75 per nursing unit. Inclusion criteria for patients will be that they must have experienced a surgical procedure, be at least 18 years or older, able to read and write in English, have a minimum hospital stay of 24 hours and be oriented to person, place and time.

**Protection of Human Rights**

In order to protect human rights, permission from the Institutional Review Board (IRB) of Bloomington Hospital and of the Ball State University will be sought. The director of the two nursing units will be contacted and informed of the purpose of the study. A letter of support to conduct the study will be requested from the director.

Each potential patient participant will be given written information regarding the study as well as verbal information regarding the study. Each participant will be asked to give written consent that allows the researcher to access personal information provided in the survey that will remain confidential and unidentifiable as to any specific individual.

Once a patient completes a questionnaire/survey, the nurse providing care for that patient will also be asked to complete the survey. The nurse will be asked to sign an informed consent that allows the researcher to access personal information provided in the survey that will remain confidential and unidentifiable as to any specific individual.

Participation in the study by both patients and nurses will be strictly voluntary. No personal identification will be obtained, in order to maintain anonymity. All collected surveys and data will be kept confidential and stored in a locked cabinet.
Procedures

After approval from both Institutional Review Boards, the Vice-President of Patient Care services and the Clinical Directors of both units will be invited to meet in order to explain the purpose and process of the research study. Focus meetings will take place on the nursing units to explain the study to the unit nurses.

Patients who meet the criteria on each of the units will be identified by review of the current census and date of their surgical procedures. Once a patient is identified as meeting the study inclusion criteria, they will receive verbal and written information of the purpose of the study and that the study is voluntary. They will be informed that there will not be anyone who can be personally identified from surveys and data collected in the study and that all data will be confidential. The patients will be asked to read and sign the informed consent.

Next, consenting patients will be given the study questionnaire to complete, which will consist of 16 questions. Once a patient agrees to participate, the researcher will allow each participant 20 to 30 minutes to complete the questions and then collect the survey.

The data collector will identify the nurse caring for the patient and determine if the nurse meets the criteria to participate in the study. Once it is determined that the nurse meets the criteria then the nurse will be study information and an informed consent form. Once the nurse signs the informed consent form, the data collector will give the nurse the study questionnaire/survey. The data collector will collect the completed survey/questionnaire by the end of the nurse’s work shift and place it in an envelope with their matched patient survey. After submission of each completed nurse-patient pairs of questionnaires/surveys additional data more pain assessment and pain treatment data will
be extracted from the patient’s medical record. This data will include: type of pain
treatment and documentation of pain assessment.

**Instruments Used**

The instruments used in this study are questionnaire tools. The main survey
questions are composed from the SCQIPP (Strategic and Clinical Quality Indicators in
Postoperative Pain Management). The questions on the instrument are divided into the
four subscales of: communication, action, trust and environment. The SCQIPP instrument
has shown “content validity and psychometric properties with a Cronbach’s coefficient
alpha of 0.84 and a four-factor solution with a cumulative variance of 61% to suggest
initial support” (Gunningberg & Idvall, 2007).

This instrument is composed of the SCQIPP’s original 14 items plus an additional
3 items/questions. The patient will score each of the initial 14 items with a 5-point scale
that ranges with 1 equals strongly disagree up to 5, which equals strongly agree. The
additional 3 questions added are: address any pain at the present time (yes or no), the
patients’ general satisfaction with pain management and pain intensity over the past 24
hours. The pain intensity item requests a rating between 0 and 10 where 0 equals no pain
and a 10 rating equals worst pain possible. The general satisfaction with pain
management item requests ratings between 0 and 10 with zero indicating very dissatisfied
and 10 indicating very satisfied and if they had more pain than expected.

The nurses’ questionnaire is the same as the patients but with amendments to
address the nurses’ views. There is one of the 14 questions that is not able to be amended
and will be replaced with a question just for the nurses that will ask if the nurse feels that
the documentation of the patient’s pain and the subsequent treatment concurs with current
guidelines.
Data Analysis

Data analysis will be completed utilizing the same methods in a previous study for the ability to compare studies using the SCQIPP instrument. Means, medians, standard deviations, ranges and percentages will be used for descriptive purposes. In order to compare patient and nurse data, statistical analysis will include the Wilcoxon matched pairs test and the Friedman test. Comparison between patients and nurses from the two nursing units will be done using Mann-Whitney $U$-tests for the ordinal variables and chi-square analyses for the dichotomous variables. A $p$-value below 0.05 will be considered significant. To determine high quality of care the score must be greater than 4.5. (Gunningberg & Idvall, 2007)

Research Design

The type of research design will be descriptive comparative. This type of design occurs when variables in two or more groups are compared, which provide an accurate picture of real-life situations.

Summary

The purpose of this study is to identify barriers between patients and nurses to attain effective pain management when using pain management standards. Barriers are postulated to be inadequate pain assessment, negative nurse attitudes about patient and family perceptions of pain, as well as inappropriate and inadequate dosing of analgesics. It is very important for nurses to be able to know and understand barriers to effective pain management for postoperative patients. When nurses recognize pain management barriers, they can successfully challenge these barriers through use of evidence-based interventions and pain management standards. Through these processes, nurses will
hopefully attain the desired outcome of effective pain management for their postoperative patients.
References


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<th>Design</th>
<th>Instruments</th>
<th>Results</th>
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<td>Chen, Elliott &amp; Ashcroft (2004)</td>
<td>NSAIDs are used in the management of post-operative pain as they do not cause respiratory depression or sedation. However, peri-operative use of NSAIDs has been limited because of associated gastrointestinal, coagulation and renal side-effects.</td>
<td>Evaluate the analgesic efficacy and tolerability of single-dose COX-2 inhibitors in post-operative pain management.</td>
<td>Systematic review Conceptual Framework Concepts: adverse events, analgesic efficacy, meta-analysis, post-operative pain management, COX-2 inhibitor, systematic review</td>
<td>Total of 18 RCTs consisting of 2783 patients. Included were patients undergoing orthopaedic, dental and gynaecological surgery.</td>
<td>Randomized, double-blind, parallel-group studies with active and placebo-controlled designs included in systematic review.</td>
<td>Visual Analog Scale for pain. Total pain relief and summed pain intensity difference were used for assessing the clinical efficacy of analgesics.</td>
<td>The analgesic efficacy and tolerability of single-dose COX-2 inhibitors were more effective than opioid analgesics and were similar to non-selective NSAIDS in relieving post-operative pain.</td>
<td>Further studies are needed to evaluate the efficacy and tolerability of COX-2 inhibitors over a longer duration to determine the benefits and risks of prolonged use.</td>
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<td>Durmus, But, Saricicek, Toprak, &amp; Ersoy (2007).</td>
<td>Opioid analgesics are the most commonly used drugs for post-operative analgesia but are limited by their side-effects and poor neuropathic pain control.</td>
<td>Compare the effects of a combination of gabapentin and paracetamol with gabapentin alone and placebo on post-operative pain and morphine consumption.</td>
<td>Conceptual Framework</td>
<td>Seventy-five female patients 18 years or older undergoing abdominal hysterectomy and randomly divided among 3 treatment groups. The sample was convenience initially.</td>
<td>Concurrent review. 3 group double-blind comparison.</td>
<td>VAS-PI scale scores. Kolmogorov-Smirnov test, student's t-test, Mann-Whitney U-test</td>
<td>Group I n=25 placebo capsules, Group II n=25 1200mg of gabapentin, Group III n=25 1200 mg of gabapentin and 20mg/kg paracetamol. gabapentin and combination of paracetamol resulted in decrease of opioid requirement and PONV. VAS-PI scores at rest and movement significantly higher (P&lt;0.05), in Group II compared with Group III.</td>
<td>The study found a single pre-operative dose of gabapentin or gabapentin &amp;paracetamol results in increased patient satisfaction with pain and reduces opioid requirements. Inferences can be made that repetitive doses in the post-operative period would further reduce the opioid requirement and that future studies should be conducted.</td>
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<td>Napier &amp; Bass (2007)</td>
<td>Total knee arthroplasty pain can be hard to manage causing delay in therapy and increased hospital stays.</td>
<td>To compare outcomes of patients who have had general anesthesia to those who have had intrathecal injection</td>
<td>Theoretical based on McCaffery and Pasero Concepts: Physiological effects of pain Decreased Complications Assessment Type of Anesthesia</td>
<td>Forty-four patients who received general anesthesia (GA) Mean age 63.5, 48% female, Forty-one patients who received intrathecal injection (IJ) Mean age 69.8, 66% female. This was a random sample.</td>
<td>Retrospective chart review. Two-group comparative design.</td>
<td>Visual Analog Scale for pain 0-10 scale. Chart review Pain ratings taken at discharge from PACU, and at 12, 18, 36, 48 hours on the unit. Pain also measured and distance with the first three ambulation sessions. No reliability or validity reported.</td>
<td>GA pain scores were higher at the time of discharge from PACU at recorded intervals during the hospital stay. IJ patients always had a lower pain score (p&lt;/= .0001). GA patients had higher mean pain ratings (4.9) than IJ patients (1.5) (p&lt;/= .0001). The IJ patients walked approximately 15.5 feet further than the GA group (p= .5505).</td>
<td>Postoperative pain management for IJ patients will be different than GA patients. Teaching and ambulation should not be delayed.</td>
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Reference

<table>
<thead>
<tr>
<th>Source</th>
<th>Problem</th>
<th>Purpose</th>
<th>Framework or Concepts</th>
<th>Sample</th>
<th>Design</th>
<th>Instruments</th>
<th>Results</th>
<th>Implications</th>
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<tr>
<td>Dawkins, Barclay, Gardiner, &amp; Krawczeski (2009)</td>
<td>Opioids are associated with adverse effects, the use of ketorolac in children under the age of 2 has not been indicated as of yet.</td>
<td>Determine the safety and efficacy of intravenous use of ketorolac in infants less than 6 months of age with biventricular circulations following cardiothoracic surgery.</td>
<td>Conceptual Framework</td>
<td>Total of 38 patients, 19 who received ketorolac, 19 age-matched who did not. Male and female used in both groups. Age range from 1 week to 6 months. This was a convenience sample.</td>
<td>Quantitative, retrospective chart and case-control review.</td>
<td>Chart and medication record review. Student's t-test used to compare the mean differences in serum creatinine and BUN, and haematologic complications between the groups. It was also used to compare the difference between use of analgesics. Statistical significance was set at a p value less than 0.05.</td>
<td>Supports safe use of ketorolac in infants after cardiothoracic surgery. Did not decrease analgesic use. No significant difference in renal or haematologic complications. There were no significant statistical differences between the two groups.</td>
<td>Study showed that ketorolac can be used safely in this population. Study was limited, would benefit from prospective randomized study and larger sample. Prospective studies are needed to evaluate safety in larger populations of children and in infants with univentricular circulation.</td>
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<th>Purpose</th>
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<th>Design</th>
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<th>Results</th>
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<td>Twycross (2008)</td>
<td>Pain management practices can be effected by the perceived importance of pain management</td>
<td>Determine if the nurses practice is affected by their perception of the importance of pain management</td>
<td>Concepts: Children's nurses, pain management postoperative, priority.</td>
<td>Convenience sample of all registered nurses(n=16) on a surgical ward, caring for ages 0-16yrs</td>
<td>Participant Observation</td>
<td>Pain management checklist, Paediatric pain training needs questionnaire (PPTNQ) using a 1-7 scale, with 1 being low criticality/performance level and 7 being high criticality/performance level.</td>
<td>Overall, the high criticality levels reported in the PPTNQ did not translate into practice.</td>
<td>There is need for more study on nurses’ perceptions and how to translate them into their practice. Many nurses believe it is important to address pain but have misled beliefs that some pain is to be expected and therefore their practice is more related to that then to manage the pain.</td>
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<th>Instruments</th>
<th>Results</th>
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<td>Buffum &amp; Haberfelde (2007)</td>
<td>The inability to clearly communicate causes people with advanced dementia to have under recognized and undertreated pain.</td>
<td>To answer the following questions: &quot;what are family caregivers' perspectives on their communication with professional caregivers about pain management when their family members with dementia enter unfamiliar healthcare settings?&quot; and &quot;what are family caregivers' perspectives about pain management once their family members with dementia have entered these new settings?&quot;</td>
<td>Concepts: Alzheimers, pain, analgesia, dementia, caregivers</td>
<td>Convenience sample of informal family caregivers of persons with dementia. Sample of 196 conference attendees. 65% (n=128) were healthcare professionals and 35% family caregivers. 34 of the family caregivers completed the survey.</td>
<td>Pilot exploratory study using survey methodology</td>
<td>Investigator-created survey</td>
<td>8 of 12; 67% felt that staff could not detect pain in the family member, 6 of 9 (67%) felt that pain was managed well. Pain detection and treatment problems do exist.</td>
<td>Education in regards to the needs of patients with advanced dementia is much needed.</td>
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<th>Sample</th>
<th>Design</th>
<th>Instruments</th>
<th>Results</th>
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<td>Richards &amp; Hubbert (2007)</td>
<td>Studies indicate that postoperative pain is not adequately relieved in most patients. Research is lacking in the area of nursing experience as it relates to postoperative pain.</td>
<td>To examine how expert nurses assess, manage, and care for patients with postoperative pain.</td>
<td>Phenomenological study. Concepts: Expert Assessment Quality of care Communication Environment</td>
<td>3 expert Registered Nurses with a minimum of 5 years experience caring for postsurgical patients. This was a convenience sample.</td>
<td>Descriptive approach</td>
<td>Individual interviews and field notes</td>
<td>Four themes were identified and validated with the participants. 1. Consider the person as a whole, 2. The independent art of nursing, 3. Accept what the patient says, 4. Personal commitment to surgical nursing.</td>
<td>Improvement needed in the dissemination of knowledge of expert nurses to new nurses.</td>
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<th>Results</th>
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| Gunningberg, L., & Idvall, E. (2007) | Undertreatment of pain can be a direct result of inadequate assessment, knowledge deficit, lack of communication, divergent attitudes and absence of systematic documentation. More research is needed to identify strategies that positively impact nursing knowledge and attitudes toward pain management. | To study the quality of the management of post-operative pain in two departments in a university hospital. | Conceptual Framework  
  Concepts:  
  Intensity  
  Expectations  
  Quality of care  
  Actions  
  Communication  
  Trust  
  Environment | Convenience sample of 121 patients and 47 registered nurses from the departments of general and thoracic surgery. Included were alert and oriented patients 18 years or over undergoing surgery and able to understand Swedish, with a minimum stay of 24 hours. | Descriptive and Comparative | Strategic and Clinical Quality Indicators in Postoperative Pain Management (SCQIPP). Wilcoxon matched pairs test was used to compare responses. The reliability of the instrument using Cronbach's alpha of 0.88 compared with 0.84 in the Idvall et al study was satisfactory. | Preoperative education is beneficial. Higher pain scores correlated with patients’ perception of quality of care. No significant differences were noted in the assessments of the two departments. Significant findings were determined by P-values below 0.05. | Improvement needed in the assessment, documentation and management of post-operative pain. Goal setting is important. |

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<th>Problem</th>
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<th>Framework or Concepts</th>
<th>Sample</th>
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<th>Instruments</th>
<th>Results</th>
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<td>Li, Herr, &amp; Chen (2009)</td>
<td>Measurement of pain is often an issue and many pain scales have been implemented. It is important to test the reliability of the pain scales to determine if appropriate to use.</td>
<td>Purpose of this study was to evaluate 3 pain scales in elderly Chinese who have had surgery. The pain scales evaluated were the Faces Pain Scale Revised (FPS-R), the Numeric Rating Scale (NRS) and the Iowa Pain Thermometer (IPT).</td>
<td>Concepts: Postoperative pain, pain intensity, assessment measurement</td>
<td>Convenience sample of 180 Chinese elders (age range from 65-95 years) from a university-affiliated hospital who were going to have surgery.</td>
<td>Descriptive Correlational</td>
<td>Cognitive function, Pain intensity, FPS-R, NRS, IPT.</td>
<td>All 3 of the pain scales tested had reliability and validity. The correlation among the 3 scales were high and significant. The IPT was the most preferred by the Chinese elders.</td>
<td>Patient preference had an impact on the scales used. All 3 scales were reliable but it was found that in this study group the scale most preferred was the IPT. It would be important to understand the amount of impact personal preference makes. There were limitations to this study in that the surgical procedures as well as the type of analgesia used was not controlled.</td>
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</tr>
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<td>Simmons, &amp; Roberson (2002)</td>
<td>The poor communication between the nurses and parents as well as the knowledge deficits of the nurses caring for children create obstacles in managing pain</td>
<td>Exploration of the perceptions of nurses and parents in the management of children’s pain in regards to knowledge and communication</td>
<td>Phenomenological study. Concepts: knowledge, communication, pain, obstacles, pain management, children, parents, nurses.</td>
<td>Random sample of 20 nurses who met the criteria of having provided the majority of care the first 48 hours postoperatively and 20 parents and the pain related notes of their children</td>
<td>Descriptive with a recursive comparative analysis</td>
<td>Questionnaire</td>
<td>The preoperative communication between parents and nurses about the child’s pain occurred but there was never clarification on whether the parents understood the information and it was not reinforced postoperatively.</td>
<td>There needs to be more communication in regards to the information provided to the parents and the knowledge that the nurses have as well as making pain management a high priority and closing the practice gap.</td>
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<td>Bourne (2008)</td>
<td>There is a significant challenge in managing postoperative pain but especially in an opioid tolerant patient.</td>
<td>To understand the terms and challenges of providing postoperative pain management in an opioid tolerant patient</td>
<td>Concepts: Opioid tolerance, opioid withdrawal, patient controlled analgesia, postoperative pain</td>
<td>Random sample of 202 patients with malignant and non-malignant pain with opioid use of at least 6 months, 180 matched pairs were actually included in the study</td>
<td>Case controlled retrospective comparative study</td>
<td>Data collection questionnaire, Chart audits</td>
<td>One out of 10 hospitals reported that they have a protocol for dealing with opioid tolerant patients but this was not specific to postoperative pain. Evidence is very limited and there is no consensus on how to effectively provide adequate pain relief in this population.</td>
<td>More work needs to be done to standardize the pain management that is provided to the opioid tolerant patient when dealing with postoperative pain.</td>
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<td>Rejeh, Ahmadi, Mahammadi, Anoosheh, &amp; Kazemnejad (2008)</td>
<td>Postoperative pain continues to be unrelieved despite the advancement in the nursing knowledge of management.</td>
<td>Perceptions of Iranian nurses of the barriers to providing management of postoperative pain</td>
<td>Concepts: Nursing, Patient, Postoperative pain.</td>
<td>26 nurses-16 nurses, four head nurses, four supervisors, and two matrons. Purposeful and theoretical sampling.</td>
<td>Qualitative</td>
<td>Interviews, Data Analysis</td>
<td>Barriers were identified as: powerlessness, policies and rules of organization, time constraints, communication, interruptions, and physicians leading.</td>
<td>Barriers to managing postoperative pain can result in nurses providing less than optimal pain management. More work needs done to determine how to deal with barriers.</td>
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Reference