NURSES' MANAGEMENT OF POSTOPERATIVE PAIN IN THAI CHILDREN: A HOLISTIC CASE STUDY RESEARCH

SUDAPORN PAYAKKARAUNG

A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY (NURSING)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY
2009

Thesis
Entitled

NURSES' MANAGEMENT OF POSTOPERATIVE PAIN IN THAI CHILDREN: A HOLISTIC CASE STUDY RESEARCH

……
Miss. Sudaporn Payakkaraung
Candidate

……
Asst. Prof. Jariya Wittayasooporn, D.N.S.
Major-Advisor

……
Asst. Prof. Wanlaya Thampanichawat, Ph.D.(Nursing)
Co-Advisor

……
Prof. Suwannee Suraseraniwonge, M.D.
Co-Advisor

……
Prof. Banchong Mahaisavariya, M.D.
Dean
Faculty of Graduate Studies
Mahidol University

……
Assoc. Prof. Fongcum Tilokskulchai, Ph.D.(Nursing)
Chair
Doctor of Philosophy Program in Nursing
Faculty of Nursing
Mahidol University

Thesis
Entitled

NURSES' MANAGEMENT OF POSTOPERATIVE PAIN IN THAI CHILDREN: A HOLISTIC CASE STUDY RESEARCH

was submitted to the Faculty of Graduate Studies, Mahidol University
for the degree of Doctor of Philosophy (Nursing)
on
March 31, 2009

……
Miss Sudaporn Payakkaraung
Candidate

……
Prof. Rutja Phuphaibul,
Ph.D.(Nursing)
Chair

……
Asst. Prof. Jariya Wittayasooporn,
D.N.S.
Member

……
Assoc.Prof. Sutthiluck Tunkeratichai,
Ph.D.(Nursing)
Member

……
Asst. Prof. Wanlaya Thampanichawat,
Ph.D.(Nursing)
Member

……
Prof. Suwannee Suraseraniwonge,
M.D.
Member

……
Prof. Rajata Rajatanavin, M.D., F.A.C.E.
Dean
Faculty of Medicine, Ramathibodi Hospital
Mahidol University

……
Prof. Banchong Mahaisavariya, M.D.
Dean
Faculty of Graduate Studies
Mahidol University

……
Assoc. Prof. Fongcum Tilokskulchai,
Ph.D. (Nursing)
Dean
Faculty of Nursing
Mahidol University

ACKNOWLEDGEMENTS

The accomplishment of this study was made possible with contributions of many individuals. I would like to express my sincere gratitude to Asst. Prof. Dr. Jariya Wittayasooporn, and Prof. Suwannee Suraseraniwonge, M.D., my major and co-advisor, for their guidance and encouragement throughout this study. Special thanks and deep appreciation to Asst. Prof. Dr. Wanlaya Thampanichawat, my co-advisor, for her patience, invaluable advice, and being with me at every step of my study. I would like to extend my acknowledgement to my committee members, Prof. Dr. Rutja Phuphaibul and Assoc. Prof. Dr. Sutthiluck Tunkeratichai for their expertise and invaluable advice.

My special thanks are also given to Prof. Dr. Janice A. Lander, who gave me precious advice on the study about pain management in children. I am also grateful to Elliott's family for their love and support allowed me to develop my proposal throughout my year at Faculty of Nursing, University of Alberta, Canada.

Very special thanks are expressed to all of the children, their parents, nurses, and physicians who participated in this study. They helped me understand pain management in postoperative children as holistic.

Special recognition must go to the Commission of Higher Education, Ministry of Education for the scholarship which enabled me to undertake this study. Thank you to the Thailand Nursing and Midwifery Council for supporting research funding. Administrators and my colleagues at Pediatric Nursing Department, Faculty of Nursing, Mahidol University kept me focused on pursuing excellence in this study.

My sincere thanks also go to my doctoral classmates at Mahidol University for their love, support, and friendship. My special thanks are given to Asst. Prof. Dr. Saovaluck Jirathummakoon who believed in me at time when even I didn't. I say thank you for always encouraging me to pursue my dreams and reach my maximum potential.

Finally, I wish to express my great appreciation to my family, my lovely mother, Boonserm Payakkaraung, my big sister, Jirawan Payakkarung, and my big brother, Sarawoot Payakkaraung; my sister in law, Pongsri Payakkaraung, and my lovely nephews, Geno and Jame. Their wonderful love and support allowed me to complete this dissertation. Finally, my recognition goes to Chumlong Payakkaraung, my dear father who passed away 23 years ago. Without you, I would not have today.

Sudaporn Payakkaraung

NURSES' MANAGEMENT OF POSTOPERATIVE PAIN IN THAI CHILDREN: A HOLISTIC CASE STUDY RESEARCH

SUDAPORN PAYAKKARAUNG 4536765 NRNS/D

Ph.D. (NURSING)

THESIS ADVISORY COMMITTEE: JARIYA WITTAYASOOPORN, D.N.S., WANLAYA THAMPANICHAWAT, Ph.D., SUWANNEE SURASERANIWONGE, M.D.

ABSTRACT

There is ample evidence that children continue to experience unrelieved moderate to severe postoperative pain and suffer from inadequate pain management. Nurses play a vital role in children's postoperative pain management because they care for children 24 hours a day and have a unique opportunity to assess and alleviate pain in children. However, little is known about how and why nurses manage postoperative pain in children as a holistic approach including details on the interaction between nurses and physicians or caregivers. This study aims to describe how and why nurses manage postoperative pain in children in the real-life context of a pediatric surgical intensive care unit and pediatric surgical unit.

This descriptive case study research has been conducted using a multiple-case (holistic) design. A "case" was defined as a "nurse-respondent" who provided care for child-respondents from birth to 15 years who were more than six hours but less than two days postoperative. A "case" also has interactions with physicians, children, and caregivers. This case study research included six nurse-respondents, two physicians, 20 children, and 13 caregivers. Data were collected from multiple sources of evidence including: 1) observation of nurses' activities for pain management and their interactions with physicians, children, and caregivers, 2) interviews of nurses, physicians, and caregivers, and 3) reviews of children's charts and records including documents related to pain management policies.

The findings of this study revealed that nurses' management of postoperative pain in children is a dynamic process. Three major themes were identified as nurses' strategies for managing pain: analgesic administration; providing alternative care or non-pharmacological interventions; and caregiver involvement. Nurses' experience, their perception, and situation in the clinical context were involved in nurses' decisions in managing postoperative pain in children. The four natures and stages of nurses' pain management were: 1) alert stage, 2) experiencing stage, 3) consulting stage, and 4) discouraging stage. Algorithms of nurses' pain management were proposed as a step by step guide for making decisions for managing postoperative pain in children.

These findings provided understanding of the complexities of nurses' management of postoperative pain in children as a holistic approach. A specific clinical practice guideline and training programs for nurses should be developed to enhance pain management in postoperative children.

KEY WORDS: NURSES' PAIN MANAGEMENT / PAIN IN THAI CHILDREN/ POSTOPERATIVE PAIN / CASE STUDY RESEARCH

161 pages

การจัดการของพยาบาลต่อความเจ็บปวดหลังผ่าตัดในผู้ป่วยเด็กไทย: การวิจัยกรณีศึกษาแบบองค์รวม
NURSES' MANAGEMENT OF POSTOPERATIVE PAIN IN THAI CHILDREN: A HOLISTIC CASE STUDY RESEARCH

สุดาภรณ์ พยัคฆเรือง 4536765 NRNS/D

คณะกรรมการที่ปรึกษาวิทยานิพนธ์: จริยา วิทยะศุภร, D.NS., วัลยา ธรรมพนิชวัฒน์, Ph.D., สุวรรณี สุรเศรณีวงศ์, M.D.

บทคัดย่อ

หลักฐานจำนวนมากได้แสดงให้เห็นว่าผู้ป่วยเด็กยังคงมีความเจ็บปวดหลังผ่าตัดในระดับปานกลางและรุนแรง และมีความทุกข์ทรมานจากการจัดการความเจ็บปวดที่ไม่มีประสิทธิภาพ พยาบาลมีบทบาทที่สำคัญในการจัดการความเจ็บปวดหลังผ่าตัดของผู้ป่วยเด็ก เนื่องจากพยาบาลเป็นผู้ดูแลผู้ป่วยเด็กตลอด 24 ชั่วโมง จึงมีโอกาสในการประเมินและบรรเทาความเจ็บปวดของผู้ป่วยเด็ก อย่างไรก็ตาม ยังมีความรู้และความเข้าใจที่จำกัดว่าพยาบาลจัดการต่อความเจ็บปวดหลังผ่าตัดในผู้ป่วยเด็กอย่างองค์รวมอย่างไรและทำไมจึงปฏิบัติเช่นนั้น รวมทั้งปฏิสัมพันธ์ระหว่างพยาบาลกับแพทย์หรือผู้ดูแลเป็นอย่างไร การศึกษานี้จึงมีวัตถุประสงค์เพื่อบรรยายการจัดการของพยาบาลต่อความเจ็บปวดหลังผ่าตัดของผู้ป่วยเด็กในสถานการณ์ที่เกิดขึ้นจริงในบริบทของหอผู้ป่วยไอซียูศัลยกรรมเด็กและหอผู้ป่วยศัลยกรรมเด็ก

การวิจัยกรณีศึกษาเชิงบรรยายนี้ ได้ใช้รูปแบบการศึกษาแบบองค์รวมในหลายกรณีศึกษาโดย "กรณีศึกษา" คือพยาบาลผู้ดูแลผู้ป่วยเด็กทารกแรกเกิดจนถึงอายุ 15 ปี ซึ่งอยู่ในระยะหลังผ่าตัดมากกว่า 6 ชั่วโมงแต่ไม่เกิน 2 วันหลังผ่าตัด พยาบาลที่เป็นกรณีศึกษาจะต้องมีปฏิสัมพันธ์กับแพทย์ ผู้ป่วยเด็ก และผู้ดูแล ในการศึกษานี้มีพยาบาล 6 คน แพทย์ 2 คน ผู้ป่วยเด็ก 20 คน และผู้ดูแล 13 คนร่วมการศึกษา โดยมีการรวบรวมข้อมูลจากแหล่งต่างๆ ประกอบด้วย 1) การสังเกตกิจกรรมของพยาบาลในการจัดการต่อความเจ็บปวด และปฏิสัมพันธ์ของพยาบาลกับแพทย์ ผู้ป่วยเด็ก และผู้ดูแล 2) การสัมภาษณ์พยาบาล แพทย์ และผู้ดูแล และ 3) การทบทวนแฟ้มประวัติของผู้ป่วยเด็กและเอกสารที่เกี่ยวกับนโยบายการจัดการความเจ็บปวด

ผลการศึกษาพบว่า การจัดการของพยาบาลต่อความเจ็บปวดของผู้ป่วยเด็กเป็นกระบวนการที่ไม่หยุดนิ่ง พยาบาลมี 3 วิธีการหลักที่ใช้ในการจัดการความเจ็บปวดคือ การบริหารยาแก้ปวด การดูแลทางเลือกหรือการบรรเทาความเจ็บปวดโดยไม่ใช้ยาแก้ปวด และการมีส่วนร่วมของผู้ดูแล นอกจากนี้ยังพบว่าประสบการณ์ของพยาบาล การรับรู้ของพยาบาล และสถานการณ์ภายในคลินิกในขณะนั้น มีส่วนเกี่ยวข้องกับการตัดสินใจของพยาบาลในการจัดการความเจ็บปวดของผู้ป่วยเด็ก ซึ่งโดยปกติการจัดการของพยาบาลต่อความเจ็บปวดของผู้ป่วยเด็กสามารถแบ่งได้เป็น 4 ขั้นตอน คือ ขั้นตอนกระตือรือร้น ขั้นตอนการใช้ประสบการณ์ ขั้นตอนการขอคำปรึกษา และขั้นตอนท้อใจ นอกจากนี้ ลำดับขั้นตอนของพยาบาลในการจัดการความเจ็บปวดได้ถูกนำเสนอเพื่อเป็นแนวทางในการตัดสินใจในการจัดการความเจ็บปวดหลังผ่าตัดในผู้ป่วยเด็ก

ผลการศึกษานี้ช่วยทำให้เกิดความเข้าใจในความซับซ้อนของการจัดการของพยาบาลต่อความเจ็บปวดหลังผ่าตัดของผู้ป่วยเด็กได้อย่างเป็นองค์รวม แนวปฏิบัติการพยาบาลทางคลินิกและโปรแกรมฝึกอบรมสำหรับพยาบาลควรได้รับการพัฒนาเพื่อส่งเสริมประสิทธิภาพในการจัดการความเจ็บปวดของผู้ป่วยเด็กหลังผ่าตัดต่อไป

161 หน้า

CONTENTS

CONTENTS (cont.)

CONTENTS (cont.)

LIST OF TABLES

LIST OF FIGURES

CHAPTER I
INTRODUCTION

Background and Significance of the Study

Pain is more than an unpleasant sensory or emotional experience associated with actual or potential tissue damage (International Association for the Study of Pain, 1979 p. 249); it is also viewed as a traumatic, stressful, and unique human experience (Carr & Goudas, 1999; Hester, Foster, & Beyer, 1992). Postoperative children will experience pain, and this pain is not only uncomfortable and distressing but can also lead to complications and delayed recovery (Acute Pain Management Guideline Panel, 1992). Postoperative pain reduces functional residual capacity (FRC) and causes inadequate expansion of the lungs, leading to increased oxygen consumption and hypoxemia (Rosenberg-Adamsen, Stausholm, Edvarsen, Zwarts, Kehlet, & Rosenberg, 1997; Sabiston, 1991). In addition, children's postoperative pain impairs deep breathing, coughing, and also hinders early ambulation, which may increase complications, length of hospital stay, and health care costs (Ball & Bindler, 2003; Schechter, Berde, & Yaster, 2003).

Although the treatment of postoperative pain has improved in recent years, children continue to suffer unnecessarily, with ample evidence proving that children continue to experience unrelieved moderate to severe postoperative pain. A study by Gauthier, Finley, and McGrath (1998) based directly on children's own reports showed that 46% of 63 children reported severe postoperative pain. Similarly, Vincent and Denyes (2004) found that 80% of 132 children experienced moderate to severe postoperative pain. In Thailand, Wiroonpanich and Strickland (2004) found that the majority of the five to seven year old Thai children in their study, rated their pain as 'hurts a whole lot', one to two days after abdominal surgery. They also found that after having abdominal surgery, the children felt unhappy, sad, angry, and hurt, which in turn influenced their general behavior and emotions. The findings also showed that the

environment, such as the noise, light, and location of where the children were being treated and recovering also affected postoperative pain. With most children complaining that they experienced more pain as a result of other children in the ward making noise to the extent that they could not sleep properly.

Pain management is a significant aspect of the process of caring for postoperative children. It is now accepted that for moral, humanitarian, ethical, physiological, and psychological reasons, pain should be effectively controlled and alleviated in all children (Fisher & Morton, 1998). Nurses, as principal members of the care team, have a unique opportunity to assess pain and continuously evaluate its treatment (American Pain Society, 1999). Although physicians prescribe analgesics, the principle responsibility for pain relief in postoperative children lies with the nurses, as they decide whether or not to administer analgesic medications (Cohen, 1980).

Nurses must also make decisions when they assess pain in children, and the gold standard for pain assessment is children's self-reporting. However, children less than 3 years old lack the necessary levels of verbal communication to describe their pain intensity as they have not yet developed the cognitive skills needed to do so (O'Rourke, 2004). In these cases, to make clinical judgments of pain, nurses' rely solely on the physiological and behavioral indicators of pain (American Academy of Pediatrics & American Pain Society, 2001; Kwekkeboom & Herr, 2001). However, as they can be misinterpreted, physiological indicators are limited in their value and are problematic in measuring acute episodic pain as postoperative pain (American Pain Society Task Force on Pain in Children, 1996).

It is not easy for nurses to interpret pain responses of young children as they must distinguish restlessness or crying due to pain, from that of hunger or fear (Gehdoo, 2004; Hill & Anderson, 1997). In Thailand, the study of Soonsawad (1997) showed that nurses made an error of assuming that children who slept quietly were not in pain. In fact, children who are playing or, conversely sleeping may felt pain but they use these activities in coping with their pain (Watt-Watson & Donovan, 1992). Nurses are confronted daily with the responsibility of pain assessment and pain management.

As the assessment and management of postoperative pain is an important aspect of nursing practices, nurses must be efficiently prepared to undertake an active role in the management of postoperative pain in children. Nevertheless few studies have shown how nurses actually fulfill this role and in fact several studies have reported that nurses consistently underestimate a child's pain (Goodenough, Addicoat, Champion, Perrott, Taplin, von Baeyer, et al., 1997; Romsing, Moller-Sonnergaard, Hertel & Rasmussen, 1996). Results of certain studies indicate that nurses consistently administer a lesser amount of analgesia to children than recommended by standards (Tesler, Wilkie, Holzemer, & Severdra, 1994), and less than that prescribed by physicians (Jacob & Puntillo, 1999).

Some studies have found there to be a limit to the effectiveness of nurses' pain management practices. McCaffery, Ferrell, Page, Laster and Ferrell (1990) surveyed 2,459 nurses and found them to have a lack of knowledge when it came to opioid analgesics. Twycross (1999) also found that nurses do not give pain management a high priority, citing other aspects of their role, such as communication, teamwork, and supervision are higher priorities. Unfortunately, these studies were not focused on children and relied upon data collected through questionnaires completed from a nurse's perspective. There is thus a strong need to describe nurses' management of postoperative pain in children and to ascertain what actually happens in clinical practice.

Observational studies of nurses' pain management have rarely been undertaken in clinical settings. Strauss, Fagerhaugh, and Glaser (1974) first proposed the importance of the organizational context related to work demands, lack of accountability, and the complexity of the patient-nurse relationship that involve nurses' pain management practices. They found that the patterns of pain and of working with pain varied from ward to ward, linked to the number of staff who worked there. Some researchers have tried to explore how nurses assess and manage pain in children. The observational study of Manias, Bucknal and Botti (2004) demonstrated that nurses used five strategies for assessing pain in postoperative patients who were aged 18 years and older: 1) They asked patients about their pain using simple questions, such as, "Are you in pain?"; 2) They used a numerical rating from 1 to 10 to assess patients' pain; 3) They used this pain scale in combination with

verbal descriptions of the pain to assess the pain; 4) When nurses believed patients were unable to communicate their pain, or when routine medications had been administered, no pain assessment was completed; and 5) They would conduct a physical examination of a painful area to determine if there were any signs of wound complications. Additionally, Twycross (2002) found that nurses would rather wait until a child complained of pain than administer analgesic medication on a regular basis.

In Thailand, most of studies focused on the effectiveness of non-pharmacological interventions for pain relief in Thai postoperative children, for example, touching in school-aged children (Suwantawakup, 1992); swaddling in premature infants (Tantapong, 2000); and positioning in infants (Payakkaraung, Wittayasooporn, Sathornkit, 2003). The findings showed significant differences in pain score when comparing non-pharmacological interventions with routine care. Unfortunately, little is known about how nurses manage postoperative pain in children.

Yenbut, Aeraumnouy, Meesukko, Worrakitpunpon, Fupinwong, and Mungmai (2004) explored nurses' pain assessments and pain management practices for hospitalized children. The findings showed that 91% of 126 nurses who answered questionnaires understood pain assessment and pain management. However, nearly half of nurses reported that they rarely used this knowledge in clinical practice. From reviewing children's hospital charts, 77.2% of 145 charts showed no evidence of pain assessment. Moreover, only 19.3% of hospitalized children received pain medication and the most common pain medication was Paracetamol. The most common non-pharmacological method was soothing speech. Sanansilp, Anotharom, Potranan, Lertkyananee, and Udompanturak (2000) found that 80 % of 200 nurses studied refused to give analgesics to patients because it was either too early for another dose, or there was no prescription. When a patient asked for pain medication and no analgesics had been prescribed in the treatment order, 45% of nurses would give the patient an analgesic they considered being safe before notifying a physician. However, study of Yenbut, et al. (2004) was focused on hospitalized children, and study of Sanansilp, et al. (2000) was focused on nurses providing care for adult patients. Both of these studies were not focused on nurses' management of postoperative pain in children in the real-life event of pediatric surgical unit.

In Thailand, there is a huge gap in the study related to postoperative pain management in children in the complexity of clinical context. The boundaries between the phenomenon of nurses' pain management and context within the surgical unit are not clearly evident. For effective pain management, nurses cannot manage postoperative pain independently. They have to interact with physicians and caregivers and their interactions may impact on nurses' decision for pain management. Other contextual factors in the clinical setting, including traditional patterns of healthcare professionals, the absence of documented pain assessments, and a lack of accountability in relieving pain, hinder efforts to improve the quality of nurses' pain management (Mac, 1996).

There is need to understand the complexity of clinical context relevant to nurses' decision for postoperative pain management in Thai children. To understand how and why nurses manage postoperative pain in children in the real-life context of the surgical unit as a holistic approach, descriptive case studies using multiple case (holistic) designs was thus deemed the most appropriate strategy for this study. Case study research is appropriate to answer "how" and "why" research questions; descriptive case study research presents a complete description of a phenomenon of nurses' pain management within its context. In addition, a holistic design was most fitting to examine the global nature of the phenomenon of nurses' pain management and using replication logic in multiple-case studies can offer a higher degree of reliability and external validity for analytical generalization.

Purpose of the Study

The purpose of this study was to describe how and why nurses manage postoperative pain in children.

Research Questions of the Study

The main research question was:

How do nurses manage postoperative pain in children, and why?

More specifically sub-research questions set out to describe:

1. How do nurses administer analgesics?
2. Why do nurses make the decision to administer analgesics?
3. What are the patterns of the nurse-physician relationship?
4. How do nurses provide alternative care for children?
5. Why do nurses make the decision to provide alternative care for children?
6. What are the patterns of providing alternative care for children?
7. How do caregivers involve in managing postoperative pain in children?
8. What are the patterns of the nurse-caregiver relationship?

Propositions

The initial propositions in this study were as follows:

Proposition 1. Pain management consists of making decisions for analgesic administration, providing alternative care, and caregiver involvement.

Proposition 2. Nursing process is used when nurses make decisions for analgesic administration.

Proposition 3. Nurses had self-confidence in making decision for analgesic administration.

Proposition 4. Less experienced nurses learn analgesic administration from more experienced nurses and adopt it as part of their routine practices.

Proposition 5. Nurses share information related to children's pain and make joint decisions with physicians to administer analgesics.

Proposition 6. Nurses provide alternative care or non-pharmacological interventions for pain relief and suggest caregivers to do the same.

Proposition 7. Nurses had competency in making decision for providing alternative care or non-pharmacological interventions for pain relief.

Proposition 8. Nurses provide alternative care or non-pharmacological intervention for pain relief depends on the children's pain intensity and situation in the clinical context.

Proposition 9. Nurses perceive that caregivers have a significant responsibility for alleviating postoperative pain in children.

Proposition 10. Caregivers are involved in pain assessment and pain relief based on their past experience in pain management for their children.

Proposition 11. Caregivers are involved in determining when a child should receive pain medication and alternative care.

Proposition 12. Pain management is more effective when nurses use holistic nursing care for children and caregivers.

Proposition 13. Having a specific guideline for postoperative pain management in children facilitates nurses to manage pain effectively.

The corresponding propositions for the main research question were proposition 1, 12, and 13.

The corresponding propositions for specifically sub-research questions 1, 2, and 3 were proposition, 2, 3, 4, and 5.

The corresponding propositions for specifically sub-research questions 4, 5, and 6 were proposition 6, 7, and 8.

The corresponding propositions for specifically sub-research questions 7 and 8 were proposition 9, 10, and 11.

Definition of Terms

1. "Nurses' pain management" refers to all activities that nurses perform in order to control and/or alleviate postoperative pain in children.

2. "Children's caregivers" refer to parents, family members, or relatives who care for children during a postoperative period.

3. “Physicians” refer to surgeons or anesthetists who prescribe pain medications for children who had undergone surgery.

Summary

Postoperative pain in children is an undesirable outcome after surgery and nurses have an important responsibility to adopt strategies in order to control or alleviate children’s postoperative pain. As nurses care for children 24 hours a day, they have to quickly assessing children’s behaviors and making decision for pain assessment and pain relief. There is need to understand nurses’ management of postoperative pain particularly in Thai children and nurses’ interactions with physicians and caregivers in the clinical context. This study aimed to describe how and why nurses manage postoperative pain in Thai children. The next chapter will present a review of the literature that is relevant to this study.

CHAPTER II
LITERATURE REVIEW

To gain a better understanding of nurses' management of postoperative pain in Thai children in the real-life context of clinical units, this chapter describes selected literature relevant to the study. The literature is organized into six sections: 1) caring and nursing process; 2) nurses' perceptions of children's pain; 3) nurses' decision-making in respect of children's pain management; 4) nurses' management of pain in children; 5) Nurse-physician relationship and pain management, 6) caregiver involvement in children's pain management; and 7) case study research.

Caring and Nursing Processes

Since the days of Florence Nightingale, the word 'care' has been used in nursing as a generic term for concern, compassion and interest in other human beings, which is why nurses view caring in various ways. Leininger (1981, p. 9) defines *care/caring* in a generic sense as those assistive, supportive, or facilitative acts toward or for another individual human condition. She also defines *professional caring* as cognitive and culturally learned action behaviors, techniques, processes, or patterns that enable (or help) an individual, family, or community to improve or maintain a favorable healthy condition. Lastly, she defines *professional nursing care* as cognitively learned humanistic and scientific modes of helping or enabling an individual, family, or community to receive a personalized service.

According to Bevis (1981), caring is a process and an art form as art is a discipline with theoretical, philosophical, and practical aspects. To care skillfully without studying the philosophy and theory of care is to rely solely on one's instincts and carry it out on a trial-and error basis. Caring is a universal human phenomenon, a feeling that by its very nature induces certain beliefs and forces certain behaviors in every culture of the world. The experience of the feeling of caring goes through a

process of interpretation through language and acts, which are the symbols and manifestations of feelings that can only be expressed in ways that have been socially programmed.

Watson (1985) defines the caring process as that which helps a person attain (or maintain) health, or die a peaceful death. The factors which form the structure for understanding nursing as a science of caring establish a means for promoting positive health changes. Leininger (1981) points out that the discipline of nursing has traditionally been concerned with the caring needs of people, and although caring practices are of interest to other health professionals, they have not been the dominant area of focus as they are in nursing.

The process of nursing is a special way of thinking and acting. It is a systematic, problem solving approach used to identify, prevent, and treat actual or potential health problems and promote wellbeing. It also provides the framework for nurses to use their knowledge and skills to express human caring (Wilkinson, 1996, 4). Nurses use the nursing process to process patient information and decide what to do; the components of which are assessment, nursing diagnosis, planning, implementation, and evaluation.

In the first step, *assessment*, the nurse collects, organizes, validates, and records data about a patient's health status. The nurse obtains data by examining the patient, talking to them and their families, and reading their charts and records. Nursing assessment focused on patient responses to health problems—unlike the medical assessment, which focused on disease processes and pathology (Wilkinson, 1996, 48).

During the stage of *nursing diagnosis*, the nurse will: 1) sort, cluster, and analyze the data in order to identify the patient's actual and potential health problems and strengths; 2) write a precise statement of the problems and factors contributing to the problems; 3) prioritize the problems, and thus provide the basis for the remaining steps of the nursing process.

At the *planning* step, the nurse works with the patient to set goals or outcomes: identifying actions for preventing, correcting, or relieving health problems, and

developing specific interventions for each diagnosis. The product of this step is often a written nursing care plan.

The next step, *implementation*, is composed of undertaking interventions as indicated on the care plan, delegating, and documenting. In the final step, *evaluation*, the nurse determines the client's progress, using the goals of care as criteria, with the nursing care plan revised as needed. The nursing process is cyclical: the nurse must keep reexamining the previous steps to determine what is effective, and what should be changed.

In summary, caring is a crucial and vital component of nursing. To care for someone within the scope of professional nursing is to feel interest in, and concern for, the health and wellbeing of another, and the nursing process will actually facilitate human caring.

Nurses' Perceptions of Children's Pain

Nurses' perceptions of pain in children and nurses' practice for pain relief have previously been explored. Several misconceptions are believed to have influenced nurses' decisions related to adequate pain management in children such as: 1) the myth that children, especially infants, do not feel pain the way adults do; 2) children cannot tell the attending nurse where they hurt; 3) children do not remember pain; 4) it is unsafe to administer narcotics to children because they may become addicted to them; 5) the notion that assessing pain in children takes too much time and effort; 6) if a child does not ask for pain medication he or she is not in pain (Margolius, Hudson, & Michel, 1995; McCaffery & Ferell, 1997; American Academy of Pediatrics and American Pain Society, 2001; Gordon, 2004). In Thailand, Khumpang (1996) and Soonsawad (1997) explored nurses' perceptions of pain and intervention for pain relief in neonates and postoperative children respectively. Although researchers reported that the majority of nurses had rather good perceptions of pain and nursing interventions for pain relief, some nurses still had misinterpretations and believed myths about children's pain behaviors. The findings showed that some nurses still incorrectly perceived that: 1) pain occurs from pathological causes only; 2) children who sleep quietly are not in pain; 3) continuous use of analgesic drugs will cause drug addiction.

In addition, Soonsawad (1997) also discovered an incorrect perception that parent's participation during the intervention process will not alleviate a child's pain, but will instead disturb nursing intervention. Many nurses still hold these misconceptions about analgesic administration and children's pain responses. There is a thus a need for in-depth investigations about nurses' perceptions involved their practices.

Children, particularly young children, are at a disadvantage in that they are not able to identify, describe, or locate their actual pain without the assistance of a health care provider or caregiver. Generally, management of a child's pain remains dependent upon the judgment and expertise of the health care provider, especially pediatric nurses. However, nurses' perceptions regarding pain may influence their assessment of a child's pain and when these assessments are not congruent with the child's own perception of pain intensity, ineffective pain management may occur. Some studies have shown that nurses consistently underestimate children's pain. Certain studies regarding pain assessment have compared children's own pain scores using self-report pain assessment tools, with concurrent ratings given by nurses. Schneder and LoBiondo-Wood (1992) compared the pain scores given by children and nurses and their findings showed a significant difference between the children's and nurses' scores. The findings also suggested that there are differences in pain perception between nurses and children. Similarly, Romsing et al. (1996) examined the relationship between children's ratings of their pain and nurses' ratings of the children's pain in a Danish hospital. They examined the comparison of the pain ratings of 100 children aged 3-15 years old following tonsillectomy, by using the poker chip tool (PCT) and a 10-cm visual analogue scale (VAS). On the day after surgery, the child was asked to score pain twice on the PCT, before and after analgesics. At the same time, two nurses were asked to estimate the child's pain using the VAS. The findings found that nurses underestimated the children's pain. When studying pain in four to six-year-olds, Goodenough, et al. (1997) found that the nurses' pain assessment did not correlate with the children's own assessments.

It is apparent from the above studies, that there are a surprising number of similarities in the incidences of nurses' misconceptions and misinterpretations of pain

in children. These misunderstandings about children's pain have existed over many years, resulting in ineffective pain management.

Nurses' Decision-Making in Respect of Children's Pain Management

A brief review of the literature on clinical decision-making has been conducted to describe theories and models of decision making in nursing, and the Benner's Theory of Novice to Expert. This section is also aimed at describing nurses' experience with pain management and their decision-making in regards to pain management in children.

Theories of decision making can be subdivided into three categories: normative, descriptive, and prescriptive. Normative theories assume that an individual is rational and logical, concentrating on how decisions should be made in an ideal world, usually based on statistical approaches. Normative theories are therefore often concerned with how 'good' a decision is, and do not really consider how those decisions are made in the real world. In contrast, descriptive theories attempt to describe how individuals make their decisions. Finally, prescriptive theories attempt to 'improve' the decisions made by individuals, by examining how individuals actually make their decisions.

Three models of clinical decision making have been recognized from the literature examined: the information-processing model, the intuitive-humanist model, and the multidimensional model (Banning, 2007). The information-processing model uses the scientific hypothetico-deductive approach that originated in medical decision making, and was subsequently applied to nursing. The hypothetico-deductive approach to clinical decision making involves several stages: cue recognition or cue acquisition, hypothesis generation, cue interpretation, and hypothesis evaluation (Tanner, Padrick, Westfall, & Putzier, 1987).

The intuitive-humanist model focuses on intuition and the relationship between nursing experiences, the knowledge gained from them, and how it enriches the clinical decision-making process as they advance along the professional trajectory (Benner, 1984). Nursing appears intuitive to the outside observer and feels internalized by healthcare providers; clinical decisions are the result of an almost unconscious level of cognition (Hamers, Abu-Saad, & Halfens, 1994).

The multidimensional model, O'Neill's clinical decision-making model, is based on a computerized decision support system (O'Neill, Dluhy, & Chun, 2005). This new multidimensional model contains elements of the information-processing model but also examines patient specific elements that are necessary for cue and pattern recognition. The central features of the model include investigating pre-encounter data, anticipating and controlling risk, the provision of standard nursing care, situational and client modification and triggers to hypothesis generation followed by nursing action.

The most well known researcher examining nurse decision making along intuitive fields is Patricia Benner. Benner (1984) theorized that nurses gain practice skills through experience. According to Benner (1984), a nurse begins as a novice relying on very concrete roles of practice. The novice nurse then progresses to the level of advanced beginner, competent, proficient; and finally becomes an expert nurse through years of nursing in actual situations. Benner (2000) notes that nursing is practiced in real settings and caring practices, and that nursing judgments are called "arts" because they are not predictable or perfect. In addition, experiential learning in practice settings cannot be developed unless better practice environments are created.

Nurses' decision-making regarding pain in children has been explored in several studies, the results of which are contradictory. Nurses' experiences with pain assessment strategies and pain alleviating interventions were found by many researchers to influence nurses' decision-making processes, and other studies have assumed that expertise relates to experience (Benner, 1984). Differences have been seen in the decision-making processes regarding pain management in postoperative children by expert and non-expert nurses (Abu-Saad & Hamers, 1997; Hamers, Abu-Saad, Halfens, & Schumacher, 1994; Hamers, van den Hout, Halfens, Abu-Saad, & Heijltjes, 1997; Twycross, & Powls, 2006). Bradshaw and Zeanah (1986) found that experienced nurses used a broader range of assessment cues than less experienced nurses.

Hamers et al. (1997) explored differences in pain assessment and decisions regarding the administration of analgesics between novices (n = 271), intermediates (n = 222) and experts (n = 202) in a pediatric setting. In their study, novices were first

year students, intermediates were fourth year nursing students, and experts were pediatric nurses. The results indicated that expertise did not influence assessment of pain intensity. However, experienced nurses were most confident and were most inclined to administer analgesics. As pediatric nurses have experience in assessing pain in children, this practical experience has given them confidence in their decisions.

Calhoun (2003) explored the relationship between clinical experience and pain management in children aged three years old or less. She found that nurses with less pediatric clinical experience documented children's pain more frequently and intervened more often. However, she used a retrospective descriptive correlational design and reviewed 84 children's charts for whom 18 nurses provided care for, that could not explain the actual nurses' pain management. Therefore, she suggested that more research is required into why nurses are not documenting pain assessments and pain interventions, and that a qualitative study is needed to explore nurses' perceptions of pediatric pain management. Soon after, Young, Horton, and Davidhizar (2006) studied nurses' attitudes and beliefs towards pain assessment tools and the relationship of these attitudes to education and experience. They found that education has a positive impact on the use and outcome of pain assessment tools. In addition, participants with fewer than five years experience had the most negative attitude towards the use of pain assessment tools and a patient's outcome, while those with five to ten years experience had a more positive outlook in the use of pain assessment tools and a patient's outcome.

According to Vincent and Denyes (2004), the answer to questions about actual decision making of nurses will facilitate investigators to have a better understanding of what variables hinder nurses from relieving children's pain. However, some studies observed that nurse's decision-making related to pain management in postoperative children in clinical practice. Twycross and Powls (2006) explored how pediatric nurses make clinical decisions when managing postoperative pain. They found that experienced and less experienced nurses used similar strategies before planning nursing interventions to alleviate pain in children. However, only think aloud scenarios were used and so may not have reflected an accurate picture of nurses' practice in a clinical setting.

In conclusion, it is unclear whether nurses' experiences influences nurses' pain management although there are an increasing number of studies in this area. There is certainly need for further investigation about nurses' experiences and their decision-making when managing postoperative pain in children in a real-life context.

Nurses' Management of Pain in Children

Numerous studies have been conducted on postoperative pain management. The following literature review focused on nurses' pain management with respect to preoperative information, assessment, treatment, and evaluation which are some of the issues highlighted by the Agency for Health Care Policy and Research (Acute Pain Management Guideline Panel, 1992).

Some studies found that having preoperative information about pain had a positive effect on postoperative outcomes (Lewis, 2002; Stomberg, Wickstrom, Joelsson, Sjostrom, & Haljamae, 2003). However, Dihle, Bjolseth, and Helseth (2006) found the gap between what 23 nurses said they did, and what they actually did. The findings showed that nurses value the importance of preoperative information about pain; however, observations revealed that such information was very rarely given when the patient specifically requested it. Most of the information given to patients was concerned with the routine of the recovery unit, and the care on returning to the unit after operation.

Pain assessment is an essential component of pain management because pain is highly subjective and difficult to communicate and assess, particularly in younger children who lack the necessary verbal communication or cognitive skills for describing their pain intensity. A few studies are available for review, which have looked at nurses' pain assessments and their practices. Simons and Macdonald (2004) explored pediatric nurses' view on pain assessment tools. They found that 61 out of 100 nurses examined indicated they did not have a preference for a pain assessment tool, and although had the theoretical knowledge of pain assessment and pain assessment tools, this did not mean they were able to put this knowledge into practice. Salanterä (1999) explored nurses' assessment of children's postoperative pain managed by 303 pediatric nurses in university hospitals in Finland. The findings

indicated that nurses assessed pain mainly by observing changes in a child's behavior and changes in physiology. However, they also found that pain assessment tools were rarely used, with only 18% of the nurses using them.

All the above studies focused on pain assessment from nurses' perceptions and their beliefs about pain assessment in children. The study by Fuller (1998) described the process of 40 pediatric nurses used to assess pain in newborn to 12 month old infants. The findings from interviewing these nurses resulted in categorizing the description of the pain assessment process in infants into six steps, as follows: (a) acknowledging the infant's distress signal(s); (b) hypothesizing about the cause(s) of distress; (c) considering clinical data and judgments; (d) comfort measure testing; (e) applying the principle of consolability; (f) assessing the level of pain. The findings from Fuller's study are valuable in understanding the pain assessment process even though the study focused only on the pain assessment of 23 videotaped infants with various medical and surgical statuses.

A recent study of Manias et al. (2004) observed how nurses make decisions in their assessment of patients' pain in the postoperative clinical setting. Fifty-two nurses were observed whilst working a day shift with postoperative patients. The findings highlighted five strategies that nurses used for assessing pain in patients: 1) They asked patients about their pain using simple questions; 2) They used a numerical rating scale to assess the pain; 3) They used the pain scale in combination with verbal descriptions of the pain; 4) They did not assess pain in patients who were unable to communicate their pain, or when routine medications had been administered; 5) They conducted a physical examination of the painful area. This study also reported there to be poor communication between nurses and patients, no systematic assessment, and a limited use of a valid assessment tool. Dihle et al. (2006) also found that the nurses said they assessed pain by communicating with the patients and observing them. However, during the observations it was noticeable that nurses communicated differently with the patients and had varying degrees of attention to the patients' signs of pain.

Numerous studies have focused on interventions to alleviate pain, often investigating nurses' use of pharmacological and non-pharmacological methods for

pain relief. Vincent and Denyes (2004) examined the abilities of 67 nurses to administer analgesics to alleviate pain in 132 children. They found that the nurses tended to administer greater amounts of analgesia to children reporting higher pain levels. Hamers et al. (1994) and Abu-Saad and Hamers (1997) also found that nurses had negative feelings regarding the use of medications in children. Some were hesitant to give pain medications for fear of the children becoming tolerant to them; while others postponed the administration of pain medications for as long as possible. Similarly, Sanansilp et al. (2000) found that the majority of nurses (80%) refused to give analgesics because it was either too early for another dose or there was no prescription. Only the study of Dihle et al. (2006) increased the understanding of how nurses manage pain. In treatment of postoperative pain, nurses claimed that they would treat pain following up to date knowledge. However, the observations revealed that insufficient treatments of pain were followed. Most nurses would often offer pain medication without being asked, and with an explicit communication to encourage the patient to take medication before ambulation.

Various non-pharmacological interventions have been used for postoperative pain relief in Thai children, for example, touching in school-aged children (Suwantawakup, 1992); swaddling in premature infants (Tantapong, 2000); and positioning in infants (Payakkaraung, et al., 2003). These studies used an experimental design or quasi-experimental design. The findings showed significant differences in pain response when comparing non-pharmacological interventions with routine care. However, there was less evidence of these methods being used in practice. Yenbut et al. (2004) explored the situation of nurses' pain assessments and pain management practices for hospitalized children in a university hospital. The findings showed that 91% of 126 nurses who answered questionnaires understood pain assessment and pain management. However, nearly half of the nurses reported that they rarely used this knowledge in clinical practice. In addition, 77.2% of 145 charts of hospitalized children showed no evidence of pain assessment. Regarding pain management, only 19.3% of hospitalized children received pain medication, and the most commonly used pain medication was paracetamol. The most common non-pharmacological method was soothing speech. The observational study of Dihle et al. (2006) found that even though nurses said they rarely used non-pharmacological

intervention to alleviate pain, researchers observed some nurses using methods such as cold treatment and massage after knee surgery to relieve swelling and pain.

For the continuous caring and safety of patients, documentation of daily nursing care in patient's records is very important. In 1992, the Acute Pain Management Guideline Panel developed acute pain management guidelines and emphasized that pain should be assessed, reassessed, and documented: 1) preoperatively; 2) routinely at regular intervals postoperatively; 3) with each new report of pain; and 4) at a suitable interval after giving pharmacological intervention. The nurse was to be responsible for assessing pain, giving interventions, reassessing, and recording information related to pain management.

In a prospective audit study by Dalton et al. (2001), 787 adult patients' charts at six sites were reviewed to evaluate documentation of practice provided by a multidisciplinary team of nurses, physicians, and pharmacists. All team members participated in an educational program on postoperative pain management. The findings showed that documentation of assessment, pain treatment, and management outcome data was infrequent and inconsistent. They suggested that more documentation of patient pain history, clinical problems, treatment, and follow-up action is needed to improve clinical practice and research. Manias (2003a) audited 100 patients' charts on the operation day and over the first four days following surgery to examine the prescribing and administering activities for postoperative pain management, and to describe nurses' documentation practices. The results showed that nurses had documented inadequately in three major areas: 1) pain assessment, 2) use of non-pharmacological interventions, and 3) outcome of interventions. Based on the review of literature, it can be concluded that nursing documentation related to pain management is still inadequate.

Although nurses have suitable knowledge regarding pain assessment and strategies for alleviating pain in children, both pharmacological and non-pharmacological in nature, the ability to apply the knowledge gained in clinical practice is not as apparent. Pain management in children is often researched outside of the context of clinical practice and little is known about interactions within the context of a clinical setting and how they impact nurses' pain management. Research

approaches need to therefore describe how and why nurses manage postoperative pain in children as a holistic view in the real life context of a clinical setting.

Nurse-Physician Relationship and Pain Management

The relationship of healthcare professionals in the teamwork, especially, nurses-physician relationship is important for improving pain management. Brockopp, Brockopp, Warden, Wilson, Carpenter, and Vandeveer (1998) examined barriers to the effective management of pain encountered in acute care setting in six institutions located in the southeastern United States. The finding showed that one of seven major barriers to pain management was poor working relationships between nurses and physicians. Nurses reported difficulties in getting physicians to work with them on issues of pain management. Nurses believed that change was needed but was not possible unless physicians took the lead. At three institutions physicians criticized nurses for their lack of knowledge and inadequate patient care regarding pain management. Van Niekerk and Martin (2003) studied about the perception of 1,015 nurses and found that nurses had encountered at least one type of barrier to effective pain management, including insufficient co-operation by physicians and inadequate prescriptions of analgesic.

Manias (2003b) examined how nurses managed patients' pain and anxiety within the two gastro-surgical units in a public teaching hospital in Australia. She found that communication between nurses and physicians also influenced nurses' pain and anxiety management decisions. Informal communication with physician was limited normally to requesting changes in the drug charts and physician from the pain service only examined patients if the medical consultant of the particular unit wrote a referral letter. Burke and Mitchell (2004) also found that poor communication between nurses and physicians creates the conditions for acrimony, frustration, and distrust that can lead to ineffective care and a greater risk of error.

In summary, the interaction of healthcare professionals in the teamwork, especially nurse-physician interaction is the important factor for nurses' decision in the effective pain management.

Caregiver Involvement in Children's Pain Management

Effective pain management depends on accurate pain assessment, particularly identifying children's behaviors. However, nurses may not understand a child's behavior well because of short lengths of stay in hospital. Caregivers, that are parents or family members, have a particular expertise regarding their child's behaviors and may be a valuable source of information in assessing a child's pain. Simons, Franck, and Roberson (2001) interviewed 20 nurses and 20 parents about their perceptions of parent involvement in the management of children's pain. They found that parental involvement in their child's pain management is superficial and limited in nature and nearly half the parents indicated that they received inadequate information. However, most of them did not approach nurses. Communication difficulties between parents and nurses conveyed feelings of frustration. Similarly, Carter, McArthur, and Cunliffe (2002) interviewed 15 parents/caregivers about the way in which they assessed and managed their children's pain. The findings showed that assessment of pain was an uncertain and complex process requiring parents to draw on skills and knowledge developed over a number of years. Parents used different strategies for both the assessment and management of pain. They emphasized that effective pain assessment and management was predicated on knowing the child as an individual. The findings indicated that vocalization was often a key means of pain expression, with the children either crying and/or moaning. Additionally, parents often felt isolated in relation to pain management and under-used as a resource by health professionals.

Invaluable results from qualitative studies of Woodgate and Kristjanson (1996) revealed the associations between nurses and parents. The study aimed to describe how parents and nurses responded to postoperative pain in children. Participant observation was used to identify care behaviors and the care context in the postoperative period of 11 children ranging from 2-6 years of age. They found that parents act as a bridge between nurses and children, particularly during periods of severe pain. Parents played a pivotal role in monitoring and comforting their children when they were in pain. Parents were always alert to signals of pain and would respond immediately to any movement or identified behavior changes in their children. Indicators of pain identified most often by parents included: facial

expressions indicating pain, changing in personality or mood, rubbing or pointing to a painful body area, and crying or verbal expression of pain. Although all parents were able to identify signs of pain, they also expressed difficulties to ascertain their child's pain in the real events of hospitalization. Additionally, they expressed a need to be told more about how to deal with their child's pain.

In summary, the findings of the above studies showed there to be a lack of effective communication between parents and nurses. Thus, there is a clear need for nurses to invite caregivers or parents to share their information and take roles in relation to pain management.

Case Study Research

Case study research is one of the most challenging types of research and most useful for investigating complex issues (Yin, 2003a). Case study research has been widely used and promoted by researchers from a number of disciplines, including Education (Cheunwattana, 1998; Seepho, 2002; Thewphaingarm, 1998), Economics (Vannukul, 2002), and Nursing (Bergen & While, 2000; Tungulaboriboon, 2002). Although definitions of case study research vary (Polit & Beck; 2004, Stake, 1998; Yin, 2003b), they still contain common elements and purposes that allow an in-depth investigation of a particular case using a variety of methods to investigate the phenomena in question. This study adopts Robert K. Yin's definition (2003b, p. 13) that a case study is: "…an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident." According to Yin (2003, a, b), the richness of the context creates the distinctive technical challenges for the case study as: (1) the study will likely have more variables of interest than data points; (2) the study will likely need to use multiple sources of evidence, with data converging in a triangulating fashion; and (3) even if all the relevant variables are quantitative, distinctive and rigorous, strategies are required for research design and analysis. Therefore, case studies are information rich, building up very comprehensive in-depth understanding of complicated real-life interactions and processes. It is also holistic, paying special attention to natural contexts and settings.

The case study as a research strategy is used in many situations to gain knowledge of a bounded phenomenon (Stake, 1998). The case can be an individual, a social group, an event, a program, a process, an organization, or a community (Mariano, 2002; Patton, 1990; Yin, 2003b). Yin (2003b) recommended that case study research is appropriate to answer "how" and "why" questions asked about a contemporary set of events, over which the investigator has little or no control. This statement differentiates a case study from other designs, not only from experimental and quasi-experimental designs which require control of behavioral events, but also from historical research which does not focus on contemporary events, and from surveys and qualitative study which limit the number of variables under study.

Yin (2003b, p. 14-15) warns of making any attempt to associate case study research with a particular paradigmatic position, that is, positivist and non-positivist philosophy. Yin (2003b) also commented that case studies can be based on any mix of quantitative and qualitative evidence. He also noted that the case study should not be confused with “qualitative research.” However, some authors argue that a case study can be strongly associated with qualitative research because it focuses on “real situations” (Patton, 1990; Stake, 1998). Case study research is also differentiated from ethnographies which require long periods of time in the “field” with emphasis on detailed, participant-observational evidence. In addition, case studies need data from multiple sources of evidence including documentation, archival records, interviews, direct or participant observations and physical artifacts (Yin, 1998). Each source of evidence has its strengths and weaknesses; no single source is completely superior to the others. Therefore, Yin (2003b) recommends the use of as many sources of evidence as possible, although not all sources are relevant for all case studies.

Yin (2003a) categorized case studies into six basic types, based on a 2 x 3 matrix. The six types are different combinations of two categories, *number of cases* and *purpose of the study*. First, case study research can be based on the number of case(s) within the same study - *a single case or multiple cases*. Second, any kind of single study or multiple case studies can be categorized by the purpose of the study - exploratory, descriptive, or explanatory (causal). *Exploratory case study research* is used when the literature or existing knowledge base is poor and no clues for

conceptual frameworks or remarkable propositions are available. The framework of the study must be created ahead of time. *Descriptive case study research* presents a complete description of a phenomenon within its context. Finally, *explanatory case study research* seeks to explain various aspects of cause-effect relationships or explain how events happened.

Yin (1998, 2003b) describes four types of case study designs: (1) single-case (holistic) designs; (2) single-case (embedded) designs; (3) multiple-case (holistic) designs; and (4) multiple-case (embedded) designs. Both single and multiple-case studies provide a choice of a holistic or embedded design depending on the kind of phenomenon being studied. A *holistic design* examines the global nature of the phenomenon and studies only a main unit of analysis, whereas an *embedded design* also pays attention to subunit(s) or "sub-cases." In other words, the embedded case study may have a main unit of analysis but also one or more subunits of analysis within the main unit. Within this framework, the current study will use a descriptive case study using multiple case (holistic) designs because it is the appropriate strategy for this study, which focuses on holistic descriptions of how and why nurses manage postoperative pain in children in the real-life context of a clinical practice.

Yin (2003b) summarized three basic steps for a good case study design: 1) defining the "case" in the study; 2) justifying a choice of a single or multiple-case study; and 3) deliberately adopting or minimizing theoretical perspectives. According to Yin (2003b), case study research has five important components: the study's question; its propositions which reflect on a theoretical issue; its unit(s) of analysis (the event, entity, or individuals noted in the research questions); the logic linking the data to the propositions; and the criteria for interpreting the findings.

Three principles of data collection for case studies are 1) using multiple sources of evidence to triangulate data, 2) creating a case study database to increase reliability, and 3) maintaining a chain of evidence to provide links to research questions and conclusions. The case study research allows researchers to use holistic and systematic approaches to answer research questions, and to use multiple data sources, including documentation, archival records, interviews, direct or participant observations and physical artifacts (Yin, 2003b). The case study method also provides an opportunity

for the investigator to discover commonalities and diversities in multiple-cases by analyzing and comparing individual cases. Yin (2003b) emphasized that each individual case may be considered similar to a single experiment and therefore multiple cases could be viewed as similar to multiple experiments. Each individual case study consists of a “whole” study, in which facts are gathered from various sources and conclusions drawn on those facts. Therefore, case studies do not need to have a minimum number of cases, or random "selection" of cases (Yin, 2003b). However, selecting cases must be done so as to maximize what can be learned in the period of time available for the study.

The selection of cases is a crucial step for generalizing and answering research questions. Yin (2003b) emphasizes that a case study does represent a sample by itself and so the goal of the method is to generalize and develop theories (analytical generalizations) and not to enumerate frequencies (statistical generalizations) to a wider population. With analytical generalization, theoretical propositions are developed to offer theoretical explanations of the phenomenon under study. Therefore, each case must be carefully selected for a literal or theoretical replication. The literal replication case in this study, having the similar characteristics as the model case, has been sought to predict similar findings in the phenomena. In the same manner, the theoretical replication case has been selected as the next case to obtain contrasting findings.

Developing a case study database is one of the most important tactics to increase the reliability of case study research. It is also a significant process of data collection and analysis. Yin (2003b) explained that a case study “database” was analogous to the “raw data” in an experiment study or survey, while Merriam (1991) defined it as the “case record.” Yin (2003b) suggested developing a case study protocol as a significant strategy for increasing the reliability of case study research, which is intended to guide an investigator in carrying out the data collection on the whole research project. He also recommended the use of a case study protocol as part of a carefully designed case study.

Validity and reliability of case study research

In qualitative research, creditability or trustworthiness is usually used instead of reliability and validity which are terms used more commonly in quantitative or empirical social research. Since case studies are one form of empirical research, validity and reliability are relevant to case study research (Yin, 1998; Yin, 2003b). The four tests which have been used to address the quality of empirical social research are: (a) construct validity, (b) internal validity, (c) external validity, and (d) reliability.

According to Yin (2003b), construct validity is especially problematic in case study research. However, three tactics available to increase construct validity are: (1) using multiple sources of evidence, (2) establishing a chain of evidence, and (3) having key informants review a draft of the case study report. The case study is known as a triangulated research strategy and the need for triangulation arises from the ethical need to confirm the validity of the processes. Triangulation can include comparing the perspectives of several participants, comparing interviews with other sources of evidence including observational or documentary data, or comparing the consistency of responses over time (Mariano, 2002). In case studies, this can be done by using multiple sources of data (Yin, 2003b).

Internal validity is a concern in causal or explanatory case studies (Yin, 2003b). The analytic tactic of pattern matching and explanation building can help a case study to strengthen its internal validity. Internal validity is enhanced when the patterns coincide and external validity deals with knowing whether the findings can be generalized beyond the immediate case. External validity for case studies is based on analytical generalization; generalizing from case studies, like experiments, is not a matter of statistical generalization (generalizing from a sample to a universe) but a matter of analytic generalization (using single or multiple cases to illustrate, represent, or generalize to a broader theory) (Yin, 2003b). He also suggested using the analytical device of generalizing to some theory through replication logic. A multiple-case study design, by its logic, can offer a higher degree of reliability than a single case design because it can be replicated.

Summary

Previous research has been undertaken about the management of postoperative pain; however, most studies focus on specific points of pain management, or on particular factors relevant to pain management. Little is known about how and why nurses manage postoperative pain in children. No study gives a complete picture as a holistic description of nurses' management of postoperative pain in children. Case study research is the preferable method and strategy for studying nursing as "it happens" in the "here and now", that is a contemporary phenomenon when the researcher has not much control over a given situation. Descriptive case study provides in depth detail focusing on the particulars within a bounded evidence to answer "how "and "why" questions. It can help provide a humanistic, holistic understanding of a situation in a complex context as well as the details of an individual.

CHAPTER III
METHODOLOGY

This chapter describes research design, population and respondents, criteria for selecting the cases, and setting. It includes descriptions of the instruments, procedures for data collection, and data analysis. It also addresses the issue of validity and reliability, and the protection of the human subjects.

Research Design

Descriptive case study research using multiple-case (holistic) design was employed in this study. In the complexity of the clinical context, nurses manage postoperative pain in children depended upon their own decision. When faced with the complicated problem of unrelieved pain in children, nurses used different strategies to alleviate pain based on their decision. During managing pain, nurses had interactions with children, physicians, and caregivers and their interactions may impact on nurses' decision for pain management. Context in different surgical units or the workload in various situations may impact on nurses' decision making for pain management. Therefore, nurses' pain management was a complexity phenomenon and the boundaries between context in surgical units and phenomenon of nurses' pain management are not clear.

Little is known about how and why nurses manage postoperative pain in children including details on the interactions within the real-life context of surgical units. Understanding nurses' management of postoperative pain in children as a holistic need to collect data from multiple data sources (direct observation, reviewing charts and records, and interviewing nurses, physicians, and caregivers) using multiple methods (qualitative and quantitative methods) from multiple cases in order to expand analytical generalization. To understand holistic and meaningful descriptions of

nurses' pain management within its context, descriptive case studies using multiple case (holistic) design was the most appropriate strategy for this study.

Population and Respondents

The population of this study was made up of nurses who provided care to postoperative children. The "Case" or "Unit of Analysis" in this study was the Registered Nurse (RN) who worked in the pediatric surgical intensive care unit or the pediatric surgical unit and provided care to children who were more than six hours but less than two day in the postoperative phase. The nurses also interacted with physicians and caregivers while they worked.

The potential "physician-respondents" of this study were physicians prescribing pain medications for child-respondents who had undergone surgery. The potential caregivers of this study were caregivers who stayed with the postoperative children at the time of observation.

Criteria for Selecting the Cases

A nurse-respondent was viewed as a "case." Six replicated cases, both literal and theoretical replication, were included. Several criteria were used to select cases from 35 nurses who provided care for postoperative children in the Pediatric Surgical Intensive Care Unit (PSICU) and Pediatric Surgical Unit (PSU). The first step in selecting the case was to search for a group of nurses whose characteristics matched the main criteria of: 1) being a Registered Nurse; 2) providing care to postoperative children; and 3) willing to participate in the case study. Thirty nurses who matched the criteria were enlisted and considered as potential nurse-respondents in this study. Before beginning the case study, three pilot cases were conducted.

Pilot cases were nurses who working in the PSICU where admitted children with critical period after surgery. Children in this unit received many kinds of pain treatment including continuous analgesic infusion via intravenous or epidural catheter, intermittent intravenous injection, and oral administrations. It was assumed that nurses who working in this unit had experience in managing postoperative pain in children. The result of the pilot cases helped to understand the routine practices of nurses' management of postoperative pain in children. Moreover, the findings from three pilot

cases were very useful in adjusting the case study protocol and revising the propositions to make them clearer.

In selecting the model case or the first case, emphasis was placed on the skills of nurses in managing postoperative pain in children related to the three chains of evidence: 1) analgesic administration; 2) providing alternative care or non-pharmacological interventions; and 3) caregiver involvement. The first case had been working in the PSICU for 10 years. She had been confronted with many situations of pain management conditions, and knew how to administer analgesic very well, interact with physicians and caregivers, and was skilled in providing non-pharmacological interventions; she would also allow caregivers to involve in pain management. From her abilities to manage pain, it was interesting to study her as the model case.

The findings from the model case become guidelines to select the second case study, the replication case, which was used to confirm and compare the findings from the model case. The abilities to manage pain of the second case were similar to the model case whereby the nurse performed outstanding practices in managing postoperative pain in children. The second case used a variety of non-pharmacological interventions to alleviate pain in children and let caregivers involve in treatment planning. Findings also indicated that she used similar pain management process to the model case. The only thing that differed was the ability of the second case and model case in making decisions in analgesic administration. The model case was considered excellent in making decisions in analgesic administration when faced with complicated pain in children, while the second case was considered only good in analgesic administration because she felt frustrate when faced with the complicated pain in children. However, if determined as a whole, these first two cases were very similar in managing postoperative pain in children. Therefore, the second case study could be described as a literal replication case.

The findings from both cases were used as guidelines to search for further cases but still maintain three chains of evidence in order to better understand the processes and patterns in managing postoperative pain in children. So the nature of the third case study was chosen to have the most similarities to the model case and the second case. The third case was considered good in making decisions in analgesic

administration, providing alternative care, and good interaction with caregivers. To understand the patterns of decision making more clearly, a fourth case was selected.

Even though the fourth case was similar to the first three cases, their nature was meant to be closest to the model case regarding their abilities in managing postoperative pain. The nurses in this case were able to make excellent decisions in analgesic administration, and interacted with the physicians when planning and adjusting the pain treatment. They were also excellent in involving with caregivers managing children's pain.

The findings from four cases were quite similar and could be described as literal replication cases. In order to answer research questions and verify the propositions, a fifth case was selected to find contrast findings. The fifth case had only three years work experience as a Registered Nurse. From having less experience, the nurse had difficulty in making decision for administrating pain medications, using non-pharmacological interventions, and communicating with the physicians, children and their caregivers. The result from the fifth case was that it could be seen that the pattern of managing postoperative pain in children according to three chains of evidence was different from the first four cases. Therefore, the fifth case can be described as the theoretical replication case. Also in order to verify the propositions, a sixth case was selected. The findings from the sixth case showed similarities with the fifth case and showed differences compared to the rest of the four cases. After analyzing within and between the cases using the method of pattern-matching, the pain management processes and patterns in each chain of evidence were explained. Data collection was then stopped because the saturation of information was reached. The criteria in selecting each case are shown in the Table 3.1.

Settings

The "cases" or "nurse-respondents" for this study were recruited from nurses who worked in the pediatric surgical intensive care unit and pediatric surgical unit of a university hospital located in Bangkok, Thailand. To describe nurses' decision making in managing postoperative pain in children in different contexts including severity of illness, type of surgery, pain treatment, and the nurse to children ratio.

Table 3.1 The criteria in selecting cases

Case	Analgesic administration	Providing alternative care or non-pharmacological interventions	Caregiver involvement
I	Excellent	Excellent	Excellent
II	Good	Good	Excellence
III	Good	Good	Good
IV	Excellent	Excellent	Excellent
V	Fair	Fair	Fair
VI	Fair	Fair	Fair

The Pediatric Surgical Intensive Care Unit (PSICU)

The pediatric surgical intensive care unit provides care for children from neonates up to 15 years old who must undergo major operations that cause tissue injury to several organs, large incisions, or long durations of surgery. After operations, most children have difficulty breathing and need to use a ventilator. Some children who had the endotracheal tube removed and so were not using the ventilator to support their breathing were closely observed with their vital signs recorded and oxygen saturation monitored every one or two hours. As most children undergo major operations, surgeons administer continuous analgesic infusions via intravenous or epidural catheter and intermittent intravenous injection to control or alleviate pain. For a child with continuous analgesic administration via an epidural catheter, an anesthetist from acute pain service is responsible for prescribing pain medications and management for the child. As in most ICUs, there was an abundant resource of nursing staff, medical equipment, and drugs for taking care of critically ill children undergoing surgery.

In this unit, there were eight beds for children and a total of 22 registered nurses to take care of postoperative children. Nurse was usually assigned to take care of only one or two children. During the morning shift from Monday to Friday, six nurses were on duty, but only five nurses were on duty on Saturday and Sunday mornings. Case and team assignment were used in this unit. Each nurse would be responsible for one or two children. In the real-life event, all nurses help each other to provide nursing

care to all children because some tasks require two staff members, such as performing resuscitation, suctioning from an endotracheal tube, venipuncture, and so on. Nevertheless, a nurse must provide care for the children in her responsibility as a priority.

When there were six nurses on duty, the most experienced nurse would be assigned as the incharge nurse. Incharge nurse assigned work for other nurses based on the nurses' experience and considered who was suitable for a child with mild or severe conditions. Priority is given to the children with the most severe conditions such as those on a respirator, in unstable conditions, with an electrolyte imbalance, or in need of several treatments. Children considered to have severe conditions are those who need to use a ventilator and are in an unstable condition. They need to be monitored closely with their vital signs recorded every 30 minutes or one hour. Children considered to have mild conditions are those who do not need to use a ventilator and are in a stable condition. They need to have their vital signs recorded monitored every two to four hours.

The head of the unit normally takes the role of incharge nurse, responsible for checking medical orders including pain treatment, and is not assigned to take care of any children. The second most experienced nurse acts as the deputy incharge nurse, who cares for a child with mild conditions and covers the shift for the incharge nurse when she attends the meeting with the Surgical and Orthopedic Surgery Nursing Division in the afternoon. The third nurse with less experience must take care of a child with severe conditions, whilst the remaining fourth and fifth nurses, who have less experience, are assigned to care for two children with mild conditions, or for one with severe conditions and one with mild conditions, depending on the overall condition of all the children at any given time. The sixth nurse, with the least experience, takes care of two children with mild conditions and prepares total parenteral nutrition from 9.30-11.00 A.M. Furthermore, the third nurse is assisted by a practical nurse to care for the child with the most serious conditions.

The nurses have a wide range of responsibilities from providing, dispensing, injecting medicines, as well as dressing wounds or giving additional treatments to a child as ordered by physicians. Moreover, they must report children's conditions to the

physicians each time they visit the children. They also explain children's conditions to caregivers, giving advice, educating them, and answering any questions that may arise. They also coordinate between a surgeon and caregiver because a surgeon must describe the details of a child's operation directly to a caregiver after surgery.

In the morning shift, there would be heavy workloads during the physicians' visit and examination of children as the physician would give medical orders for the children. Some children's wounds needed dressing, while others may have needed to be weaning of a ventilator. Furthermore, one or two children would be transferred to the operation room while two or three children were returned from recovery room to the unit. The workload in this unit increased whenever several children were removed back from the recovery room. At the same time, children with improved conditions might be transferred back to the pediatric surgical unit.

There are only four nurses working in the evening and night shifts. If all eight beds are occupied, the most experienced nurse acts as the incharge nurse, responsible for two children with mild conditions and must check and administer treatment to them. The second most skilled nurse must take care of a child with the most severe conditions and another one with mild conditions, with the assistance of a practical nurse. The third and fourth nurse will take care of one child with severe conditions and one with mild conditions, respectively. Although the workloads in the evening, night, and morning shifts are almost equal, only four nurses work in the evening and night shifts, so they are forced to work together closely, especially when they must take care of all eight children. Moreover, a child must be transferred back to the pediatric surgical if the PSICU needed space to admit a new case with more severe conditions.

The Pediatric Surgical Unit (PSU)

The pediatric surgical unit provides care for children from neonates up to 15 years of age who undergo minor operations with no impact on their respiration, including plastic surgery and lower abdominal surgery. After such an operation they are transferred from the recovery room to the pediatric surgical unit. Most surgeons prescribe intermittent analgesic per oral or per intravenous and it is rare to find a child with continuous analgesic infusion at this unit.

This 30-bed ward has six special rooms and 24 general beds that are placed in five rooms. Room 1 is for six children aged less than one year old who have undergone thoracic or abdominal surgery and need close observation; therefore, this room is close to the nurses' station. With three beds, Room 2 is an isolation room for infectious children, but if there are no infectious children, the room is used for children that have undergone plastic surgery. Room 3 has five beds mainly for children with cleft lip and cleft palate repair surgery. Older children who can help themselves stay in Room 4, which has five beds and is furthest away from the central nurse station. Room 5 has five beds for newborns.

There were 13 registered nurses working in this ward and the unit. During the morning shift, five nurses were on duty while there was only two nurses were on duty in the evening shift. In the morning shift, head nurse would be assigned as the incharge nurse. Other nurses were divided into two teams, with two nurses from each team assigned to take care of 10 to 15 children. In the morning shift, the team with the greatest workload was the team that had to transfer children, normally three or four, to the operation room. That team had to also take care of these children on their return from the recovery room to the ward in the afternoon.

Work for Team 1 (all special rooms, room 1, and room 2) increased when 4-6 children were staying in special rooms whilst there were children in Room 1 and 2 that needed close observation. As special rooms are quite far from the central nurse station, whenever a parent or caregiver called the nurses who were providing care for the children in room 1 or room 2, delays were caused in providing care to a child in the special room. Work for Team 2 (room 3-5) increased when 3-5 neonates were staying in Room 5. It would also cause the nurses in team 2 having a greater workload than the nurses in Team 1.

The incharge nurse makes the decision regarding which team of children should be cared for by two nurses. If the ward has a total of 20 children, the nurse to children ratio would be 1: 5. Practical nurses also assisted in basic nursing care such as cleaning, measuring vital signs, and providing food. However, the nurses were responsible for offering nursing care as well as writing nurse's notes for every child in their team. They were also given special duties whilst the incharge nurse performed

treatment, checking orders and giving health education to caregivers; while the less experienced nurse in the team would have to check the emergency cart, and arrange, dispense, and give intravenous medication.

Only two nurses provided care for children in the evening and night shifts with the more experienced nurse acting as incharge and leader of the team, checking pain treatments and giving health education to children and caregivers. The less experienced nurse would act as leader of another team with the least workload, and check the emergency cart, and arrange, dispense, and inject medicines intravenously to all the children in the ward. Each team is also assisted by a practical nurse. Therefore, if each team was responsible for 10 children, the nurse to children ratio in the evening and night shifts would be 1:10. To consider which team has a greater workload, children's conditions and their request for close observation and care would be observed. In other words, the team with the greater workload is that which has to care for more children from the recovery room, special room, and neonates in Room 5 who need special care. Workloads are also increased in some situations, particularly in the morning shift when two to four children from the recovery room or new children had to be admitted to the ward at the same time.

Instruments

Interview guides

Three initial interview guides were developed by the researcher based on the research question and literature on pain management in children undergoing surgery. First, the interview guide for interviewing nurses (Appendix B) set out questions concerning how and why nurses manage children's postoperative pain. Second, the interview guide for interviewing physicians (Appendix C) explored pain treatment and their collaboration with nurses to manage postoperative pain in children. Finally, the interview guide for interviewing caregivers (Appendix D) explored caregivers' perceptions about nurses' management of postoperative pain and their experience in alleviating their child's pain. After the researcher analyzed the data from observations and reviewed a child's hospital record, the researcher revised interview guides for

interviewing the nurse-respondent in order to confirm and investigate in-depth information related to her decision for managing postoperative pain in children.

The nurse data form (Appendix E) was used to collect nurses' demographic data including age, education, and clinical experience as a registered nurse, including experience as a pediatric surgical nurse, and training experience in pain management.

The child data form (Appendix F) was utilized to gather background information of the children including age, gender, weight, diagnosis, type and duration of operation.

The caregiver data form (Appendix G) was utilized to gather background information of the child's caregiver including age, gender, and education.

Analgesic administration form (Appendix H)

The nurse's analgesic administration was measured using the analgesic administration form to find the percentage of the maximum amount of analgesics ordered by the physician and actually administered by the nurse. It consisted of: (a) analgesic medication ordered by the physician and, (b) analgesic medication administered by the nurse. The physicians generally prescribed "as required" or *pro re nata* (PRN) medications and the nurse had to then make decisions about the amount and time to give analgesics to the patient. Therefore, the data that needed to be reviewed were physicians' orders of type, amount, route and frequency of analgesics, as well as the actual type, amount, route, and frequency of analgesics that the nurses administered. This data were gathered from the medical records, nursing care plans, and nursing progress notes of each child's medical record. Data was recorded for all analgesics available for administration that were prescribed by physicians and those actually administered by the nurses during the study period for each child. A portion of analgesics administered by the nurses was converted to morphine equianalgesic doses to provide a standard of comparison for all cases.

McCaffery and Pasero (1999) define the term "*equianalgesia" in Pain: clinical manual for nursing practice,* as approximately equal analgesia, and this term is used when referring to doses of different opioid analgesics that provide approximately the same pain relief. The calculation method is based on the Agency for Health Care

Policy and Research (AHCPR, 1992) guidelines of dosing data for opioid analgesics. However, AHCPR does not present equianalgesic doses of nonopioids such as acetaminophen, nonsteroidal anti-inflammatory agents (NSAIDS) because they cannot actually be converted to morphine equianalgesic doses. The main reasons are (a) they are not opioids, and (b) they have different effects. Nonetheless, Vincent (2004) calculated approximate equianalgesic doses of nonopioids based on dosages determined by AHCPR and the American Pain Society (APS) through various methods including consultation with hospital pharmacists that were used in her study related to nurses' analgesic administration practices in postoperative children; a study similar to this one.

With permission from Vincent (Appendix I) and at her suggestion, the amounts of analgesics administered by the nurse were converted and computed using her approximate equianalgesic dose table. Nevertheless, her table does not show equianalgesic doses of fentanyl often used in newborn and infants as the units in this study. Therefore, her table has been modified by the researcher based on dosages recommended by APS (Appendix J).

From the modified approximate equianalgesic table, the standard of comparison for equianalgesic doses is ten milligrams of intravenous or intramuscular (IV/IM) morphine. For example, 60 milligrams of oral (PO) morphine is equal to ten milligrams of IV/IM morphine; 130 milligrams PO of codeine is equivalent to ten milligrams per IV/IM of morphine; and 75 milligrams of IV/IM codeine is equal to ten milligrams of morphine, etc. To make it easy to convert the small doses of morphine for children, one milligram of morphine was established as the standard in this study to calculate Morphine Equianalgesic Doses (MSEQ).

For each analgesic prescribed by a physician, the number of doses actually administered by the nurse-respondent to the child-respondent during the six hours in the same day under observation was calculated. The beginning of the six hour period for analgesic calculation was also the beginning of the observation period, although observation periods were sometimes shorter than six hours. Amounts of analgesics

administered outside the time frame of a six hour period were not included, allowing for a consistent standard of comparison across all child-respondents.

The analgesic dose calculation was done in the following way: The analgesia that the physician prescribed for child “A” was reviewed and recorded. For example, the physician might prescribe one to two milligrams of morphine via intravenous (IV) every two to four hours for pain relief as required (p.r.n.). Therefore, the maximum dose of morphine for pain relief in child “A" was two milligrams every two hours, and six milligrams of morphine was the maximum amount the nurse could administer during the six hours of observation. This maximum amount that the nurse administered in the time frame of six hours was compared with the amount of the analgesic actually administered. In clinical practice, if child “A” receives two milligrams of morphine twice during the six hours period, the maximum amount of the analgesic actually administered by the nurse would be equal to four milligrams. Therefore, from this example, the percentage of the maximum amount of the analgesic ordered by the physician and actually administered by the nurse would have been 66.67 %. If a child did not have an opioid prescribed by a physician, but was prescribed acetaminophen instead, the calculation was done in the same way using approximate equianalgesic doses (Appendix J). In this study, the percentage of the maximum amount of the analgesic ordered by the physician and actually administered by the nurse was calculated for each child.

Case Study Protocol

In this study, an initial case study protocol was developed to guide the investigator in collecting the data and following the procedures. The content in this study included: a) introduction of the study, b) the objective of the study, c) research questions, d) the initial propositions, e) theory in design work, and f) method and analysis. After conducting three pilot case studies, the data collection procedures and propositions were modified and the final protocol created. A formal case study protocol was used to promote such triangulation during data collection and maintain a chain of evidence. A case study protocol of this study can be seen in Table 3.2.

Table 3.2 Case study protocol

Topic	Detail
1. Introduction	Descriptive case studies using multiple case (holistic) designs have been utilized to obtain an in depth understanding of how and why nurses manage children's postoperative pain in the real-life context of pediatric surgical units.
2. Objective	This study aims to describe how and why nurses manage postoperative pain in children.
3. Research Question	How do nurses manage postoperative pain in children, and why?
Specifically sub-research Questions	1. How do nurses administer analgesics? 2. Why do nurses make the decision to administer analgesics? 3. What are the patterns of the nurse-physician relationship? 4. How do nurses provide alternative care for children? 5. Why do nurses make the decision to provide alternative care for children? 6. What are the patterns of providing alternative care for children? 7. How do caregivers involve in managing postoperative pain in children? 8. What are the patterns of the nurse-caregiver relationship?
4. Initial Propositions	*Proposition 1.* Pain management consists of making decisions for analgesic administration, providing alternative care, and caregiver involvement.

Table 3.2 Case study protocol (cont.)

Topic	Detail
	Proposition 2. Nursing process is used when nurses make decisions for analgesic administration. *Proposition 3.* Nurses had self-confidence in making decision for analgesic administration. *Proposition 4.* Less experienced nurses learn analgesic administration from more experienced nurses and adopt it as part of their routine practices. *Proposition 5.* Nurses share information related to children's pain and make joint decisions with physicians to administer analgesics. *Proposition 6.* Nurses provide alternative care or non-pharmacological interventions for pain relief and suggest caregivers to do the same. *Proposition 7.* Nurses had competency in making decision for providing alternative care or non-pharmacological interventions for pain relief. *Proposition* 8. Nurses provide alternative care or non-pharmacological intervention for pain relief depends on the children's pain intensity and situation in the clinical context. *Proposition 9.* Nurses perceive that caregivers have a significant responsibility for alleviating postoperative pain in children. *Proposition 10.* Caregivers are involved in pain assessment and pain relief based on their past experience in pain management for their children. *Proposition 11.* Caregivers are involved in determining when a child should receive pain medication and alternative care. *Proposition 12.* Pain management is more effective when nurses use holistic nursing care for children and caregivers. *Proposition 13.* Having a specific guideline for postoperative pain management in children facilitates nurses to manage pain effectively.
5. Theory in design work	The case study will show how and why nurses manage children's postoperative pain.

Table 3.2 Case study protocol (cont.)

Topic	Detail
6. Method:	6.1 Selecting the potential nurse-respondents from nurses who provide care for postoperative children. The criteria for nurses to be part of the case study are: 1) they currently work as a Registered Nurse (RN); 2) they take care of children who were more than six hours but less than two day in the postoperative phase; and 3) they are willing to participate in this study. 6.2 Undertake three pilot cases of nurses who work in a critical care unit that has a variety of pain treatments, the findings of which will be used for revising propositions and protocol. 6.3 Select the model case or first nurse-respondent: The model case will be a nurse who is providing care for a child in the second day of their postoperation at the time of observation. The model case must also have interaction with a physician and caregiver. 6.4 Collecting data: This study will be conducted using multiple types and sources of data including observations; charts and record reviews; and nurse, caregiver, and physician interviews for triangulation. The data collection procedure will follow the chains of evidence, which are: 1) analgesic administration; 2) providing alternative care or non-pharmacological interventions; and 3) caregiver involvement. Each chain of evidence will be checked with data from other sources within the same chain of evidence. 6.5 Analyze the data from the model by: 6.5.1 Developing a case study database: summarizing data from every source of evidence in each chain. 6.5.2 Analyzing and triangulating data within a chain of evidence. 6.6 Selecting subsequent case studies guided by the findings from the model case and following the steps as in 6.4-6.5.

Table 3.2 Case study protocol (cont.)

Topic	Detail
6. Method: (cont.)	6.7 Selecting other replication cases until saturation is reached or all necessary information to answer the research questions has been obtained. 6.8 Two physicians will be asked to explain about pain treatment and their collaboration with nurses to manage postoperative pain in children. 6.9 Doing cross-case analyses by analyzing the data between cases with research questions, propositions, and a theoretical framework. 6.10 Reporting the findings based on the themes found and the case studies.

Data Collection

Data collection in each case maintained the same chain of evidence. In this study, three chains of evidence were maintained as follows: 1) analgesic administration; 2) providing alternative care or non-pharmacological interventions; and 3) caregiver involvement. The ultimate chain of evidence desired is the ability to cross-reference between the case study report, the database, citations to specific sources in the database, the protocol, and the research questions. These chains of evidence were maintained throughout the study and included in the research report. Each chain of evidence should be checked with data from the other sources within the same chain of evidence that can be seen in Figure 3.1

Procedure

Selecting case or nurse-respondent

Approval to conduct the study was obtained from the Institutional Review Board (IRB) of the university hospital. After receiving permission (Appendix A), the director of the nursing department, head nurses, and nursing staff of the pediatric surgical

intensive care unit, and the pediatric surgical unit were contacted. Because this study aimed to explain how and why nurses manage children's postoperative pain, they had to be directly observed in their natural setting. Therefore, permission for observation was asked from all physicians, nurses, and practical nurses working in each unit. A completed explanation and a written description of the study (Appendix K) were given to all nurses during a ward meeting. After they had agreed to participate in the study, they were asked to sign a consent form (Appendix L). Similarly, the project was explained to physicians and practical nurses (Appendix M). They were also asked to sign a consent form if they agreed to participate in the study (Appendix N). They were assured that they could discontinue their participation in the study at any time. Subsequently, demographic data of nurses were collected and consenting nurses were asked to fill in a Nurse Data Form (Appendix E). A model case or first nurse-respondent was selected and her pain management practice and interactions with other healthcare professionals, children, and caregivers was observed.

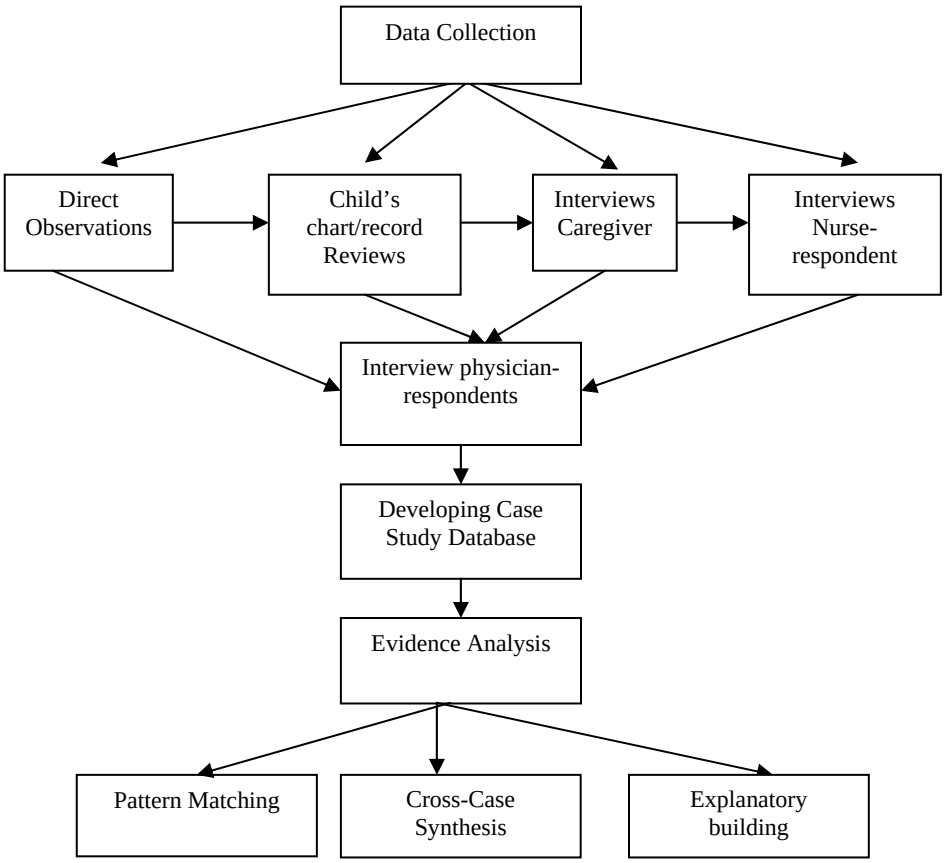

Figure 3.1 Flow chart of maintaining chain of evidence

Recruiting child-respondents

After the nurse-respondent had been selected, her work schedules detailing when and where she would be taking care of postoperative children were reviewed. Children and their parents or legal guardians were then approached. A complete description of the study was given to children's parents or legal guardians (Appendix O). For any willing respondents in this study, written consent was obtained (Appendix P) and in addition to parental consent, the child's assent was acquired for children aged over 5 years old.

Observation

After physicians, nurse-respondents, and parents or legal guardians had signed consent forms, the process of observation began when a child-respondent had been in the postoperative period for more than six hours and less than two days. If a child had a caregiver during the observation period, the caregiver was approached and a complete explanation and a written description of the study (Appendix Q) were given to them. If they agreed to participate in the study, they were asked to sign a consent form (Appendix R).

Each pair of nurse and child-respondent was observed continuously for a period of two to four hours based on the event of pain management in a clinical unit. The number of observations of each nurse-respondent was two to five times to understand nurses' pain management. Investigator served as a direct-observer and sat in the area where the child's bed was located; not too far from or too close to the child's bed, so as to observe nurses' activities and their interactions with other nurses, physicians, or with the child and their caregiver. However, their work was not disturbed by investigator's presence.

During observation, the following core elements were observed:

1. The child's appearance and the child's ability to communicate both verbally and non-verbally, including the child's expression relating to pain.

2. The organizational culture and work atmosphere of the clinical setting.

3. The nurse-respondent's activities relating to pain management including assessing pain intensity, her interventions (pharmacological and non-pharmacological), re-assessing pain, and documentation.

4. The time when nurse-respondents visited children and when they assessed or administered analgesia.

5. The interactions between the nurse-respondents and physicians, children, and caregivers

Observations were recorded as field notes. When conversations relating to pain occurred, direct quotes were recorded as much as possible. To develop more intensive observational notes, a location map, and field notes were written up on a word processor immediately after observation. Child-respondents were observed on either their first or second postoperative day because pain generally reaches its peak on the second postoperative day, when a child is more awake and the anesthetics and analgesics given intraoperatively have been metabolized and excreted.

General information of children-respondents including type of operation, duration of operation, duration of each observation, and their caregiver can be seen in Appendix S.

Chart and records review

The chart and records of each child-respondent were reviewed at the beginning and the end of each observation period. The Analgesic Administration Form (Appendix H) was completed to find the percentage of the maximum amount of the analgesic ordered by the physician and actually administered by the nurse.

Interviewing

Interviews are one of the most important sources of evidence for case study research and data was collected using unstructured interviews with open-ended questions. All interviews were tape-recorded and conducted in Thai. Three groups of respondents who were key informants in this study were interviewed. First, cases or nurse-respondents, who were key informants, explained how and why they manage children's postoperative pain. Second, two physicians were interviewed to describe pain treatment and their collaboration with nurses to manage postoperative pain in

children. Lastly, children's caregivers, made up of significant persons to describe and confirm information from observations and provide their perceptions about nurses' management of postoperative pain in children. Caregivers with a postoperative child at the time of observation for more than one hour were also interviewed. Therefore, the total number of caregivers was not equal to the number of child-respondents.

To ensure confidentiality and protect the privacy of all respondents, all interviews were conducted in a private room of each unit and arranged according to the respondent's convenience. At the beginning of each interview, each respondent was reminded about the purpose and method of the study. Interviews were open-ended and each respondent was encouraged to explain and give more details by using questions listed in the interview guides for interviewing nurses, physicians, and caregivers (Appendix B, C, and D respectively).

During the interviews, the interviewees' statements were carefully listened to and, where appropriate, clarification, and explanation sought. No assumptions were made. Interviews lasted approximately 30-60 minutes. At the end of the interview, each respondent was asked if they had any questions or whether they wanted to share any other insight. Then, their background information was requested. Field notes were written up immediately after each interview including location and structural situation, the general appearance of the respondents, nonverbal behaviors, and the investigator's perceptions. There was no note taking during interviews. Events occurring during an interview were recorded as soon as possible after each interview ended.

The data collecting process in each case was deemed finished when their pain management of each case was thoroughly understood. Data of the next case and others was then collected following the same procedure as in the model case.

Data Analysis

Data collection and analysis in case study research occur simultaneously conducted until data saturation was achieved.

The data analysis of this case study proceeded in four stages: 1) analysis of separate data sets, 2) individual case analysis, 3) cross-case analysis, and 4) a final overall analysis.

Stage 1: Analysis of the separate data sets

The process of separate data analysis began during data collection. The individual data sets were field notes from observations, information from charts and records review, and interviews. Data from all sources of evidence in this study were put together and developed as the case study database. An example of a case study database is illustrated in Appendix T.

Field notes were maintained throughout the observations to add a qualitative dimension in the study and to provide contextual information. Field notes from observations were read through several times from beginning to end and coded to enhance a fuller and richer picture of how and why nurses manage postoperative pain in children. Findings from this part of the study were used for revising interviews guides for interviewing a case, caregiver, and physician. It also guided the investigator to collect more observations, interviews, or other relevant data. After each interview, the audiotape was transcribed verbatim as soon as possible. Coding of transcripts was done line by line to identify categories and memos were written for all steps of coding. The percentage of the maximum dose of the analgesic ordered by the physician and actually administered by the nurse was calculated for each child. An example of the percentage of analgesic administration by nurses is illustrated in Appendix U.

Stage 2: Individual case analysis

After each of the data sets were analyzed separately, individual case analysis or “within case analysis” was the next step. The purpose of this case-based analysis was to compare all data within the same case and triangulate data from every source. An example of data triangulation is illustrated in Appendix V. Data was linked to the propositions throughout analysis and a set of propositions considered. An analytical approach was used to establish and link a chain of evidence. Chains of evidence maintained during the process of data analysis and its respective propositions are presented in Table 3.3.

Table 3.3 Chains of evidence maintained during the process of data analysis and its respective propositions

Research questions	Chain of evidence in the phenomenon	Respective propositions
Main Research question	-	Proposition 1, 12, and 13
Sub-research question 1, 2, and 3	*Chain 1:* Analgesic administration	Proposition, 2, 3, 4, and 5
Sub-research question 4, 5 and 6	*Chain 2:* Providing alternative care	Proposition 6, 7, and 8
Sub-research question 7 and 8	*Chain 3:* Caregiver involvement	Proposition 9, 10, and 11

The findings provided evidence either to support or refute study propositions using pattern-matching tactics. Through data analysis, similar patterns were identified and linked back to the propositions and propositions revised. Theoretical categories and emerging themes were then built. Findings were discussed with a research advisor.

Stage 3: Cross-case analysis

Cross-case analysis was conducted among the six cases, consisting of pattern-matching techniques and triangulation, and explanation building techniques. Pattern-matching techniques and triangulation were used to make a comparison between all six cases to identify the similarities and differences based on the study propositions. All data gathered in the case study database was read thoroughly several times from beginning to end. The data was then categorized, tabulated, and recombined to address the purpose of the study and cross-checks of facts and discrepancies in accounts were conducted. Explanation building was also a major technique of analysis in this process to describe how and why nurses manage postoperative pain in children, by comparing the findings of the model case against such a proposition, comparing other details of the case against this proposition, and comparing the proposition to the facts of a second, third, or more cases. An example of pattern matching is illustrated in Appendix W.

Stage 4: A final overall analysis

The analytical complexities of case study research did not stop at the cross-case analysis because the linking of nurses' pain management and the outcome data added a further complex dimension. The findings from cross-case analysis were presented in draft form and discussed with a research advisor to describe the nature and stages of nurses' pain management. Finally, the propositions were refined and revised.

Validity and Reliability of the Study

This study was conducted using multiple sources of evidence and using multiple triangulating methods including observations, chart and record reviews, and interviews. These strategies were useful to increase the construct validity of this study. This study used multiple-case (holistic) designs that are valuable in increasing external validity. The advantage of multiple-case studies is that they strengthen or broaden the analytic generalizations because the multiple case studies are designed to "replicate" each other by producing corroboratory evidence from two or more cases (literal replication). An important method to increase reliability is the development of the case study protocol. In this study, a case study protocol was developed to guide the carrying out of data collection in every case. Member checking is concurrently conducted with each case to check data findings and the identified codes. The above strategies were adopted and used in this study in order to establish validity and reliability.

Protection of Human Subjects

Approval to conduct the study was obtained from the Institutional Review Board (IRB) of the university hospital where all respondents were recruited. Meetings were held with the director of the nursing department, physicians, head nurses, and nursing staff in each unit to explain the purpose of the study and the potential benefits and risk of this study. The procedure for data collection was clearly described in both verbal and written explanations to nurses and parents using nurse-respondent information sheets (Appendix K) and child and parent- information sheets (Appendix O). Informed consent from nurses and parents (Appendix L and P respectively) were obtained once

they decided to participate in the study. Other healthcare professionals were also observed, and so the project was therefore explained to physicians and practical nurses (Appendix M) who were then asked to sign consent forms (Appendix N).

Nurse-respondents were free to withdraw their consent or discontinue participation at any time without explanation and without any effect to their work. Similarly, parents and caregivers were free to withdraw their consent any time without any effect on treatment or nursing care for their children. A copy of the signed consent was provided to each nurse and to each child's parent.

In order to assure the confidentiality and anonymity of all respondents, all tape-recorded interviews were transcribed and tapes then destroyed upon completion of the study. Other identifiers including location of interview or situation were removed from the transcripts. Code numbers were assigned to all respondents. All data was stored in locked cabinets during the study and any written data, including notes, kept in a separate secure file, where it will remain for five years.

Summary

This descriptive case study research employed multiple-case (holistic) design to describe how and why nurses manage postoperative pain in children. A "case" was defined as a "nurse-respondent" who provided care for child-respondents from birth to 15 years who were more than six hours but less than two days postoperative. A "case" also has interactions with physicians, children, and caregivers. There were six cases in this study. There were 20 postoperative children who nurse-respondents provided care for, and 13 caregivers who were interviewed and observed. Two physicians were interviewed. Data were collected from multiple sources of evidence including: 1) observation of nurses' activities for pain management and their interactions with physicians, children, and caregivers, 2) interviews of nurses, physicians, and caregivers, and 3) reviews of children's charts and records including documents related to pain management policies. Data collection and analysis were simultaneously conducted until data saturation was achieved. A detailed description of the findings is given in Chapter IV and Chapter V.

CHAPTER IV
STRATEGY SERIES
ON NURSES' PAIN MANAGEMENT

This chapter describes nurses' management of postoperative pain in children. The first section is an overview of the characteristics of the cases, and the second part describes the nurses' strategies for managing postoperative pain in children. Three themes emerged for better understanding of the processes and patterns of nurses' pain management were: 1) analgesic administration; 2) providing alternative care or non-pharmacological interventions; and 3) caregiver involvement.

An Overview of the Characteristics of the Cases

This study is descriptive multiple cases (holistic) study which was conducted during 2007-2008. For purposes of confidentiality and cases' anonymity, pseudonyms were used in this study. Of the six cases or nurse-respondents that participated in the study, three of them, Yindi, Prida and Prani, worked in the pediatric surgical intensive care unit (PSICU), and three, Vina, Waree and Mina, worked in the pediatric surgical unit (PSU). Yindi has a master's degree in Pharmacy; Prida has a master's degree in Developmental Psychology and the rest of the nurses have bachelor's degrees in Nursing. Yindi, Prida, Prani and Vina have more than 10 years experience in providing care to postoperative children, and working as incharge nurses. Waree and Mina have only three years experience providing care to postoperative children and have never worked as an incharge nurse. The characteristics of the cases can be summarized as in Table 4.1.

There were 20 postoperative children who receive care from six nurse-respondents, and 13 caregivers who were interviewed and observed. Two physicians were interviewed: one professor from the division of pediatric surgery, and another fellowship physician.

Table 4.1: Characteristics of the cases

Name	Age (year)	Education	Ward	Working as a pediatric surgical nurse
Yindi	36	Master's degree	PSICU	14 years 6 months
Prida	32	Master's degree	PSICU	11 years 6 months
Prani	39	Bachelor's degree	PSICU	11 years 6 months
Vina	46	Bachelor's degree	PSU	25 years 10 months
Waree	24	Bachelor's degree	PSU	2 years 10 months
Mina	24	Bachelor's degree	PSU	2 years 10 months

Nurses' Strategies for Managing Postoperative Pain in Children

Managing postoperative pain in children is one of the most vital roles for a nurse. As nurses care for children 24 hours a day, they can easily tell whether or not the reaction of children has changed or if they show any signs of pain. Three strategies that nurses used for managing postoperative pain in children were: 1) analgesic administration; 2) providing alternative care or non-pharmacological interventions; and 3) caregiver involvement.

1. Analgesic Administration

Nurses' analgesic administration always occurs within the first 48 hours after surgery. However, this step can not be done immediately. Nurses have to assess children's behaviors and make decisions for analgesic administration using the nursing process of: 1) assessing pain intensity; 2) making a nursing diagnosis; 3) planning for analgesic administration; 4) administering analgesics; and 5) evaluating or re-assessing pain intensity. The in-depth descriptions of these steps were as follows:

1.1 *Assessing Pain Intensity*

Nurses would assess pain intensity according to the multidisciplinary care path for management of postoperative pain. Nurses also assessed pain intensity when they hypothesizes that a child is in pain. The assessing pain intensity following the care path was a routine practice when caring for postoperative children. In spite of the fact that the multidisciplinary care path for management of postoperative pain was

developed to care for postoperative adult patients, nurses have to assess postoperative pain in children following this care path. This is because there have been no specific clinical practice guidelines for managing postoperative pain in children for about 10 years.

When routine assessing pain intensity scheduled in the care path, nurses would use pain assessment tools and check the changes of physiological data such as blood pressure, heart rate, and respiratory rate. Nurses would choose one of the four most appropriate pain assessment tools depending on the age and ability of children for reporting their pain intensity. Nurses also made decision for administering analgesic comparing between children's pain score and the cut of line pain score for giving analgesic of each pain assessment tools as follow: 1) The National Infant Pain Scale (NIPS). This assessment tool is used for infants under one year old; it has a pain scale of zero to seven; if the pain score is four or higher, a pain medication is given. 2) The Children's Hospital of Eastern Ontario Pain Scale (CHEOPS) is used for children aged one to six years old and has a pain scale of four to thirteen; a pain medication will be given if the score reaches eight or higher. 3) The Pain Scale (PS) is used to assess pain intensity in children over six years old with a pain scale of zero to ten; a pain medication is given if the score is three or higher. 4) The Face Scale is used in children who cannot report their level of pain as a number. Using this method, children are asked to show their feeling of pain by pointing to a facial expression, which is then matched with the level of pain in the assessment tool to find the pain score. The pain scale in this tool is zero to ten; if the score is six or higher, a pain medication is given. Nurses would also assess the level of pain based on changes of heart rate, respiratory rate, and blood pressure.

In the multidisciplinary care path, postoperative pain should be assessed every hour for four hours, every two hours for four times, and then every four hours over a period of 72 hours. After that, the nurses assessed pain in children every eight hours until children were discharged from the hospital. During the study, the Surgical and Orthopedic Surgery Nursing Division was assigned by the Nursing Department to implement the "Pain as the Fifth Vital Sign" policy in clinical practice. Therefore, the pain intensity as with other vital signs must be assessed and recorded from the first

time children are admitted, until they are discharged from hospital. Consequently, after assessing pain for 72 hours after surgery, nurses must assess pain every four hours at the same time as checking vital signs. This also included the recording of the pain score in the Graphic Record Sheet.

Even though the multidisciplinary care path for management of postoperative pain practically indicated the frequency of pain assessment in the postoperative phase very clearly, nurses have flexible practice and do not follow this care path in all situations. It was found that within the first 24 hours after an operation, Yindi, Prida, and Prani, who worked in the PSICU, assessed pain at different times as those indicated in the care path. Prida would assess pain intensity every hour more than four times based on children's behaviors and their pain. If the pain occurred quite often, she would assess pain intensity every one hour for eight to 24 hours. She also explained that the other nurses in the PSICU assessed children's pain based on their decisions.

Wina, Waree and Mina, who worked in the PSU, would assess pain intensity on the fixed-schedule in the care path. However, there were times when they assessed pain intensity 15 minutes late, particularly when three to four children were returned from the recovery room or when there was a new child being admitted to the unit. Moreover, approximately eight to twelve children are normally under the care of one nurse working in the PSU.

Nurses also assessed pain intensity when they hypothesized that a child was in pain. Nurses collected more data including children's behaviors, complaining of pain, information from the caregiver, the history of pain medication received, type of surgery, and the changes of blood pressure, heart rate and respiratory rate. The signs that indicated pain in children were crying, squirming, tossing, and frowning. Pain assessment in young children under three years old is very difficult because they can not verbally communicate clearly. Therefore, nurses have to pay greater attention to all information collecting and interpreting children's behaviors.

Nurses have to interpret children's behaviors; some children cry from hunger, discomfort due to a dirty diaper, urination, or having secretion in the respiratory airway. Nurses should find the cause of crying whether from pain or other causes.

Nurses would provide basic nursing care to make children comfort including changing their diaper and giving them a pacifier. When Yindi, Preeda, and Prani provided care for postoperative children needed to use ventilator, they always hypothesized that children cried from the secretion in the child's respiratory airway. This was considered as the priority to take care of before considering other causes of crying. Older children were better able to complain about their pain made nurses easily assess pain intensity. Nevertheless, nurses also concerned that crying could be caused by other psychological problem such as feeling lonely, needing attention, separation from family, and fear, which made pain assessment more difficult.

Some nurses used history of the previous analgesic administration for children's behavior interpretation to make decision about causes of crying. If children had been given analgesic for a time longer than in the prescription, nurses would interpret that children were crying from pain. If not, nurses would continue to look for other possible causes. Some nurses considered history of surgery including type or surgery and severity of an illness to find the cause of crying. In point of view of Vina and Mina, if a child had undergone a major operation or a long incision, they would assume that a child cried from pain. If a child had undergone a minor operation or only a small incision, they would assume that children were crying from other causes.

Nurses gave priority to data differently. Yindi and Vina considered subjective data coming from children's self-reports as the most important. Yindi gave the reason that "If they say something hurts, we need to trust them. We must not interpret the situation by ourselves." Yindi and Vina were also concerned about the reliability of the information and considered information from both physiological and psychological data in order to interpret the cause of crying or complaint of pain. On the other hand, Prida, Prani and Vina would place greater importance on children's behaviors and expressions more than children's words because they were not certain that what children told them was a real feeling of their pain.

If children were crying, nurses would give children alternative care or non-pharmacological interventions first and evaluate their responses. If children stop crying, nurses would conclude that the pain was alleviated. If not, nurses would use

the pain assessment tool to assess pain intensity. If pain scores reached or higher the cut off line for giving analgesics, they would administer analgesics to children.

In conclusion, when continued assessment on a fixed-schedule in the care path, nurses would regularly assess pain intensity using pain assessment tools and could make decision for analgesic administration. For assessing pain when nurses hypothesized that children were in pain, nurses would provide alternative care or non-pharmacological interventions first, and then wait for ten minutes to make decision whether or not to give analgesic.

1.2 Making a Nursing Diagnosis

This short step started after nurses made decisions to administer analgesics, for example nurses told postoperative children about their diagnosis such as “I’m going to give you a pain killer” or told children’s caregivers that “He may be in pain so I’m going to give him a pain killer.” Nurses would then record the pain score in the monitoring nursing record and nurses’ note.

1.3 Planning for Analgesic Administration

Before nurses administer analgesics, they would have to make decision which route of pain medication was appropriate for alleviating pain in children based on children’s situations and pain treatment as follows:

1.3.1 If children receiving continuous analgesic infusion via intravenous or epidural catheter were in pain, Yindi, Preeda, Prani, and Vina would plan to mange their pain by providing alternative care. They perceived that continuous analgesic infusion could be control children’s pain. Prani stated:

> After surgery, when a child with continuous analgesic infusion via intravenous or epidural catheter wakes up, he would open his eyes but won’t cry. It’s good that the continuous analgesic infusion could control his pain which might not be severe; he could calm down for a while. My experiences taught me that continuous analgesic infusion could control a child’s pain better than via PRN.

If children were in severe pain, nurses would plan to administer additional analgesics in two patterns:

(a) For a child with continuous analgesic administration via an epidural catheter, the anesthetist from the acute pain service would be responsible for prescribing pain treatment by indicating a dose rate range and a bolus dose administered as needed for breakthrough pain. It would be easy for nurses to administer analgesics following pain treatment and give a suitable amount of the pain medication.

(b) For a child with continuous analgesic infusion via intravenous, the surgeon would be responsible for prescribing pain treatment. If nurses could not contact a physician and there were not intermittent analgesic administration in the pain treatment, nurses would plan to administer additional dose based on their knowledge and practice experience to alleviate children's pain.

1.3.2 If physicians prescribed opioid analgesics via intravenous injection every two to four hours, nurses would plan to administer analgesics when (a) a child's pain score was higher than the criteria for giving analgesics; and (b) the spacing time from the last analgesic administration was over than the required spacing time for re-administration of an analgesic in the prescription.

If a child had pain before the required spacing time in the prescription, Yindi and Prani would plan to wait until the time for re-administration of analgesics. During that time, they would not yet administer analgesic but try to soothe a child to stop crying. However, if a child had pain before the required spacing time for twice, they would consult with a physician to plan for administering additional analgesics or adjust the pain treatment.

For young children, Prida, Prani and Vina would plan to wait until the time for re-administration of analgesics. For older children, they would consider the children's ability to tolerate pain. If children could tolerate pain, nurses would plan to wait until the time for re-administration of analgesics. If children said that they could not tolerate pain, nurses would consult with a physician about administering additional dose of analgesic or adjust pain treatment. When faced with unrelieved pain in

children, Yindi, Prida, Prani and Vina were confident in planning for analgesic administration or consulting the physician. Waree and Mina were not confident in making decisions and so would consult an incharge nurse or other senior nurses who seemed to have more experience in planning for analgesic administration.

1.3.3 If physicians prescribed analgesics for administration both intravenous injection every two to four hours and by mouth every four to six hours, Vina Waree and Mina would decide the route of administering analgesics should be used. Traditionally, most nurses working at PSU always to administer oral analgesic as priority.

1.4 Administering Analgesics

This is a short step where nurses would administer the pain medications to postoperative children by following their planning in the previous step. From observation, it was revealed that the nurse would take about three to four minutes to inject analgesic via intravenous to a child. Whilst giving analgesics, Prida and Vina would explain to caregivers about the side effects of an analgisic and about any reactions that may occur after injection. During Waree and Vina gave oral medication to postoperative children, Waree and Vina would let caregivers involve in pain management including holding children whilst the nurse gave the oral medication or asking caregivers to feed an oral analgesic to a child.

1.5 Evaluating or Re-Assessing Pain Intensity

In the multidisciplinary care path for management of postoperative pain, nurses would have to re-assess pain intensity after giving analgesic via intravenous injection 15 minutes, or one hour after giving an oral analgesic. Even though the care path was not indicated the exactly time for re-assessment pain intensity after administering analgesic additional dose via intravenous infusion, Yindi, Prida, and Prani would still re-assess pain 15 minutes after giving analgesic additional dose. They would also record the details about pain scores and analgesic administration in the monitoring nursing record or nurses' notes to transfer information to other nurses in the next shift and report a physician. Nurses may be delayed in re-assessing children's pain intensity after giving analgesics because they were sometimes burdened with many other tasks such as caring for other children with severe conditions, in comas, or in

shock. The workloads also could be increased in some situations when two to four children were returned from the recovery room or new children were admitted to the unit at the same time.

Although the child's pain was alleviated, the pain management process continued as postoperative pain would occur again and again. Absolutely, nurses could administer analgesic again if a child still had pain and the pain score was at or over the cut off line score to administer analgesic additional dose. This process was a flexible process depended upon nurses' own decision.

During the study, it was discovered that not only the decision-making process in analgesic administration, but also the patterns of nurses' decision making in analgesic administration could be categorized into three patterns:

Pattern 1: Following pain treatment

The dominant characteristics of nurses who use this decision-making pattern for analgesic administration were: 1) administering analgesics learnt from experienced nurses and 2) administering analgesics only indicated in the pain treatment. Although nurses learnt analgesic administration from the training course of acute pain management, they administered analgesics following the routine practices that they learnt from experienced nurses. They could not make a decisive decision in practice and fear to make any decision. If nurses in this group encountered any problem or were unable to alleviate pain in postoperative children, they would ask or seek advice from an incharge nurse or more experienced nurses for fear that their possible wrong decision could cause trouble to their colleagues. Nurses in this group had interaction with physicians by giving information about children's pain scores when the physician visited the child. They rarely presented the collaboration role with physicians to plan for or adjust analgesic administration.

Waree and Mina used this pattern of decision-making for analgesic administration. They both had worked on the PSU for three years but had not yet become an incharge nurse. Both of them had attended the training course and workshop on acute postoperative pain management last year. The training course took three days and the first two days' subjects were: the postoperative pain assessment in

children and adults; pharmacology of pain medications; bio-psychological approach to pain control; postoperative pain control; multidisciplinary care path for the patient after operation; nurse roles as a partnership in pain control; analgesic administration; assessment of sedation score; and nursing care after giving analgesics. On day three, the group of 66-80 nurses was divided into 5-6 groups and the nurses got the chance to participate in workshops on the lessons learned from the first two days.

Despite this extensive training in pain management, Waree and Mina were still uncertain about making a decision when faced with a real situation of complicated pain management problems. Advice from the experienced nurses seemed to be one way out of this situation. During observation, Waree was working in the evening shift and had to decide whether to select oral pain medication or to give an analgesic via intravenous injection. After the mother, as a caregiver, had been holding and consoling her child for more than 10 minutes, a child would still not stop crying. Waree decided to give an oral pain medication based on child's behaviors and pain intensity. She explained, "It seemed that the pain was not severe so I decided to give syrup Paracetamol." She learned this pattern of decision-making from experienced nurses and adapted it as her routine practice. She stated, "If Paracetamol doesn't work and the child still has severe pain, I may give Morphine. The other senior nurses here also do it this way, which is why I do."

It is important to note that nurses who followed Pattern 1 was sometimes afraid of making the decision by herself after children still had pain and continued to cry. Mina said:

> Normally, I'd re-assess pain15 minutes after analgesic injection. If a child still cries loudly, I'd ask an incharge nurse or senior nurse if I should consult the doctor whether another dose could be given. In this situation, I must report to my seniors.

If Mina was not sure about the decision for administering analgesics, and caregivers, particularly parents in the special rooms seemed to be worried about their children's pain and distrusted her explanations. She described "I will ask the senior nurse. I can't make that decision on my own."

Nurses who used this decision pattern for administering analgesics also learned the spacing time for giving analgesics with different routes of analgesics. Waree explained:

> Senior nurses at this ward haven't told me the dosing interval of analgesics by mouth and by injection. They haven't set a spacing time. Analgesic by intravenous injection could relieve pain for an hour and the pain would occur again an hour after the injection. Anyway, I administer them following the routinel practice in this unit, that is, giving medicine by mouth and then by injection that isn't related in terms of the last dose.

Nurses in this group, who asked for advice, explained their uncertainty in making the decision to administer analgesics. They perceived that they had less experience. They were afraid of making decisions as Mina claimed:

> I am like a young bird. Even though I have been here for a while and can care postoperative children as a routine practice, I cannot make decision by myself. I afraid if I make a wrong decision, children and other nurses working in that shift will get in trouble. So I need advice from more experienced nurses.

In the pediatric surgical unit (PSU), there had always been a process whereby the senior nurses taught the younger nurses and shared their experiences in dealing with pain management problems with other junior nurses during a monthly ward meeting. Discussion with more experienced nurses could guide less experienced nurse to deal with the problems but some nurses perceived that they were sometimes afraid of making decisions by themselves. Mina said:

> Senior nurses would explain to us how to deal with the problem related to pain management. So we would know how to cope with it, which is good because sometimes we don't know what's going to happen. So from what the senior told us, we would know what to do. We learn from the case the senior nurses told us about. However, I think it would be better if we faced the problem in the clinic and learned to solve the problem by ourselves, so we would know what to make decision and do.

Pattern 2: Advocating a child to receive pain medication

The dominant characteristics of nurses who use this decision-making pattern for analgesic administration were: 1) making decisions to administer analgesics based on the knowledge learnt from experienced nurses, from training, and from the nurse's own practical experiences in managing children's pain, and 2) advocating a child for pain alleviation. When they checked the physician's orders and found that no pain medication was in the treatment, they would immediately ask the physician about pain medication. Nurses in this group had close interaction with physicians and good relationship with them in planning for analgesic administration.

In this study, nurses who used this pattern of decision-making for analgesic administration were Prida and Prani. They had worked in the pediatric surgical intensive care unit (PSICU) and had experience providing care of postoperative children; Prida for 11 years and 6 months, and Prani for 15 years and 6 months since graduating with a Bachelor's degree. They both had experience as incharge nurses for 8 years and 12 years respectively. Both of them also attended an acute postoperative pain management training last year. The outstanding characteristic that they had, which was different from Waree and Mina, was that they could make the decision by themselves whether to re-administer pain medication. When children had pain before time for re-administer pain medication, they would ask a child whether they could tolerate their pain any longer. If children could not tolerate with pain, nurses in this group would consult the physician about administering more pain medication.

While a child was receiving a continuous analgesic infusion to control pain but was still suffering from severe pain; the nurse would try to contact the physician first. If they could not reach the physician, they would try to solve this problem by making a decision based on their own practical experience. They could decide to give more analgesic to the child by themselves, and then report to the physician later. In administering more analgesics to children, they mostly give only twice boluses which they believed was enough to evaluate if the analgesic was effective enough to control the child's pain. They would administer analgesic additional dose at half of the dosage rate. For example, if a child was prescribed at 0.6 cc./hr, they would administer approximately 0.3 cc., which is safe for a child. Pranee explained:

> My experiences have taught me how much analgesics should be administered. After moving to work at this unit, other senior nurses told me to administer analgesic additional dose and I did it following their suggestion. My decision also comes from both my practice experiences and learning from senior nurses.

Prani and Prida had a good relationship with physicians and believed that the physicians also trusted them. Prida said, "We don't have any problem with doctors about administering analgesics. I think they believe us from our experiences that children will be fine from our decision for analgesic administration."

From observation, Prida and Prani always interacted with the physician; giving them information about the children and advocating a child for pain alleviation. After a child was returned from the recovery room, nurses would read and check the medical orders. Prida and Prani would ask the physician about the analgesic administration first in case of no pain treatment. However, if they failed to check the medical orders and a child was not yet suffering from pain, Preda and Prani would not immediately ask the physician about pain medication. If the child suffered from pain, they would assess it and phone the physician to report the pain score and ask about the analgesic administration. Prida explained that "if a doctor did not prescribe pain medication, I would ask to confirm why. Just to make sure a doctor did not intentionally give the pain killer for any reason."

It was true that these nurses seemed to have gained a lot of experience in managing pain alleviation and were certain of making decisions. Even so, when the situation of pain management problems became more complicated, such as a child not feeling relieved, they would ultimately seek advice from an incharge nurse and physician. Observations found that when nurses could not solve the problem and a child still suffered severe pain, they would get frustrated and discouraged. Prida explained, "the case was so complex that I told the senior that I had never seen a situation like this. We gave a lot of pain killers but a child still had severe pain. I didn't know what to do."

Pattern 3: Collaborating with physician to adjust pain treatment

The dominant characteristics of nurses who use this decision-making pattern for analgesic administration were: 1) making the decision to administer analgesics based

on nurses' perceptions about pain and the knowledge learnt from experienced nurses, from training, and from the nurse's own practical experiences in managing children's pain, 2) advocating a child to receive pain medication, 3) having knowledge about analgesic administration and utilizing this knowledge in order to make decisions before giving analgesics, and 4) collaborating with physicians to adjust the dose or rate of analgesic administration for pain alleviation in each child. The interaction between nurse and physician was in the way that they worked together and trusted each other.

Yindi and Vina were the nurse-respondents who operated with this pattern even though they worked in different wards. Yindi worked in the PSICU, while Vina worked in the PSU. Their characteristics were quite similar; Yindi had experience providing care for postoperative children for 14 years and 6 months and Vina had experience providing care for postoperative children for 25 years and 6 months. Despite having less experience than Vina, Yindi had in-depth understanding of analgesics and their pharmacology because she had a master's degree in Pharmacy. While she was studying her master's program, she also learned about pain pathways and pain theory. She also participated in the pain assessment project of the PSICU. Vina was regarded as a more expert nurse who had lots of experience in dealing with pain management problems. She used to work as an incharge nurse and was also an advisor to less experience nurses in the ward. Both Yindi and Vina perceived that pain medication should be administered to children as soon as children started to feel mild pain, and would not wait until a child could not tolerate severe pain.

Yindi and Vina would examine the prescription carefully, which helped them in planning analgesic administration. When they checked the medical orders, they sometimes found that the dose of analgesic prescribed was too small for that child and realized that the dose given was not enough to control the child's pain. In this case, nurses would contact the physician immediately to enquire if they could administer an early dose of analgesics to the child. Yindi described:

> The doctor administered a very small dose of continuous Fentanyl via intravenous though we had to observe child's behaviors. If a child calmed down, I could assume that the pain medication should be at the minimum therapeutic level to control pain.

However, if a child suffered from severe pain while receiving a continuous analgesic infusion, Yindi would provide alternative care or non-pharmacological interventions to alleviate pain. If a child continued suffering from severe pain, she could decide to administer analgesic additional dose to a child by herself. If she could not contact the physician, then report to the physician later. Her decision to administer analgesic additional dose was not as a result of only her practical experience, but also from her knowledge related to analgesic. She would calculate the concentration of analgesic dosage before administer analgesic for safety for children. If analgesic has a concentration at 1 µg/cc, she would give around ½ - 1 cc. She would quickly report to the physician after 1-2 times of giving analgesic additional dose for breakthrough pain. She perceived that administering analgesic additional 2 doses could be indicative of its inefficacy in relieving the child's pain.

Vina also had experience in administering analgesic additional dose while a child was receiving continuous analgesic infusion. She explained her decision:

> After a junior nurse in my team had checked blood pressure of a girl, she reported to me that a girl had a high blood pressure. I thus assumed that a girl was in severe pain. I checked the medical orders and found that the doctor had also prescribed paracetamol syrup, another pain medication. So I decided to give the paracetamol to the child. Another reason was that the dosage of Fentanyl being given continuously via intravenous was a minimum dose for that child; so I thought it was not strong enough to control pain.

If a child received a continuous analgesic administration via an epidural catheter, the anesthetist would be responsible for prescribing pain treatment and solving the pain management problems. The anesthetist would indicate the guidance of administering analgesics additional doses to a child or indicate the minimum and maximum rates of analgesics. It was the responsibility of nurses to adjust the appropriate analgesic rate for each child. From observation, Yindi occasionally adjusted the rate of continuous analgesic infusion based on the reaction and changes of children's behaviors. It seemed that she tried to control analgesic rates by herself; which is one kind of the Nurse Control Analgesia (NCA).

Vina used a negotiation strategy with physicians for adjusting the pain treatment when she found that physicians had ordered a minimum dose of analgesic. She perceived that children would have pain before the time for re-administering analgesics indicated in pain treatment. She explained that

> Sometimes the doctor only prescribes a half dose. But I know that a child needs more than that and it cannot control the child' pain. So I would negotiate with him and ask permission to give an analgesic earlier than the time for re-administering as physician prescribed.

Yindi also showed the dominant role of collaborating with the physician to adjust the pain treatment appropriated for each child. She added that "If a child feels more pain before the time of the re-administration of the analgesic, I will discuss with the doctor and ask permission to give the analgesic before the spacing time as in the order."

The two physicians, who worked in the pediatric surgical intensive care unit and pediatric surgical unit, were satisfied to work together with the nurses. They also felt confident as a result of the nurses' experience. A physician revealed:

> When nurses assess the pain intensity and record the pain score, I also examine the information and the dosing in children's charts that helps a lot. Sometimes when on the round, I just ask how much pain the children are. Nurses then approach and tell me pain scores. They assess children's pain and let us know that is helpful. Their reports about analgesic dosages are also helpful for us to adjust them.

Physicians also appreciated the nurses' management of children's pain in the PSICU. They described that nurses are sensitive to changes in children's behaviors and are very quick in pain assessment. Physicians believed that it might be due to the ratio of nurses to children being 1:1 or 1:2, then nurses had opportunity to close care of children which is in contrast with the PSU where the ratio of nurses to children around 1:10.

Nurses also play an important role in double checking the prescription which is helpful for both children and physicians. One physician said:

> Nurses are very helpful in double checking the orders. Sometimes I am very rushed and forget to write a zero when writing the dose of analgesic. Nurses know that it is 100 mg. not 10 mg. and they will remind me about it. They will always call to double check, which is good. I'd like all the nurses to know about analgesic doses, so we can help each other. They also administer the pain medication correctly, especially giving continuous analgesic infusion via intravenous, which they have done so far without making any mistakes.

Even though the physician is the one who has most responsibility to plan the pain treatment, nurses also has the vital role in making decisions when they administer analgesics. Nurse in this group perceived that they were confident in making decisions because they have gained lots of knowledge and experience in managing postoperative pain in children. Trust from the physician also supports nurses to be able to make their own decisions.

The nurse-physician interaction in this pattern is a good collaborative relationship whereby nurses assess and record pain scores as well as unrelieved pain management problems then, report this information to physicians. Physician and nurses then discuss and adjust a suitable pain treatment for each individual child. Nurses who have more experience will also advocate children to receive a pain medication by requesting it from physicians. This was not seen from less experienced nurses.

Cross-case analysis was conducted among the six cases using pattern-matching techniques and triangulation. Three patterns of analgesic administration can be summarized as in Table 4.2.

In the next section, the role of providing alternative care or non-pharmacological interventions is described, which is another principal role of the nurse besides administrating pain medications.

Table 4.2 Cross-cases comparison of three patterns of analgesic administration

Following pain treatment (Case 5, 6)	Advocating a child to receive pain medication (Case 2, 3)	Collaborating with physician to adjust pain treatment (Case 1, 4)
1. Administering analgesics learnt from experienced nurses. They: - could not implement knowledge from training into practice. - administered analgesic following suggestions of experienced nurses.	*1. Administering analgesics based on*: - the knowledge learnt from experienced nurses, - training about pain management, and - their own practical experiences in managing children's pain.	*1. Administering analgesics based on:* - nurses' perceptions about pain and pain management, - the knowledge learnt from experienced nurses, - training about pain management, and - their own practical experiences in managing children's pain.
2. Administering analgesics only indicated in the pain treatment. They: - fear to make any decision; - seek advice from an incharge nurse or more experienced nurses; - had not close interaction with physicians; - had rarely involved in adjust pain treatment.	*2. Advocating a child for pain alleviation.* They: - would ask the physician about the analgesic administration in case of no pain treatment; - had close interaction with physicians; - could make the decision by themselves whether to re-administer analgesic additional dose.	*2. Advocating a child for pain alleviation.* They: - would ask the physician about the analgesic administration in case of no pain treatment; - had close interaction with physicians; - could make the decision by themselves whether to re-administer analgesic additional dose. *3. Having knowledge about analgesic administration and utilizing this knowledge in order to make decisions before giving analgesics.* *4. collaborating with physicians to adjust the dose or rate of analgesic administration*

2. Providing Alternative Care or Non-Pharmacological Interventions

Providing alternative care or non-pharmacological interventions for alleviating children's postoperative pain was an independent role of nurses that based on nurses' decisions. Nurses provided alternative care as routine practice. Most non-pharmacological interventions will not reduce the pain intensity but will help children and caregivers to cope better and give a sense of being more in control. When nurses provide alternative care, they aim to both alleviate pain and help a child feel more comfortable.

The process of providing alternative care was started after the nurse changed a child's diaper and a child's positioning, but a child still continued crying or complained of pain. Nurses tried to console the child although they did not know the certain causes of the child's crying. They initiated providing alternative care for young children including giving pacifier, changing position, positioning in a sit box, holding, rocking, bundling, touching, stroking or rubbing, playing and so on. The alternative care used for older children was supporting by talking to them or explaining about how to reduce their pain, distracting them by playing, reading, listening to the radio, or watching television. Nurses also used the techniques of touching, holding hands, and changing their position.

The providing of alternative care process usually occurred both before and after administering pain medication. However, if a child had a continuous analgesic infusion to control pain but still experienced mild pain, the nurse also initiated providing alternative care for alleviating pain and suggested caregivers to provide alternative care. The findings showed that providing alternative care was an effective strategy to alleviate mild pain. If a child had severe pain, alternative care would only distract a child's pain for a short time but the level of the child's pain intensity may increase until they could no longer tolerate the pain.

For effective pain management, only giving pain medication was not enough to alleviate a child's pain but also providing alternative care, especially an older child who needed psychological support. Yindi explained that "Mostly after children are given pain medication, they will not sleep right away. Both giving pain medication and psychological care are needed. They need consoling, comforting, and distracting

from their pain for about 5-10 minutes before they will fall asleep." Mina, who although has less experience perceived that the psychological support was important intervention for pain relief because pain cannot divide from psychological aspect. She said that "Sometimes, children feels pain but they do not need the pain killer; they need psychological support. Sometimes, they need both pain medication and psychological support including talking and comforting that can help to relieve pain as well."

In some situations, a child was faced with complicated and unrelieved pain. Although nurses already administered analgesics and provided alternative care, the child still had severe pain. Nurses would play a coordinating role to make contact with both a surgeon and an anesthesiologist in order to discuss and plan a new pain treatment to alleviate pain. Nurses who cared for children postoperatively needed to be sensitive to the changes of a child's behaviors and pain symptoms in order to report to the physician for quickly pain management.

If a child had severe pain, only providing alternative care may not be an effective strategy in reducing pain intensity, it need both analgesic administer and providing alternative care. However, providing alternative care was a significant strategy for psychological support to a child. Yindi added that "There must be a combination of many interventions like talking, comforting or distracting a child's attention from pain. All of these must be done together and we have to give enough time to the child." Other cases agreed with Yindi, but sometimes they did not have time to providing alternative care because they were busy from admitting many postoperative children from the recovery room. So there were many times when these nurses had no choice but to leave these children, as Waree said "If it's very busy, I just let them cry."

Nurses become exhausted and frustrated when they both administered pain medications and provided non-pharmacological interventions to children but cannot reduce children's pain intensity. For instance, Mina was working in the PSU and an 11 year-old child, who lived in the special room, always cried and complained of being in pain. Whenever Mina went in and support him by talking and holding his hands, a child would stop crying. However, after she had left the room for 10 minutes, a child started to cry and complained of being in pain again. This situation discouraged Mina

and so she reported it to an incharge nurse. She explained her feeling that "I was confused with this situation and couldn't make a decision. I told an incharge nurse that I had no idea what to do." Yindi also faced with complicated pain management problem. She described that emotional pain is very hard to deal with. She added:

> When I went in the room of a nine-years-old girl and talk with her, she would calm down and stop crying. But when I turned to care for other children she would start to cry again and scream that she felt severe pain. Some junior nurses said they didn't know how to help a child and we were also very busy caring for an unconscious child. Later, I figured out that she did not have real pain. This was simply her way of getting our attention. So I solved this problem by distraction her attention from pain by giving her to listen music from a radio, and finally she stopped crying.

Nurses provided alternative care to postoperative children both before and after giving analgesics. Alternative care can help reduce mild pain but for severe pain, alternative care can only be a means of psychological support. Sometimes, just touching, talking, or comforting can stop a child from crying and pain relief. Although providing alternative care is a routine part of nursing practices when caring for children in the postoperative period, it has no guidelines used it in clinical practice. It was inconsistency used in the clinic; nurses differently applied alternative care based on their own experience or suggestion from more experienced nurses. Sometimes, nurses did not assess pain intensity using pain assessment tools; they estimate pain intensity from children's behaviors. After giving alternative care for 5-10 minutes, nurses would be able to evaluate whether it was effective or not. If a child still cried or slept for only a few minutes and then started to cry again, nurses would know that the alternative care was not helping to alleviate the child's pain. That might mean that the child's pain intensity might have increased to the level which is needed to administer analgesics. In contrast, if after giving the alternative care, a child stopped crying, it meant that the alternative care was an effective strategy in alleviating the child's pain. However, whenever a child had pain again, nurses used different interventions of alternative care to alleviate a child's postoperative pain.

In general, a nurse was the one who initiated providing alternative care to postoperative children. But sometimes, nurse suggests caregivers to give the alternative methods to their children as Mina suggested a caregiver in the special room that:

> If a child has someone by his or her side and talking to him or her, telling stories, singing or watching TV, the pain can be relieved. The special room doesn't have a TV; parents can bring a TV, a radio, or VCD player from home or anything else that may support the child.

Mostly, if caregiver was with a child, caregiver was the one who gave alternative care whenever the child started to cry. Nurse-caregiver interaction was occurred in the daily care because caregivers involved in postoperative pain management for their children.

There was no pattern of providing alternative care when compare among six cases. However, more experienced nurses had more skills in providing alternative care when compare with less experienced nurses can be seen as in Table 4.3.

Table 4.3 Cross-cases comparison of nurses' providing alternative care

More experienced nurses in proving alternative care (Case 1,2,3,4)	Less experienced nurses in proving alternative care (Case 5,6)
1. Having advanced skills in providing alternative care.	1. Having fewer skills in providing alternative care.
2. Suggesting caregivers with complete details of how to provide alternative care.	2. Suggesting caregivers only short details of how to provide alternative care.

3. Caregiver Involvement

When nurses manage postoperative pain in children as a holistic approach they have to care for both the children and their families. Mostly, children who are admitted into the hospital will be accompanied closely by their caregivers. To take care of children very well, nurses have to pay attention to caregivers and give them an opportunity to participate and take care of their children.

In general, nurses plan a suitable way for caregivers to involve in pain management both before and after surgery. Before an operation, the multidisciplinary care path for management of postoperative pain recommends to give information to caregivers about: 1) effect of postoperative pain on healing and rehabilitation; 2) postoperative pain relief with analgesics and self care to alleviate pain; 3) methods of assessing postoperative pain and controlling pain; 4) goal setting with the physicians to reduce postoperative pain; 5) requesting of pain relief medicine after the operation; and 6) duration of analgesic action. This information is aimed to create a better understanding of the process of care and management of postoperative pain among caregivers. However, most of the contents in this care path relate to adult patients' and older children's pain management. Practically, it was found that nurses only explained caregivers about the different ways to assess the pain and how to alleviate pain with different methods.

Caregivers have an opportunity to care for their children after operation. At this point it is very important for nurses to give instructions on how to look after children appropriately. The involvement of caregivers was seen as usual in the PSU which had a ratio of nurses to children of 1: 8-10. Mina was the one who worked in this unit and described:

> I will explain to parents that when children just come out from the recovery room, they will not feel pain right away due to the effect of analgesia. I will also explain that children may feel drowsy. I also simply tell parents what was done during the operation. Sometimes the physician orders NPO, so children can not having food and water. If children had pain, painkillers, both via oral and intravenous injection, will be given depending on children's pain intensity.

Findings discovered that the nurse-caregiver interaction could be classified into four patterns.

Pattern 1 Caregiver plays a passive role

In this pattern, caregivers have less involvement in the management of children's pain; with nurses making most of the decisions related to pain management. This pattern was found when nurses were assessing children's pain intensity and making

decision to administer analgesics. Caregivers did not have much of a role in this situation, and only give the information about what children complained of. Whilst making the decision for administering analgesics, nurses and caregivers may have different opinions, but nurses are the last ones to decide whether to give analgesic or not. For example, Yindi worried and complained about the over dose of analgesic administration. A child's mother, as caregiver, forced her child to tolerate with pain. Finally, Yindi made the decision to give analgesics for alleviating the child's pain, but she did not completely inform the child's mother why she decided to give the analgesic. This made the caregiver anxious. Caregiver also had conflict as she wanted her child to get analgesics but was worried about any potential side effects. However, she did not say anything to Yindi. This example reflects that the caregiver has less power in making decisions for administering analgesics while nurses play an active role.

Pattern 2 Caregiver follows nurses' suggestions.

This pattern could mostly be seen when nurses were giving alternative care both before and after administering analgesics, and suggested caregivers to follow her suggestions. An example was when Vina cared for a three-year-old child who continued crying. Vina talked to a child and let the mother involved in the comforting their children. Vina told the child that "Mama is here. Hold hands with her. Come on." Vina also told the mother that "You can talk to her, her hand or touch her, like this, or you can play something else with her."

Another situation when this pattern occurred is when nurses educated caregivers how to care for their children after giving analgesics, and ways to be involved in managing their children's pain. The example was when Prida had decided to administer analgesics via intravenous injection to the three-year-old child. While she injected the analgesic slowly, she explained to caregiver of a child that:

> This is an analgesic, but it takes a while for it to be active. Your child will be drowsy. So if you go elsewhere, please pull the side rails up. One more thing, this drug may cause itchiness and rashes. You have to observe your child for rashes. If you locate any, please notify a nurse.

From observation, parents satisfied with Prida's suggestions and paid close attention to the explanation from Prida. After the child fell asleep, the father helped adjust the bed and the mother would keep looking at her child. This shows that the parents received the information thoroughly and would take action without hesitation.

Pattern 3 Caregiver plays an active role

In this pattern of involvement, caregivers provided alternative care by themselves based on their past experience in alleviating their children's pain. This pattern was usually seen when children and caregivers were together alone while nurses were taking care of other children. Caregivers showed their ability to assess the children's pain and provided them with alternative care. However, the assessment of the caregivers depends upon their own perceptions and attitudes. Alternative care used by caregivers may come from caregiver's previous experience with pain alleviation for children, as one mother said:

> When my child felt hurt, I wanted her to be relieved and I didn't know what to do. I only held her hands and it helped a bit. As last time when she said that she hurt, she asked me to hold her hands.

The support from caregivers also alleviated children's pain intensity for a short duration but pain intensity may keep rising until it reaches a severe pain level. In some situations, caregivers may provide different methods of alternative care in order to reduce children's pain. One caregiver asked her child to tolerate with pain, telling them that if a child complained more, a child will have to stay in the hospital longer. The result was that a child suffered from pain for about 45 minutes before receiving an analgesic. The mother, as a caregiver, explained that "When she said she hurt, I would tell her to be strong and hold on, so that she could go home faster. If she keep complaining, the doctor will make her stay longer. Then, she would be quiet."

In this pattern of involvement, caregivers actively assess pain and provide alternative care by themselves. This pattern was useful for alleviating mild pain. In the situation that a child had severe pain, this method would not effective pain management. It would result in a child suffering from severe pain.

Pattern: 4 Demanding Caregiver

This pattern is likely to occur in the situation where children stayed in special rooms and caregivers were over protected. Caregivers would request help from nurses almost all the time. This situation leads to nurses feeling frustrated and discouraged and caused them uncertainty in making decisions for pain management.

This situation usually happened when less experienced nurses were providing care for children in special rooms. Mina who was less experienced said:

> The parents would always call a nurse when their child kept crying even though I had just had given them a painkiller. But parents couldn't wait; they wanted their child to stop crying right then. And it made me frustrated when facing this situation. When faced with a situation like this, I ask an incharge nurse what I should do next after giving the painkiller.

Mina thought that this happened because most of caregivers in special rooms were quite wealthy and more educated and may have raised their children with over protection.

Caregivers in this group requested too much help from nurses, causing less experienced nurses had frustration and uncertainty in making decisions of pain management. If caregivers showed their interest in what nurses explained, less experienced nurses were more likely to be certain in making decisions of pain management. In the case that caregivers did not behave properly such as speaking out loud or asking aggressively, the less experienced nurses felt worried and stress about the situation while more experienced nurses would explain to caregivers about what was going on and how caregivers can participate in the pain management of their children. Mina gave an opinion about her practice that:

> Our actions or words may not be enough for them to trust us. I will ask more experienced nurses to take over, because I am still a young nurse and sometimes parents will not believe me. But if a more experienced nurse speaks with them, parents will listen even though what is explained is the same thing that I just told them. We have to be careful about this situation and not make any decisions alone.

Three patterns of caregiver involvement can be summarized as in Table 4.4.

Table 4.4 Cross-cases comparison of four patterns of caregiver involvement

Caregiver plays a passive role	Caregiver follows nurses' suggestions	Caregiver plays an active role	Demanding Caregiver
1. Caregivers have less involvement in the management of children's pain	1. Caregivers involved in the comforting their children and providing alternative care.	1. Caregivers assessed pain and provided alternative care by themselves based on their past experience in alleviating their children's pain	1. Caregivers over protected their children and would request help from nurses almost all the time.
2. Nurses made most of the decisions related to pain management. (Case 1,2,4)	2. Nurses suggested caregivers how to provide alternative care. (Case 1,2,3,4,5,6)	2. Nurses had time to care other children. (Case 1,2,3,4,5,6)	2. Nurses had frustration and uncertainty in making decisions of pain management. (Case 5, 6)
3. Caregivers had conflict and anxiety about children's pain.	3. Caregivers understood how to care their children and involved in pain management.	3. It was useful for alleviating mild pain but it would not effective pain management for severe pain.	

Summary

Children's postoperative pain is individual experiences which are difficult to explain to others. Postoperative pain is always expected to occur but it is also controllable. Three strategies for nurses' pain management were analgesic administration, providing alternative care or non-pharmacological interventions, and caregiver involvement. Nurses must be aware that postoperative pain in children is also the pain in parents' mind. To manage the pain effectively, caregivers need to be involved in pain management, particularly providing alternative care. This can result in an improved effectiveness of the pain management in postoperative children.

CHAPTER V
HOLISTIC NURSING CARE FOR PAIN MANAGEMENT

The previous chapter described the processes and patterns of nurses' management of postoperative pain in children in which cross-case synthesis and pattern-matching were used in the analysis. This chapter aims to identify the main points found and the relevance of these findings using explanatory building, categorized into two parts. The first part describes the holistic nursing care for pain management; and the second part discusses the natures and stages of nurses' pain management. These two parts aim to achieve an in-sight understanding about the nurses' management of postoperative pain in children.

Holistic Nursing Care for Pain Management: Interactions and Approaches

Pain management is considered a vital role of nurses. In order to manage pain effectively, nurses should provide holistic care to children by having interaction with children, caregivers and physicians. The strategies that nurses used for managing postoperative pain in children involved: 1) analgesic administration; 2) providing alternative care or non-pharmacological interventions; and 3) caregiver involvement. From considering the real-life contexts, it was found that nurses had interactions with physicians and caregivers that impacted their decisions to manage postoperative pain in children. Nurses' pain management model is shown in Figure 5.1

The upper left circle shows the role of nurses in analgesic administration. This role, nurses cannot be performed independently because analgesic administration also depends on the pain treatment from physicians. Nurses who had more experience were able to interact with physicians better than the nurse with less experience. Less experienced nurses would report only the information about the children's symptoms or pain scores to the physician. On the other hand, nurses with more experience would be able to double check the pain treatment, advocate children to received analgesics

when they found that no pain treatment, and give information about the children's pain symptoms and pain score to the physician. Moreover, more experienced nurses would participate in planning and making decisions with the physician to adjust pain treatment to a level suitable for pain control or pain relief for each child.

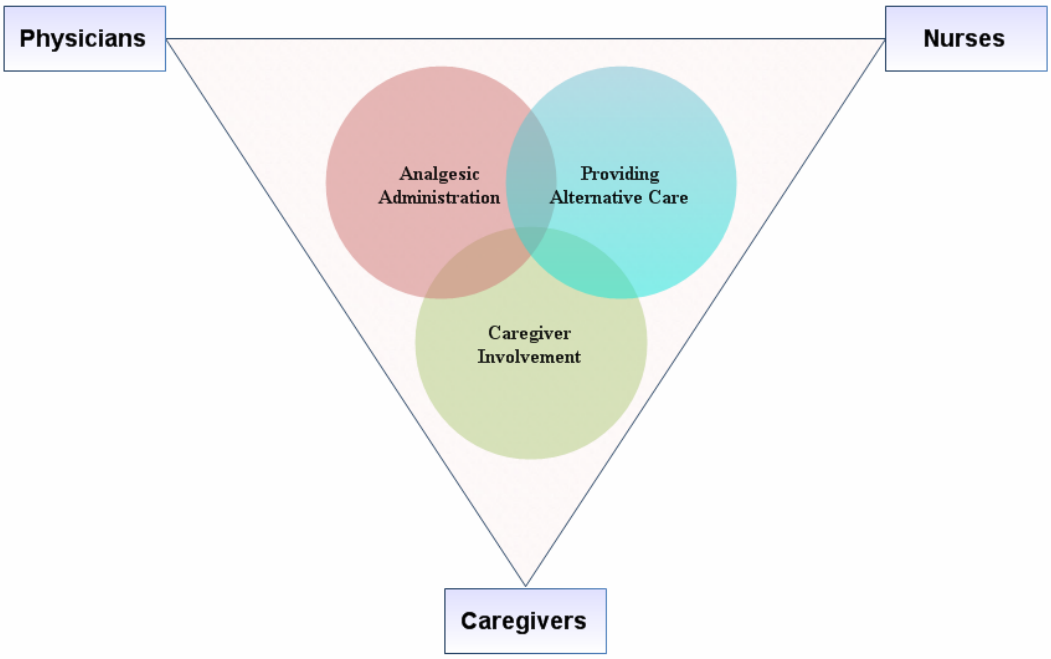

Figure 5.1 Nurses' pain management model

The upper right circle shows the role of nurses in providing alternative care or non-pharmacological interventions. In this regard nurses have an independent role to make decisions in managing postoperative pain in children. For young children, nurses provided alternative care including giving pacifier, changing position, positioning in a sit box, holding, rocking, bundling, touching, stroking or rubbing, playing and so on. For older children, nurses provided alternative care including talking to children, touching, holding hands, changing their position. Nurses also used the techniques of distracting children by playing, reading, listening to the radio, or watching television. Nurses provided alternative care to postoperative children both before and after giving analgesics. Providing alternative care was done from nurses'

past practice experience or learning from senior nurses. In both the pediatric surgical intensive care unit and the pediatric surgical unit, there was no guideline to implement alternative care or non-pharmacological interventions to clinical practices. Nurses evaluated the effectiveness of each intervention from children's responses. In this role, nurses had close interaction with caregivers who involved in supporting and consoling children. Nurse suggested caregivers to provide alternative care to their children.

The bottom circle indicates the part where nurses let caregivers involve in pain management. Although this role usually occurs, the patterns are different depending on the situation. While planning for analgesic administration, children and caregivers would have less involvement. Caregivers would act as only a bridge between nurses and children by giving information or children's symptoms to nurses but caregivers would not involve in making decisions to administer analgesic. While providing alternative care, caregivers would act as significant person for supporting children, providing alternative care following nurses' suggestions or based on caregivers' past experience in alleviating children's pain. However, caregivers were not observed to be encouraged consistently to be involved in their children's postoperative pain management that based on situation and children's symptom. Sometimes nurses did not have time to suggesting caregiver for providing alternative care because nurses were busy from their works.

The findings of this study also indicate that pain management is a dynamic and flexible process which depends on the situation and the reaction of postoperative children. Nurses concerned that pain was an individualized feeling and each child has different pain thresholds leading to different interventions for pain alleviation. As the natures of postoperative pain in children means that it occurs periodically, after pain alleviation, children may suffer from pain again. Even though the children received pharmacological or non-pharmacological interventions, they needed pain management again until their bodies healed or recovered from surgery.

Although nurses' pain management is a dynamic and flexible process, it has core steps using the nursing process of: 1) assessing pain intensity; 2) making a nursing diagnosis; 3) planning for alleviating pain; 4) implementing interventions

(alternative care or analgesic administration); and 5) evaluating or re-assessing pain intensity. This process seems like the process of analgesic administration but it was different details in some steps. Nurses needed to be very sensitive to the reactions of the children; carefully collecting data and letting caregiver involved in pain management. To achieve this, nurses needed to make a nursing diagnosis and plan for alleviating pain. By looking at children at any given moment, nurses would implement an appropriate intervention, that is, to use pharmacological or non-pharmacological interventions in order to relieve pain. Finally, nurses must evaluate or re-assess the pain intensity of children after interventions had been applied. Overall, everything that the nurses did in the pain management process was done through the nursing process, which regularly occurred, as seen in Figure 5.2

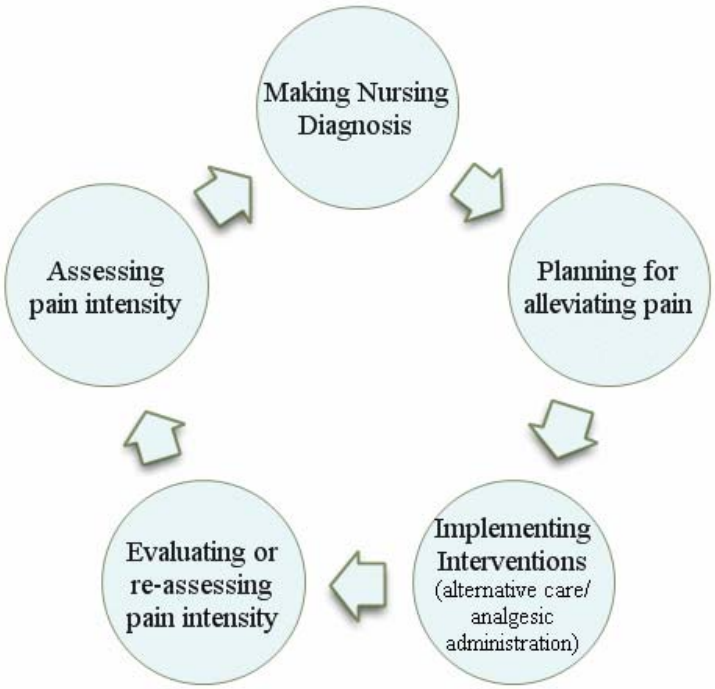

Figure 5.2 Nurses' pain management process

When analyzing the process of pain management in children, it was found that nurses made the decision carefully at every step. To better understand the nurses' pain management process, this study presents algorithms of nurses' pain management.

Algorithm for pain assessment before making decision for implementing interventions presented in Figure 5.3. Algorithm for providing alternative care or non-pharmacological interventions presented in Figure 5.4. Algorithm for analgesic administration presented in Figure 5.5.

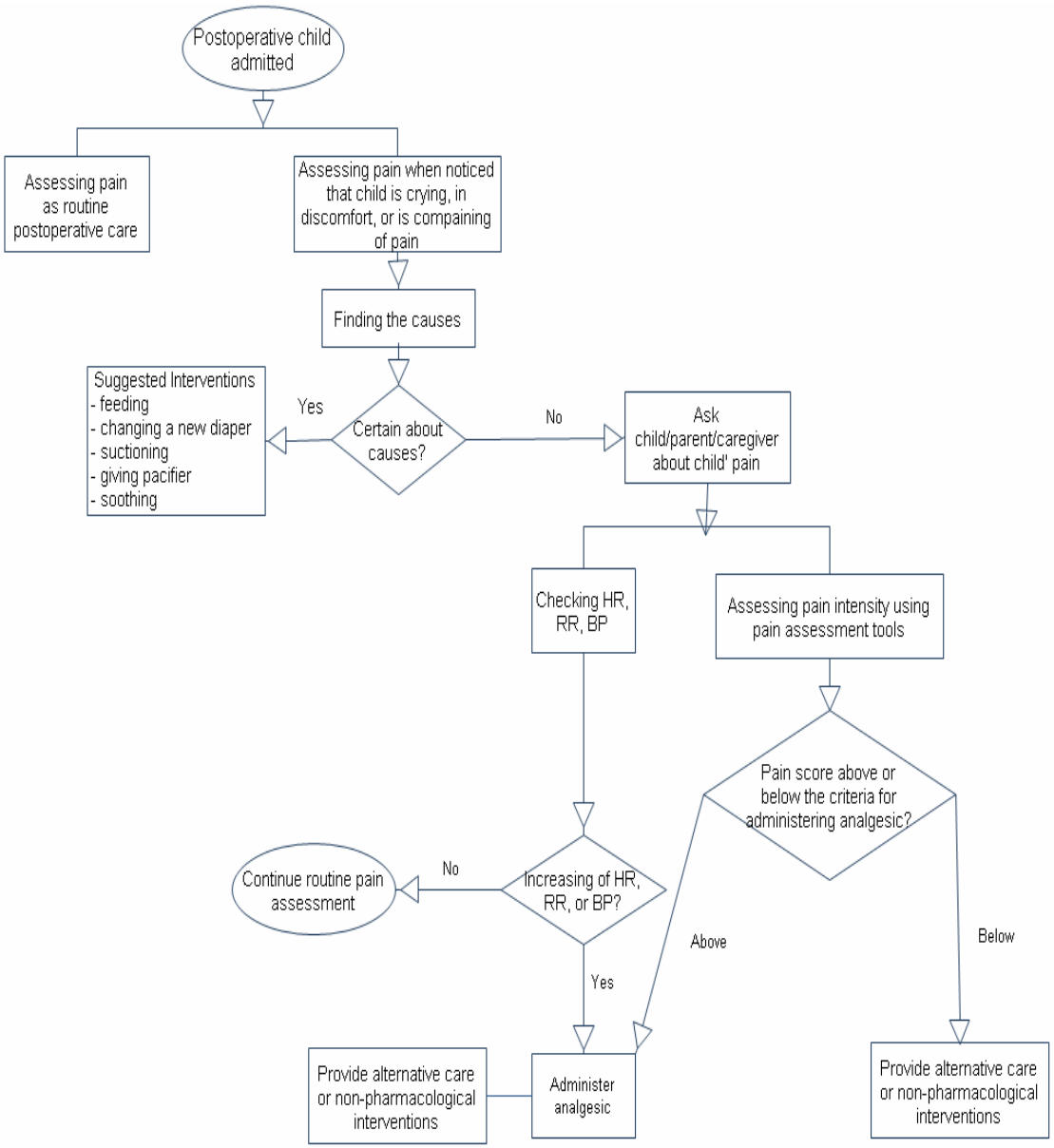

Figure 5.3 Algorithm for pain assessment

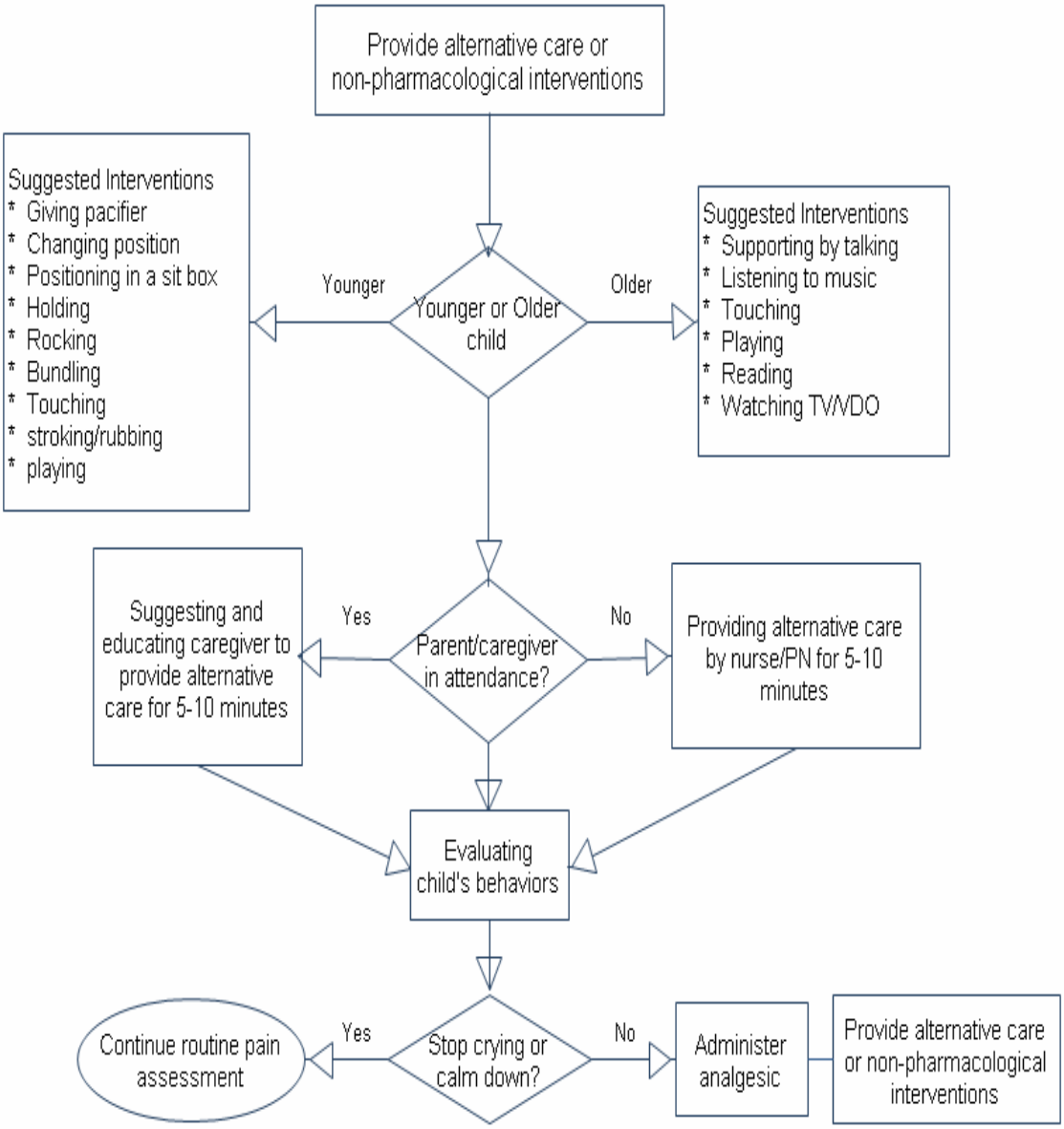

Figure 5.4 Algorithm for providing alternative care or non-pharmacological interventions

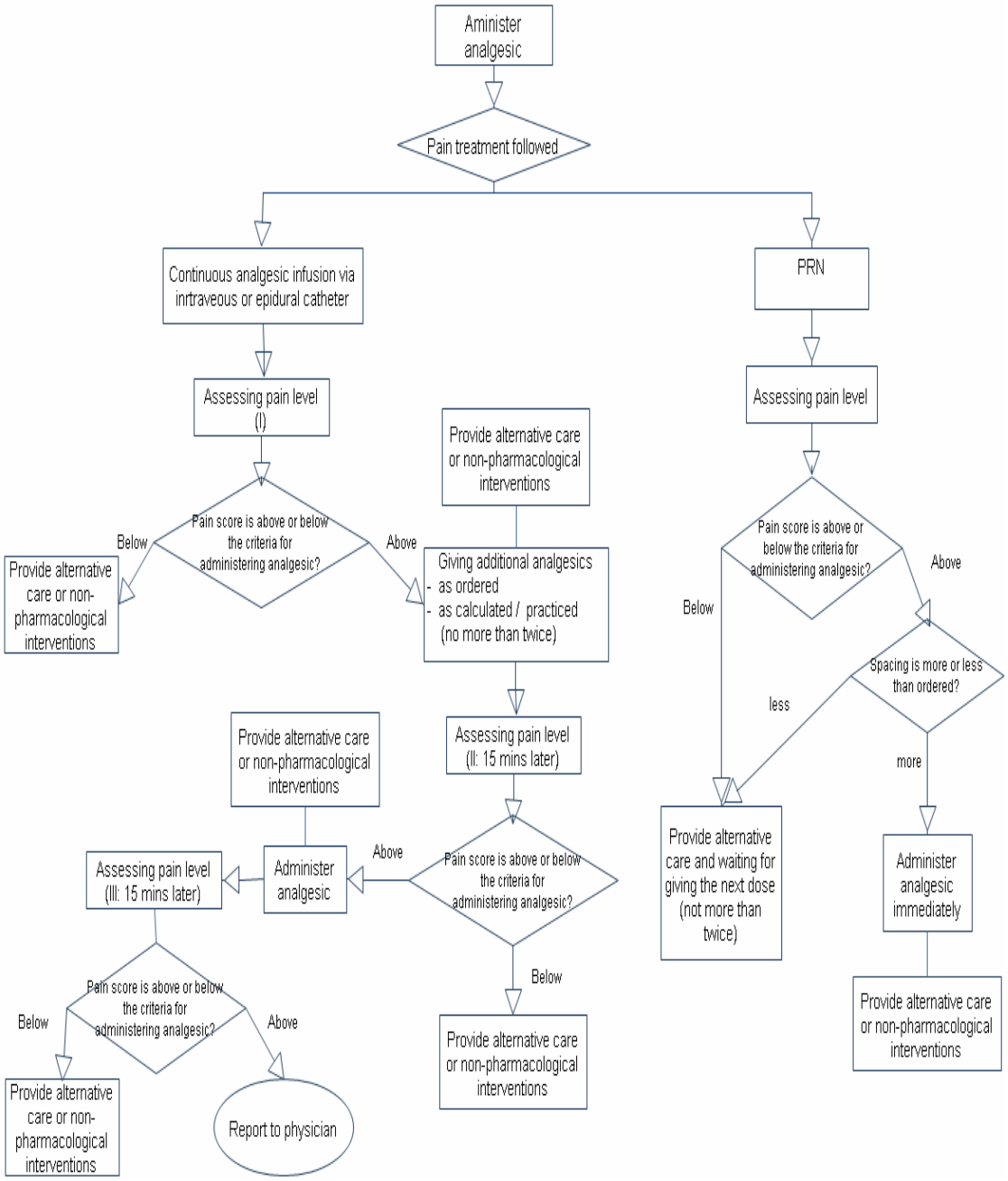

Figure 5.5 Algorithm for analgesic administration

Three algorithms show the process of decision making in order to manage postoperative pain in children. There were some steps that could be omitted if unnecessary. For example, sometimes providing alternative care alone could alleviate

a children's pain; sometimes only administering analgesic could alleviate children's pain, but sometimes both administering analgesic and providing alternative care could not relieve pain in children. Psychological support from the nurses such as holding hands, staying and talking with children, and comforting, would be needed to help reduce postoperative pain in children. These algorithms presented are the analysis of explanatory building and is an alternative way to facilitate nurses to make decisions pain management more efficiently.

The Natures and Stages of Nurses' Pain Management

Pain management has become a routine practice for the postoperative care of children where the process in dealing with each individual child is different depending on the complexity of a children's pain. The findings from the study showed the natures of the nurse's management of postoperative pain in children and it was found that there were four stages in respect to the chronology and the complexity of children's pain. They were 1) Alerting Stage, 2) Experiencing Stage, 3) Consulting Stage, and 4) Discouraging Stage.

Stage 1: Alerting Stage

This first stage is the stage when nurses suspected that children had pain; nurses would observe children' behaviors including crying, frowning or being agitated. For older children, nurses would be able to receive information from the children's own reports; caregivers would also inform nurses of children's pain. In this situation, nurses would have to assess children quickly and find out what the cause of crying or other behaviors were. Normally, more experienced nurses could assess pain more rapidly than less experienced nurses.

Stage 2: Experiencing Stage

The second stage is the stage when nurses would utilize their knowledge and past experiences to manage postoperative pain in children. Nurses would interpret children's reactions and apply the most appropriate intervention for alleviating their pain, either pharmacological or non-pharmacological interventions. Although most non-pharmacological interventions were used in the routine nursing practice, there

were differences in skills between more experienced nurses and less experienced nurses in making decisions for pain management. More experienced nurses would be able to decide whether to administer analgesics via oral or intravenous injection. Less experienced nurses might be able to perform this process as well, but it would be in a form of following the suggestions of the more experienced nurses.

Stage 3: Consulting Stage

This stage is when nurses were faced with more complicated children's pain management problems and unrelieved pain. According to this situation, the less experienced nurses would often consult an incharge nurse or more experienced nurses how to manage the postoperative pain. The more experienced nurses would give advice how to solve the problem and make decisions to manage the children's pain. In cases where an incharge nurse or more experienced nurses assessed children's pain and found that analgesics was not enough to control children's pain, they would report to physicians and discuss further pain treatment.

Stage 4: Discouraging Stage.

This stage occurred after nurses had used both pharmacological and non-pharmacological interventions including reporting to the physician, but children continued to experience severe pain. Nurses would express feelings of discouragement and were unable to find other ways to manage pain. Some nurses would have said "I give up" or "I don't know what to do." When nurses could not manage children's pain, it would make nurses feel discouraged and they would need support from others in order to get through this situation. Discouraging stage would return to alerting stage or other previous stages when children's responses were changed including decreased pain intensity and nurses know how to alleviate pain. Consequently, nurses would feel more power and would be ready to focus on pain management.

Summary

This chapter detailed the holistic nursing care for pain management and the natures and stages of nurses' pain management. Nurses must pay attention to both children and caregiver; letting them involved in planning the pain management; this management would be called a "holistic nursing care for pain management in

children.” Nurses’ pain management model were presented that nurses had interactions with physicians and caregivers in managing children’s postoperative pain. These interactions may impact nurses’ decisions to manage postoperative pain in children. Algorithms of nurses’ pain management were proposed as a step by step guide for making decisions in assessing pain intensity, providing alternative care or non-pharmacological interventions, and analgesic administration.

CHAPTER VI
DISCUSSION

In this chapter, the research findings are summarized and discussed using the evidence from western and eastern literature. The characteristics of the cases are firstly discussed. The findings of this study are then compared to the findings of other studies.

Summary of Characteristics of the Cases

The purpose of this study was to describe how and why nurses manage postoperative pain in children in the real-life context of clinical units. A "case" or a "unit of analysis" in this study was a "nurse-respondent" who provided care for child-respondents. Child-respondents spend more than six hours but less than two days in the postoperative phase. A "case" also had interactions with physicians, children, and their caregivers. There were six cases aged between 24 and 46 years old. In this study, the first three cases, Yindi, Preda, and Prani, worked in pediatric surgical intensive care unit. Nurses in the last three cases, Vina, Waree, and Mina, worked in pediatric surgical unit. The majority of nurses (Yindi, Preda, Prani, and Vina) have worked as a pediatric surgical nurse more than 10 years. Only two nurses (Waree and Mina) have worked as pediatric surgical nurses less than 10 years and have not been assigned to be an incharge nurse. All of them attended a training course on management of postoperative pain.

Discussion

The findings of this study are compared to the findings of relevant studies. The purpose of this comparison is to find similarities and differences between the findings. This discussion is divided into five sections: 1) holistic nursing care in pain management, 2) analgesic administration, 3), providing alternative care or non-

pharmacological intervention, 4) caregiver involvement, and 5) barriers to effective pain management.

Holistic nursing care in pain management

Pain management was more effective through holistic and human care to heal a child as a whole person involved the interrelationships of bio-psycho-social-spiritual dimensions of the person. However, spiritual caring rarely found in this study. Pain management consists of making decisions for analgesic administration, providing alternative care, and caregiver involvement presented in the nurses' pain management model. When nurses managed postoperative pain, they had interactions with physicians, children, and caregivers. Interactions within the clinical context may influence nurses' decisions on management of postoperative pain in children. In order to manage pain effectively, nurses needed to play attention to both children and caregivers. Nurses gave an opportunity for caregivers to involve in pain management. Nurses also took a role as a collaborative member of an interdisciplinary team that provided holistic care for postoperative children.

The outcomes of pain management may not reach the optimal goal of pain free, but focus on pain relief and satisfaction of children and caregivers. For mild pain, nurses provided only alternative care or non-pharmacological interventions to alleviate children's pain. For severe pain, nurses used both pharmacological and non-pharmacological interventions to alleviate pain in children. For some children, nurses failed to alleviate their pain, but nurses had successful to distract them from pain; children and caregivers were satisfied with nurses' pain management. Some children showed that they need psychological support including holding their hands or touching by nurses or caregivers that it was enough for children to face with postoperative pain. According to Velasco-Whetsell et al (2000), postoperative pain cannot be completely eliminated. Pain relief is the primary goal of pain management as important as patients' satisfaction with their state and care (Cohen, 1993). Therefore, pain management is the human caring as a holistic for both children and caregivers in order to control or alleviate pain aimed for satisfaction of children and their caregivers.

In this study, nurses' pain management process was done through the nursing process including: 1) assessing pain intensity, 2) making nursing diagnosis, 3) planning for alleviating pain, 4) implementing interventions (pharmacological or non-

pharmacological interventions), and 5) evaluating or re-assessing pain intensity. Pain management process was a dynamic and flexible process of caring and can be described as the holistic caring and decision making processes.

The holistic caring process includes six simultaneously occurring steps: 1) assessing, 2) diagnosis, 3) outcomes, 4) therapeutic plan of care, 5) implementation, and 6) evaluation (Mariano, 2007). Holistic assessments include not only the physical, functional, psychosocial, mental, emotional, cultural, and sexual aspects but also the spiritual, transpersonal, and energy-field assessment of the whole person. Holistic assessment data are interpreted into diagnosis involved pattern, problem or need identification. The outcome is increasing of patient's well-being and the focus is on the individual's goals, not those of the nurse. Therapeutic plans of care focus on the person's experience and the uniqueness of each healing. Therefore, the individual's own healing process produces the outcomes and the nurse facilitates this process.

Interventions frequently employed in holistic nursing practice in addition to conventional nursing interventions include anxiety reduction, stress management, calming technique, emotional support, spiritual support, and environmental management. Many interventions used in holistic nursing were the relaxation techniques. Holistic nurses can teach caregivers to use these techniques for their children and evaluate their responses to these interventions. Both pain management process and holistic caring process are mostly similar but there was no the step of setting outcomes in pain management process.

Nurses have to make decision in every step of pain management process, particularly providing alternative care or non-pharmacological intervention that is the nurses' independent role to alleviate children's pain. Nurses made decision about the needs of children in pain relief as well as decisions about pain assessment and what interventions were appropriated to alleviate pain. When compared with decision-making theory, nurses' decision making strategies do reflect the steps featured in the information-processing model (also known as the hypothetico-deductive approach) to make decision in every steps of pain management in children (Tanner, Padrick, Westfall, & Putzier, 1987). Information-processing model is the most influential descriptive theory as the basis of many of the nursing studies (Thompson & Dowding,

2002). In the information-processing model, a human being is viewed as an information-processing system interacting with a problem task. The hypothetico-deductive approach proposes that data gathering is the first decision-making activity, leading to the induction of hypotheses to explain the data.

The hypothetico-deductive approach to clinical decision making involves several stages: cue recognition or cue acquisition, hypothesis generation, cue interpretation, and hypothesis evaluation (Tanner, Padrick, Westfall, & Putzier, 1987). In the first stage (cue acquisition), data are collected and information about cues can be obtained by a variety of methods. Applying this approach to the nurses' decision to assess pain intensity, nurses collected physiological and psychological information both subjective and objective data. In the second stage (hypothesis generation), hypotheses are generated from memory based on only a few cues. In other words, hypothesis generation had assisted in transforming a seemingly uncontrollable problem into a controllable one by generating a few cues and then proceeds to test their correctness by further data collection. This stage, when nurses noticed children's crying, nurses hypothesized the causes of crying from pain or other causes. During the third stage (cue interpretation), cues are interpreted as tending to confirm or refute a hypothesis. In the process of assessing pain intensity, when children cried as screaming, nurses interpreted that crying could be caused by pain. Finally, in the fourth stage (hypothesis evaluation), nurses have to reach a diagnostic judgment that children cried from pain or other causes. Nurses used pain assessment tool to assess pain intensity. Decision making process using the hypothetico-deductive approach was used in every step of nurses' pain management that was done through the nursing process.

Analgesic administration

Analgesic administration is a basis for effective pain relief and nurses play a key role in making decision for administering analgesic. Nurses would assess pain intensity according to the multidisciplinary care path**.** Nurses also assessed pain intensity when they hypothesized that a child was in pain. Then, they made nursing diagnosis and planning for analgesic administration. After administering analgesic to children, nurses would emphasize on reassessing the children's pain 15 minutes after injecting or one hour after giving oral pain medication. Although the side effects of

pain medications were not found in this study, nurses continue monitored pain scores, the changes of vital signs, and other potential side effects including an apnea, abdominal distension and rash.

The patterns of nurses' decision making in analgesic administration could be categorized into three patterns: 1) following pain treatment, 2) advocating a child for receiving pain medication, and 3) collaborating with physician to adjust pain treatment. Nurses who made decisions using the following pain treatment approach had less experience in making decision on analgesic administration. They may have low self-confidence to make decision when they were unable to control a child's pain. They always consult an incharge nurse before administering analgesic. Furthermore, less experienced nurses learned how to administer analgesic from more experienced nurses and adopt it as part of their routine practices. More experienced nurses seem like a model of decision making pattern in each unit. This study findings yielded support to the findings of ethnographic multiple-case study of Willson (2000) that the pattern of care in each unit had an effect on pattern of care by individual nurse which in turn affected nurses' decisions to give analgesia and assess pain. Additionally, more senior nurses acted as role models for junior nurses. Nurses who used the second and third decision making patterns had high self-confidence in analgesic administration. They also believed that their experience for administering analgesic made physicians trusted them.

Nurses who were experienced or skilled in pain management may not be those who had many years of experience in providing care for postoperative children. The definition of experienced nurses was illustrated by nurses' characteristics. The dominant characteristics of experienced nurses were having: 1) knowledge related to pain management, 2) their own practical experiences in managing children's pain, 3) advanced skills in providing alternative care, and 4) good relationship with physicians and caregivers. Experienced nurses used data from several sources when making decision for pain assessment and analgesic administration. They also advocated children to receive pain medication. They had ability to negotiate and collaborate with physicians to adjust the dose or rate of analgesic administration.

In this study, experienced nurses made better decisions and had high self-confidence than less experienced nurses in analgesic administration. Other studies also have suggested that experienced nurses make better decisions than less experienced nurses (Benner, 1984; Benner, 2000; Lauri & Salantera, 1995; Watson, 1994). Hamers et al. (1997) found that experienced nurses were most confident and were most tending to administer analgesics when compared with novices and intermediates nurses. However, expertise did not influence pain assessments. Novices, intermediates, and experts did not differ in their assessments of children's pain intensity. Twycross and Powls (2006) explore about how pediatric nurses make clinical decisions when managing postoperative pain. They found that no differences strategies for managing pain between five years or more experienced nurses and less experienced nurses were illustrious. They collected similar information from a variety of sources before planning nursing interventions to alleviate pain in children. This needs exploring further about the impact of nurses' experience on nurses' decision making in pain management and quality of care provided.

The interaction of healthcare professionals in the teamwork, especially nurse-physician interaction is the important factor for nurses' decision in pain management. In this study, nurses had good interactions with physicians when they worked together for managing postoperative pain in children. Nurses assessed and documented pain scores in children's charts. They also reported physicians about unrelieved pain problems. Physicians accepted that they got benefit from nursing records and satisfied with nurses' pain management. Nurses also shared information related to children's pain and made joint decisions with physicians to administer analgesics.

Other studies indicated that the nurse-physician interaction was a barrier of nurses' pain management and pain relief in children. Van Niekerk and Martin (2003) studied about the perception of 1,015 nurses and found that nurses had encountered at least one type of barrier to effective pain management, including insufficient co-operation by physicians and inadequate prescriptions of analgesic. They also revealed that years of experience with pain management have an influence on the relationship between nurses and physicians, which is an obstacle to the pain management. Nurses with less than 10 years of experience in pain management were more likely to report

difficulties in relation to physician cooperation than nurses who had been involved in pain management for 21 years or more. Poor communication between nurses and physicians creates the conditions for acrimony, frustration, and distrust that can lead to ineffective care and a greater risk of error (Burke & Mitchell, 2004; Manias, 2003b).

Providing alternative care or non-pharmacological intervention

Nurses have traditionally focused on the whole person and family (Watt-Watson & Donovan, 1992). Because providing alternative care or non-pharmacological interventions often involve a holistic approach, nurses are independently prepared for effective use of these interventions in managing pain in children. In this study, nurses provided alternative care when children cried or nurses hypothesized that children had pain. Nurses also provided alternative care after administering analgesic.

In this study, some non-pharmacological interventions were effective in reducing both children's discomfort and pain including positioning, swaddling, and holding and soothing. A number of non-pharmacological interventions have been used by nurses for alleviating pain in younger children including giving pacifier, changing position, positioning in a sit box, holding, rocking, bundling, touching, stroking or rubbing, and playing. Non-pharmacological interventions commonly used by nurses to alleviate pain in older children including supporting by talking, touching, playing, reading, listening to music, and watching television. Most of them are distraction techniques that can reduce the neuronal response to a noxious stimulus. Children are not simply ignoring their pain, but are reducing their perception of pain (Morton, 1998). The study findings were consistent with the finding of He et al. (2005) who studied Chinese nurses' use of non-pharmacological interventions in children's postoperative pain relief. They found that the most commonly used non-pharmacological interventions were giving preparatory information, comforting/reassurance, creating a comfortable environment, distraction, and positioning. In contrast, Twycross (2007) who observed 13 pediatric nurses about how they manage children's postoperative pain in practice. The findings indicated that nurses rarely use non-pharmacological methods of pain relief.

Effective pain management in children requires both administering analgesic and providing non-pharmacological interventions. It is suggested that children's postoperative pain could be alleviated by using non-pharmacological interventions as adjuvant to analgesics (Acute Pain Management Guideline Panel, 1992). In this study, after administering analgesic, experienced nurses provided alternative care for 10-15 minutes to reduce children's suffering from pain. This study also revealed that although all cases were familiar with many non-pharmacological interventions for pain relief, they inconsistently used them in routine practices because there was no guideline for implementing them in the clinical unit. They provided non-pharmacological interventions relied on children's behaviors and levels of pain intensity. Less experienced nurses provided non-pharmacological interventions following their past experience in providing alternative care or suggestion of more experienced nurses. Nurses also found it helpful to involve caregivers in implementing non-pharmacological interventions, particularly in the pediatric surgical unit that caregivers were important person to involve in taking care for children. Nurses also suggested caregivers how to provide non-pharmacological interventions to alleviate pain in their children.

Caregiver involvement

Nurses are the key health care professionals with responsibility for managing postoperative pain in children. Caregivers can make important contributions to assessment and management of children's pain. Nurses had interactions with caregivers and planned for caregivers' involvement in pain management both before and after surgery. Before an operation, nurses gave information to caregivers about the effect of pain on healing and rehabilitation, pain assessment, and pain alleviation.

The nurse-caregiver interactions could be classified into four patterns; 1) caregiver plays a passive role, 2) caregiver follows nurses' suggestions, 3) caregiver plays an active role, and 4) demanding caregiver. Caregivers have an opportunity to care for their children after operation when children cried, then nurses suggested caregivers to provide non-pharmacological interventions for pain relief. However, caregivers were not encouraged consistently to be closely involved in pain

management of their child. Most of caregivers play a passive role and follow nurses' suggestions.

Interaction between nurses and caregivers leaded to outcomes of pain management. Giving complete explanation about pain management and analgesic help caregivers understand and know how to take care children. In contrast, incomplete explanation about analgesic could make caregivers worried. Caregivers could alleviate children's mild pain without using painkillers. Some caregivers provided alternative care by themselves based on their past experience in pain alleviation for their children. It is consistent with the findings of qualitative study by Woodgate and Kristjanson (1996) and Carter, McArthur, and Cunliffe (2002) that parents, as caregivers, played a pivotal role in monitoring for signs of children's pain and comforting their child including holding or rubbing a body part, and distracting children from pain with activity such as reading.

Information from caregivers was significant for pain management. When children had severe pain and caregivers tried to alleviate pain by themselves or told children to be patient, it could make children suffered from pain. On the contrary, if caregivers immediately inform nurses of children's pain, nurses would be quickly assessed and alleviated pain. It was also found in the study of Woodgate and Kristjanson (1996) that nurses more frequently relied on parents to tell them if children were in pain, but did not always probe and directly ask children or confirm with other nurses. Twycross (2007) also found that much of communication about pain between nurses and parents was initiated by the parents either asking a question or telling nurses that children were in pain.

Barriers to effective pain management

Effectiveness of postoperative pain management is the main responsibilities of nurses and other health care professionals, and depends on their ability to accurately diagnose and assess pain intensity as well as the ability to overcome the barriers to pain management. Many barriers found in this study hindering effective pain management were individual barriers and organizational barriers.

Individual barriers related to nurses include lack of ability to apply knowledge to manage pain in children, having less experience in pain management, and fear that administering analgesic may lead to respiratory depression and other side effects.

Nurses' knowledge related to pain assessment, pharmacological and non-pharmacological interventions is an important precursor to decision making. However, knowledge alone can not change practice to effective pain management (Berry, 2000). Although all nurses in this study learnt about pain management, particularly analgesic administration and the appropriate dosage of analgesic from the training course of acute pain management last year, they administered analgesic in different patterns. Less experienced nurses administered analgesics following the routine practices that they learnt from more experienced nurses. They could not make a decisive decision in practice to solve the problem of unrelieved pain in children. They had low self-confidence to make any decisions for managing complicated pain. Berry (2000) also indicated that traditional patterns of professional practice may be the most intractable barriers to effective pain management.

This study revealed that more experienced nurses had both knowledge and practice experience in managing postoperative pain. They were confident in making decisions for administering analgesic and solving pain management problems. They also had skills for effective assessing and alleviating postoperative pain. According to Benner (1984), nurses gain their practice skills through experience over time. Another important barrier related to nurses was nurses' attitude about pain medication. Although nurses who had both in-depth knowledge and more experience in pain management, they fear about administering analgesic overdose and risk of addiction lead to respiratory depression and other side effects. If a range of analgesia doses were prescribed rather than a set dose, there was also a tendency to give a minimum dose. If children were in pain before the time for re-administering analgesic as set in prescription, they would withhold analgesic administration. This finding was similar to the findings reported by Hamers et al. (1994). They found that nurses' attitudes have a major influence on their analgesic administration. Many nurses did express negative feelings regarding the use of medications in children. Some were hesitant to give pain medications for the fear that children will get used to them while others postpone the administration of pain medications as long as possible.

This study also indicated that caregivers could be barriers to effective pain management although they could be a valuable asset at children's besides to provide non-pharmacological interventions from shift to shift. Some caregivers in this study

revealed that they worried about side effects of pain medications. They also wanted their child to tolerate with pain. Even when caregivers knew their child was in severe pain, they did not approach the nurses for help. This finding was similar to the finding reported by Wells et al. (1998) who found that pain management problems related to caregivers involve beliefs and attitudes about pain and pain medication; two specific factors identified by the Agency for Health Care Policy and Research (AHCPR) are: reluctance to report pain and reluctance to take pain medications.

Organizational barriers include lack of time, staff shortages, increased workload, lack of nurses' understanding about pain management policy, and lack of the specific guideline for postoperative pain management in children. When nurses were busy from increasing of nurses' workloads would cause nurses lack of time to close caring all postoperative children. Heavy workloads were occurred in the evening and night shifts reduced numbers of nurses from morning shift. Similarly, the findings of Willson's study (2000) found that the organization of care changed from shift to shift, being more tasks oriented at night. The way of care was organized from shift to shift also influenced nurses' decision to administer opioids. Van Niekerk and Martin (2003) also found that sixty-eight percent of 1,015 registered nurses indicated that insufficient time to spend with individual patients created a barrier to providing optimal pain management.

This finding was also similar to the finding reported by Schafheutle, Cantrill, and Noyce (2001) who found that the five most common reasons for suboptimal pain management were: 1) lack of time, staff shortages and increased work load (39.3%), 2) perceived inadequacy in analgesic prescribing (29.6%), 3) need for a second nurse to check all controlled drugs (CDs) and parenteral analgesia before administration (14.1%), 3) unavailability of physician or pain team (14.1%), and 5) patient's belief and reluctance, such as being "frightened to injections."

The findings also indicated that the pain management policy of "pain as the fifth vital sign" devised by an organization would result in a change of the nurses' way of practice in pain assessment and documentation to be in line with that policy. However, lack of nurses' understanding about the policy would lead to difficulty implementation or changes from traditional practice. Such findings yielded support to the findings of Alley (2001) who reported that 48 registered nurses (RNs) and 43

licensed practical nurses (LPNs) viewed their perceived accountability for pain management activities as significantly related to the knowledge of the organization's pain management policy.

Lack of the specific guideline for postoperative pain management in children created unsystematic postoperative practice. Nurses provided pharmacological and non-pharmacological interventions depended upon their own decision, situation, and their workloads at that time. Abu-Saad and Hamers (1997) found that pain management based on policies and protocols can assist nurses in decision-making in the nursing care of children in pain.

Summary

In summary, the similarities between the findings of this study and other studies include: 1) experienced nurses made better decisions and had high self-confidence than less experienced nurses in analgesic administration, 2) good interaction between nurses and physicians or nurses and caregivers involved in effective pain management, 3) nurses' attitudes have a major influence on their analgesic administration, 4) lack of time, staff shortages, increased workload, lack of nurses' understanding about the pain management policy, and lack of the specific guideline for postoperative pain management in children created unsystematic postoperative practice involved in ineffective pain management. No study has been described the patterns of nurses' decision making in analgesic administration and patterns of nurse-caregiver interaction, and nurses' pain management model that are described in this study.

CHAPTER VII
CONCLUSION

In this chapter, the research questions and initial propositions were revisited and the following conclusions drawn. The implications for nursing development, policy making and management, nursing practice, nursing education, and recommendations for future research are also presented.

Addressing the Research Questions and Revising the Propositions

Nurses' management of postoperative pain in children

The main research question: How do nurses manage postoperative pain in children, and why?

Conclusions and revised Proposition 1: Pain management consisted of analgesic administration, providing alternative care or non-pharmacological interventions, and caregiver involvement.

Conclusions and revised Proposition 12: Pain management was more effective when nurses used holistic nursing care for children and caregivers.

Conclusions and revised Proposition 13: Having a specific clinical practice guideline for postoperative pain management in children facilitated nurses to manage pain effectively.

Analgesic administration

Sub-research questions 1: How do nurses administer analgesics?

Conclusions and revised Proposition 1: Nursing process was used when nurses make decisions for analgesic administration.

Sub-research questions 2: Why do nurses make the decision to administer analgesics?

Conclusions and revised Proposition 3: More experienced nurses perceived that pain medication should be administered to children as soon as children started to feel mild pain, and would not wait until a child could not tolerate severe pain. More experienced nurses had high self-confidence and able to implement knowledge about pain management in making decision for analgesic administration than less experienced nurses.

Conclusions and revised Proposition 4: Less experienced nurses learnt how to administer analgesic from more experienced nurses and adopt it as part of their routine practices.

Sub-research questions 3: What are the patterns of the nurse-physician relationship?

Conclusions and revised Proposition 5: More experienced nurses shared information related to children's pain and make joint decisions with physicians to adjust the dose or rate of analgesic administration.

Providing alternative care or non-pharmacological interventions

Sub-research questions 4: How do nurses provide alternative care for children?

Conclusions and revised Proposition 6: Nurses provided alternative care or non-pharmacological interventions for pain relief and suggested caregivers to do the same.

Sub-research questions 5: Why do nurses make the decision to provide alternative care for children?

Conclusions and revised Proposition 7: Experienced nurses had competency in making decision for providing alternative care or non-pharmacological interventions for pain relief.

Sub-research questions 6: What are the patterns of providing alternative care for children?

Conclusions and revised Proposition 8: Nurses provided alternative care or non-pharmacological intervention for pain relief depended on the children's pain intensity and situation in the clinical context.

Caregiver involvement

Sub-research questions 7: How do caregivers involve in managing postoperative pain in children?

Conclusions and revised Proposition 9: Nurses perceived that caregivers can make important contributions to assessment and management of their child's pain.

Conclusions and revised Proposition 10: Caregivers were involved in pain assessment and pain relief based on their past experience in pain management for their children.

Sub-research questions 8: What are the patterns of the nurse-caregiver relationship?

Conclusions and revised Proposition 11: Caregivers were involved in determining when a child should receive pain medication and had an active role in providing alternative care.

Implications and Recommendations

The findings of this study have implication for nursing development, policy making and management, nursing practice, nursing education. Recommendations for future research are also made.

Implications for nursing development

The findings from this case study research are the starting point of nursing knowledge development since they could encourage nurses to understand and gain insights into the phenomenon of nurses' management of postoperative pain in children as a holistic. They also provide a knowledge base for better understanding of the patterns of nurses' decision making in analgesic administration and patterns of the nurse-caregiver interaction. Understanding the nature of nurses' pain management and algorithm of nurses' pain management could be helpful for less experienced nurses to learn for making decision and effectively manage postoperative pain in children. Moreover, nurses' pain management model from this study could explain this phenomenon of nurses' management of postoperative pain in Thai children.

Implications for policy making and management

The findings of this study could motivate policy makers or nurse administrators to pay more attention to pain management in postoperative children in five areas:

1) policy makers should encourage healthcare professionals to develop a specific clinical practice guideline for postoperative pain management in children focused on analgesic administration, providing alternative care or non-pharmacological interventions, and caregiver involvement;
2) nurse administrators should pay attention to create the re-training course for all pediatric surgical nurses every two years to recall or update their knowledge about pain management in postoperative children. Clearly, this course must focus on not only knowledge enhancement but also the strategies for gaining nurses' skills and their experience in making decision when faced with complicated pain in children;
3) the pain score record should be used in order to facilitate nurses for pain assessment and it should be added as a formal document in hospital records;
4) policy makers should have a clear policy for caregiver involvement during pain management; and
5) before implementing any pain management policy, policy makers or nurse administrators should consider more about the establishing of correct understanding among healthcare professionals in all levels.

Implications for nursing practice

The major contributions of this study to nursing practice are seen in four areas:

1) offering nurses understandings and insight into the phenomenon of nurses' management of postoperative pain in children. According to this study, pain management is a dynamic and flexible process which depends on the situation and the reaction of postoperative children. Nurses managed postoperative pain in children through the nursing process including assessing pain intensity, making nursing diagnosis, planning for alleviating

pain, implementing interventions using alternative care or analgesic administration, and evaluating or re-assessing pain intensity;

2) the algorithm of nurses' pain management should be utilized in clinical practices to facilitate nurses to make decisions when managing postoperative pain in children;

3) nurses should utilize non-pharmacological interventions in pain management by creating the guideline applied more easily and effectively; and

4) Nurses should encourage caregivers to involve in managing pain in their child.

Implications for nursing education

The findings of this study could stimulate nurse educators to pay more attention to nurses' management of postoperative pain in children. Because the nurses' pain management model and algorithm of nurses' pain management in this study was involved in nurses' management of postoperative pain in children explicitly, it can be useful for teaching nursing students. Training programs and workshops on how to assess postoperative pain in all ages of children and provide pharmacological and non-pharmacological interventions for alleviating pain could increase awareness, knowledge, and skills of nursing students to manage postoperative pain in children effectively.

Recommendations for Future Research

Research focusing on improving the effectiveness of pain management in postoperative children should cover the organization aspect by using the organizational analysis as a frame of reference.

Future research should focus on how non-pharmacological interventions are integrated by nurses into the routine care.

The role of caregiver involvement in children's pain management is rarely studied. Further research needs to explore or create program to improve caregiver involvement in their child's pain management.

The nurses' pain management model and algorithm of nurses' pain management proposed by this study should be applied in the clinical practice.

Summary

This study is aimed to describe how and why nurses manage postoperative pain in children in the real-life context of clinical units. The study findings make explicit previously implicit parts of nurses' pain management process, their pain management patterns, and the natures of nurses' pain management. This study also contributes to richer understanding of nurses' analgesic administration, providing alternative care or non-pharmacological interventions, and caregiver involvement. Several implications for nursing development, policy making and management, nursing practice, nursing education and future research derived from the findings of this study.

REFERENCES

Abu-Saad, H., & Hamers, J. P. H. (1997). Decision making and pediatric pain: A review. *Journal of Advanced Nursing, 26,* 946-952.

Acute Pain Management Guideline Panel. (1992). *Acute pain management in infants, children, and adolescents: Operative and medical procedures, quick reference guide for clinicians.* AHCPR publication No. 92-0020. Rockville, MD: Agency for Health Care Policy and Research, Public Health Service, U.S. Department of Health and Human Services.

Alley, L. G. (2001). In influence of an organizational pain management policy on nurses' pain management practices. *Oncology Nursing Forum, 28,* 867-874.

American Pain Society. (1999). *Principles of analgesic use in the treatment of acute pain and cancer pain* (4th ed.). Glenview, IL: American Pain Society.

American Pain Society Task Force on Pain in Children. (1996). *Policy statement: The assessment and management of acute pain in infants, children and adolescents*. Glenview, IL: American Pain Society.

American Academy of Pediatrics and American Pain Society. (2001). The assessment and management of acute pain in infants, children, and adolescents. *Pediatrics, 108,* 793-797.

Ball, J., & Bindler, R. (2003). *Pediatric nursing: Caring for children.* New Jersey: Appleton & Lange.

Banning, M. (2007). A revise of clinical decision making: Models and current research. *Journal of Clinical Nursing, 17,* 187-195.

Benner, P. (1984). *From novice to expert: Excellence and power in clinical nursing practice*. Menlo Park, CA: Addison-Wesley.

Benner, P. (2000). The wisdom of our practice. *American Journal of Nursing, 100,* 99-105.

Bergen, A., & While, A. (2000). A case for case studies: Exploring the use of case study design in community nursing research. *Journal of Advanced Nursing, 31,* 926-934.

Bevis, E.O. (1981). Caring: A life force. In M. M. Leininger (Ed.). *Caring: An essential human need* (pp. 49-59). New Jersey: Charles B. Slack.

Bradshaw, C., & Zeanah, P. D. (1986). Pediatric nurses' assessments of pain in children. *Journal of Pediatric Nursing, 1,* 314-322.

Brockopp, D. Y., Brockopp, G., Warden, S., Wilson, J., Carpenter, J. S., & Vandeveer, B. (1998). Barriers to change: A pain management project. *International Journal of Nursing Studies, 35,* 226-232.

Burke, M., & Mitchell, R. (2004). Communicating for better care: Improving nurse-physician communication. *Journal of Advanced Nursing, 104*(12), 40-47.

Calhoun, R. (2003) The relationship between clinical experience and pain management in preverbal children. *ProQuest Digital Dissertations Fulltext.* (UMI No. 1417567).

Carr, D. B., & Goudas, L. C. (1999). Acute pain. *The Lancet, 353,* 2051-2058.

Carter, B., McArthur, E., & Cunliffe, M. (2002). Dealing with uncertainty: Parental assessment of pain in their children with profound special needs. *Journal of Advanced Nursing, 38*(5), 449-457.

Cheunwattana, A. (1998). Information for rural development: A multiple-case study of library and information services to the rural communities in Thailand. *ProQuest Digital Dissertations Fulltext.* (UMI No. 9919412).

Cohen, F. (1980). Post surgical pain relief: Patients' status and nurses' medication choices. *Pain, 9,* 265-274.

Cohen, D. (1993). Management of postoperative pain in children. In N. L. Schechter, C.B., Berde, & M., Yaster (Eds.), *Pain in infants, children, and adolescents* (pp. 357-377). Baltimore: Lippincott Williams & Wilkins.

Dalton, J. A., Blau, W., Greer, S. M. (2001). Documentation of pain assessment and treatment: How are we doing? *Pain Management Nursing, 2*(2), 54-64.

Dihle, A., Bjolseth, G., & Helseth, S. (2006). The gap between saying and doing in postoperative pain management. *Journal of Clinical Nursing, 15,* 469-479.

Fisher, S. & Morton, N.S. (1998). Pain prevention and management in children. In N. S. Morton (Ed.), *Acute paediatric pain management: A practical guide* (pp. 1-11). Philadelphia: W.B. Saunders.

Fuller, B. F. (1998). The process of infant pain assessment. *Applied Nursing Research, 11*, 62-68.

Gauthier, J. C., Finley, G. A., & McGrath, P. J. (1998). Children's self-report of postoperative pain intensity and treatment threshold: Determining the adequacy of medication. *Clinical Journal of Pain, 14*, 116-120.

Gehdoo, R. P. (2004). Post operative pain management in pediatric patients. *Indian Journal Anaesthesia, 48*, 406-414.

Goodenough, B., Addicoat, L., Champion, G. D., Perrott, D., Taplin, J. E., & von Baeyer, C. L., et al. (1997). Pain in 4- to 6- year-old children receiving intramuscular injections: A comparison of the Faces Pain Scale with other self-report and behavioral measures. *Clinical Journal of Pain, 13*, 60-73.

Gordon, D. B. (2004). Quality improvement challenges in pain management. *Pain, 107*, 1-4.

Hamers, J. P. H., Abu-Saad, H. H., & Halfens, R. J. G (1994). Diagnostic process and decision making in nursing. *Journal of Professional Nursing, 10*, 154-163.

Hamers, J. P. H., van den Hout, M. A., Halfens, R. J. G., Abu-Saad, H. H., & Heijltjes, A. E. G. (1997). Differences in pain assessment and decisions regarding the administration of analgesics between novices, intermediates, and experts in pediatric nursing. *International Journal of Nursing Studies, 34*, 325-334.

He, H. G., Pölkki, T., Vehviläinen-Julkunen, K., & Pietilä, A. M. (2005). Chinese nurses' use of non-pharmacological interventions in children's postoperative pain relief. *Journal of Advanced Nursing, 51*, 335-342.

Hester, N. O., Foster, R. L., & Beyer, J. E. (1992). Clinical judgment in assessing children's pain. In J. H., Watt-Watson & M. I., Donovan (Eds.), *Pain management: Nursing perspective* (pp. 236-294). Philadelphia: Mosby Year Book.

Hill, K. J., & Anderson, C. T. M. (1997). Pediatric pain management: Clinical aspects for the nineties. *Seminars in Anesthesia, 16*, 136-151.

Hoffman, K., Donoghue, J. & Duffield, C. (2004). Decision-making in clinical nursing: Investigating contributing factors. *Journal of Advanced Nursing 45*, 53–62.

International Association for the Study of Pain (IASP). (1979). Pain terms: A list with definitions and notes on usage. *Pain, 6*, 249-252.

Jacob, E., & Puntillo, K. A. (1999). Pain in hospitalized children: Pediatric nurses' beliefs and practices. *Journal of Pediatric Nursing 14*, 379-391.

Khumpang, P. (1996). *The study of nurses' perception, knowledge, and nursing intervention for pain relief during neonatal medical procedures.* Unpublished master's thesis, Mahidol University, Bangkok, Thailand.

Kwekkeboom, K. L., & Herr, K. (2001). Assessment of pain in the critically ill. *Critical Care Nursing Clinics of North America, 13*, 181-194.

Lauri, S., & Salantera, S. (1995). Decision-making models of Finnish nurses and public health nurses. *Journal of Advanced Nursing 21*, 520–527.

Leininger, M. M. (1981). *Caring: An essential human need*. Thorofare, New Jersey: Charles B. Slack.

Lewis, C., Gunta, K., & Wong, D. (2002). Patient knowledge, behavior, and satisfaction with the use of a preoperative DVD. *Orthopaedic Nursing*, 21, 41–49.

Mac, M. (1996). Improving outcomes of analgesic treatment: Is education enough? *Ann Intern Med, 11*, 885-889.

Manias, E. (2003a). Medication trends and documentation of pain management following surgery. *Nursing Health Science, 5*, 85-94.

Manias, E. (2003b). Pain and anxiety management in the postoperative gastro-surgical setting. *Journal of Advanced Nursing, 41*, 585-594.

Manias, E., Bucknall, T., & Botti, M. (2004). Assessment of patient pain in the postoperative context. *Western Journal of Nursing Research, 26*, 751-769.

Margolius, F. R., Hudson, K. A., & Michel, Y. (1995). Beliefs and perceptions about children in pain: A survey. *Pediatric Nursing, 21*, 111-115.

Mariano, C. (2002). Case study: The method. In P.L. Munhall (Ed.), *Nursing research: A qualitative perspective (3rd ed.* pp. 359-383). Sudbury, MA: Jones and Bartlett.

Mariano, C. (2007). Holistic nursing as a specialty: Holistic nursing-scope and standards of practice. *Nursing Clinic of North America, 42,* 165-188.

McCaffery, M., & Ferrell, B. R. (1997). Nurses' knowledge of pain assessment and management: How much progress have we made? *Journal of Pain and Symptom Management, 14*, 175-188.

McCaffery, M., Ferrell, B. R., Page, E., Laster, M., & Ferrell, B. (1990). Nurses' knowledge of opioid analgesics and addiction. *Cancer Nurse, 13*, 21-27.

Merriam, S. B. (1991). *Case study research in education: A qualitative approach.* San Francisco, CA: Jossey-Bass.

Morton, N. S. (1998). Acute paediatric pain management: A practical guide. Philadelphia: Harcourt Brace.

Nash, R., Yates, P., Fentiman, B., Dewar, A., & Clark, R. (1999). Pain and the administration of analgesia: What nurses say. *Journal of Clinical Nursing, 8*, 180-189.

O'Neill, E. S., Dluhy, N. C., & Chun, E. (2005). Modeling novice clinical reasoning for a computerised decision support system. *Journal of Advanced Nursing, 49*, 68-77.

O'Rourke, D. (2004). The measurement of pain in infants, children, and adolescents: From policy to practice. *Physical Therapy, 84*, 560-570.

Patton, M.Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage.

Payakkaraung, S., Wittayasooporn, J., & Sathornkit, C. (2003). The effects of positioning on oxygen saturation and pain response in infants after abdominal surgery. *Thai Journal of Pediatric Nursing, 2*, 41-51.

Polit, D. F., & Beck, C. T. (2004). *Nursing research: Principles and methods* (7th ed.). Philadelphia, Lippincott Williams & Wilkins.

Romsing, J., Moller-Sonnergaard, J., Hertel, S., & Rasmussen, M. (1996). Postoperative pain in children: Comparison between ratings of children and nurses. *Journal of Pain and Symptom Management, 11*, 42-46.

Rosenberg-Adamsen, S., Stausholm, K., Edvarsen, L., Zwarts, M., Kehlet, H., & Rosenberg, J. (1997). Body position and late postoperative nocturnal hypoxaemia. *Anaesthesia. 52,* 586 – 602.

Sabiston, D. C. (1991). *Text book of surgery: The biological basis of modern surgical practice.* Philadelphia, W.B. Saunders.

Salanterä, S. (1999). Finnish nurses' attitudes to pain in children. *Journal Advanced of Nursing, 29,* 727-736.

Sanansilp, V., Anotharom, C., Potranan, S., Lertkyananee, J., & Udompanturak, S. (2000). *Pain in Siriraj hospital: Data from doctors and nurses.* Paper presented at the Siriraj Scientific Congress: The centenary celebrations of the birth of Her Royal Highness Princess Srinagarindra the princess mother. Bangkok, Thailand.

Schafheutle, E. I. , Cantrill, J. A., & Noyce, P. R. (2001). Why is pain management suboptimal on surgical wards? *Journal of Advanced Nursing, 33*(6), 728-737.

Schechter, N. L., Berde, C. B., & Yaster, M. (2003). *Pain in infants, children, and adolescents* (2nd ed.). Baltimore, Williams & Wilkins.

Schneder, E.M., & LoBiondo-Wood, G. (1992). Perceptions of procedural pain: Parents, nurses, and children. *Journal of Child Health Care, 12*(3), 157-162.

Seepho, S. (2002). A case study on the development and implementation of thematic units in Thai university EFL classes: Connecting language learning to other academic disciplines. *ProQuest Digital Dissertations Fulltext.* (UMI No. 3054334).

Simons, J., Franck, L., & Roberson, E. (2001). Parent involvement in children's pain care: Views of parents and nurses. *Journal of Advanced Nursing, 36*(4), 591-599.

Simons, J. M., & Macdonald, L. M. (2004). Pain assessment tools: Children's and nurses' views. *Journal of Child Health Care, 8,* 264-278.

Soonsawad, J. (1997). *The relationship between nurses' perception and nursing intervention for pain relief in post operative children.* Unpublished master's thesis, Mahidol University, Bangkok, Thailand.

Stake, R. E. (1998). Case studies. In N. K. Denzen, & Y. S. Lincoln, (Eds.). *Handbook of qualitative research* (2nd ed. pp. 435-454). Thousand Oaks, CA: Sage.

Stomberg, M. W., Wickstrom, K., Joelsson, H., Sjostrom, B., & Haljamae, H. (2003). Postoperative pain management on surgical wards: Do quality assurance strategies result in long-term effects on staff member attitudes and clinical outcomes? *Pain Management Nursing, 4,* 11–22.

Strauss, A., Fagerhaugh, S. Y., & Glaser, B. (1974). Pain: An organizational work international perspective. *Nursing Outlook, 22*, 560-566.

Suwantawakup, S. (1991). *Effects of touch on the pain level of school-age children following abdominal surgery.* Unpublished master's thesis, Mahidol University, Bangkok, Thailand.

Tanner, C., Padrick, K., Westfall, U., & Putzier, D. (1987). Diagnostic reasoning strategies for nurses and nursing students. *Nursing Research, 36*, 358-363.

Tantapong. A. (2000). *The effects of swaddling on pain response related to heelstick in premature infants.* Unpublished master's thesis, Mahidol University, Bangkok, Thailand.

Tesler, M. D., Wilkie, D. J., Holzemer, W. L., & Savedra, M. C. (1994). Postoperative analgesics for children and adolescents: Prescription and administration. *Journal of Pain and Symptom Management, 9*(2), 85-95.

Thewphaingarm, N. (1998). Organizational management of international programs in Thai private universities. *ProQuest Digital Dissertations Fulltext.* (UMI No. 9836107).

Thompson, C., & Dowding, D. (2002). *Clinical decision making and judgment in nursing.* Philadelphia: Churchill Livingstone.

Tungulaboriboon, S. (2002). *Creating health through self-care: An explanatory study of teenagers with rheumatic fever and rheumatic heart disease in Northeast Thailand.* Unpublished doctoral dissertation, The Robert Gordon University, UK.

Twycross, A. (1999). Pain management: A nursing priority? *Journal of Child Health Care, 3* (3), 19-25.

Twycross, A. (2002). Managing pain in children: An observational study. *NT Research, 7*(3), 164-178.

Twycross, A. (2007). Children's nurses' post-operative pain management practices: An observational study. *International Journal of Nursing Studies, 44,* 869-881.

Twycross, A., & Powls, L. (2006). How do children' nurses make clinical decisions? Two preliminary studies. *Journal of Clinical Nursing, 15*, 1324-1335.

Van Niekerk, L. M. V., & Martin, F. (2003). The impact of the nurse-physician relationship on barriers encountered by nurses during pain management. *Pain Management Nursing, 4*, 3-10.

Vannukul, V. (2002). Thailand's economic crisis of 1997: Its continuation and possible cure: A case study. *ProQuest Digital Dissertations Fulltext.* (UMI No. 3075324).

Velsco-Whetsell, M., et al. (2000). *Pediatric nursing*. New York: McGraw-Hill.

Vincent, C. V. H., & Denyes, M. J. (2004). Relieving children's pain: Nurses' abilities and analgesic administration practices. *Journal of Pediatric Nursing, 19,* 40-50.

Watson, J. (1985). *Nursing: The philosophy and science of caring***.** Boulder: Colorado Associated University.

Watson, S. (1994). An exploratory study into a methodology for the examination of decision-making by nurses in the clinical area. *Journal of Advanced Nursing 20*, 351–360.

Wattt-Watson, J. H., & Donovan, M. I. (1992). *Pain management: Nursing perspective.* Philadelphia: Mosby Year Book.

Wells, N., Johnson, R., & Wujcik, D. (1998). Development of a short version of the Barriers Questionnaire. *Journal of Pain and Symptom Management,15,* 294–298.

Wilkinson, J. M. (1996). *Nursing process: A critical thinking approach* (2nd ed.). Menlo Park. CA: Addison-Wesley Nursing.

Willson, H. (2000). Factors affecting the administration of analgesia to patients following repair of a fractured hip. *Journal of Advanced Nursing, 31*, 1145-1154.

Wiroonpanich, W., & Strickland, J. C. (2004). Normalizing: Postoperative acute abdominal surgical pain in Thai children. *Journal of Pediatric Nursing, 19,* 104-112.

Woodgate, R., & Kristjanson, L. J. (1996). A young child's pain: How parents and nurses 'take care'. *International Journal of Nursing Studies, 33*, 271-284.

Yenbut, J., Aeraumnouy, M., Meesukko, J., Worrakitpunpon, P., Fupinwong, S., & Mungmai, B. (2004). *Pain assessment and management among pediatric patients in the hospital.* Unpublished manuscript, Chaing Mai University.

Yin, R. K. (1998). The abridged version of case study research: Design and method. In L. Bickman, & D. J. Rog, (Eds.). *Handbook of applied social research method.* Thousand Oaks, CA: Sage.

Yin, R. K. (2003a). *Applications of case study reserch* (2nd ed.). Thousand Oaks, CA: Sage.

Yin, R. K. (2003b). *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA: Sage.

Young, J. L., Horton, F. M., & Davidhizar, R. (2006). Nursing attitudes and beliefs in pain assessment and management. *2006 The Authors, Journal compilation* 2006 *Blackwell Publishing,* 412-421.

APPENDIX

APPENDIX A

DOCUMENTARY PROOF OF ETHIC CLEARANCE

2 ถนนพรานนก 2 PRANNOK Rd.
บางกอกน้อย BANGKOKNOI
กรุงเทพฯ 10700 BANGKOK 10700

Tel. (662) 4197000 ต่อ 6405-6
FAX (662) 4197000 ต่อ 6405

Siriraj Ethics Committee

Certificate of Approval **COA no.Si 181/2007**

Protocol Title : Nurses' Management of Postoperative Pain in Thai Children : A Holistic Case Study Research.

SiEC number : 143/2550 (EC2)

Principal Investigator/Affiliation : Miss Sudaporn Payakkaraung / Pediatric Nursing Division

Research site : Faculty of Medicine Siriraj Hospital

Approval includes :

1. EC Submission form
2. Proposal
3. Nurse-Participant information sheet
4. Nurse- Participant informed consent
5. Information sheet for physicians or Practical nurses
6. Physicians or Practical nurses- Participant informed consent
7. Child- Participant and Parent information sheet
8. Child- Participant and Parent informed consent
9. Caregiver information sheet
10. Caregiver informed consent
11. Questionnaire

Approval date : June 4, 2007

Expired date : June 3, 2008

This is to certify that Siriraj Ethics Committee is in full Compliance with International Guidelines For Human Research Protection such as Declaration of Helsinki, The Belmont Report, CIOMS Guidelines and the International Conference on Harmonization in Good Clinical Practice (ICH-GCP)

Prof. Shusee Visalyaputra, M.D. — June 5, 2007 (date)

Vice- chairperson for Chair Person Prof. Sumalee Nimmannit, M.D.

(Clin. Prof. Piyasakol Sakolsatayadorn) — June 8,2007 (date)

Dean of Faculty of Medicine Siriraj Hospital

APPENDIX B

INTERVIEW GUIDE FOR INTERVIEWING NURSE

General / Opening Statement

Please tell me about your experiences in managing postoperative pain in children.

Specific / Focused Questions

Research Question	Questions Asked
- How do nurses manage postoperative pain in children and why?	- How do you know that children have postoperative pain? - In which situations do you find out if a child is in pain?
- How do nurses administer analgesics? - Why do nurses make the decision to administer analgesics?	- How do you administer analgesics? - Why do you make the decision to administer analgesics? - Do you know about the pain medication that you administer?
- What are the patterns of the nurse-physician relationship?	- Have you ever had problems while managing postoperative pain in children? If so, what were these problems? - How did you deal with the problems you had while managing postoperative pain in children?
- How do nurses provide alternative care for children? - What are the patterns of providing alternative care for children?	- What do you do when children have postoperative pain? - How do you provide alternative care for children?
- How do nurses involve with caregivers to manage postoperative pain in children? - What are the patterns of the nurse-family relationship?	- How do you involve with caregivers to manage postoperative pain in children? - What do you think about caregiver involvement in pain management?

Additional Questions

- Could you explain about……?_____
- Could you tell me about…….?_____
- Could you tell me why……?_____
- Is there anything else that you want to tell me about pain management in postoperative children?

INTERVIEW GUIDE FOR INTERVIEWING NURSE

(THAI): แนวคำถามในการสัมภาษณ์พยาบาล

คำถามทั่วไป

กรุณาเล่าให้ดิฉันฟังถึงประสบการณ์ของคุณในการดูแลเด็กที่มีความเจ็บปวดในระยะหลังผ่าตัด

คำถามเฉพาะเจาะจง

คำถามการวิจัย	คำถามที่ถาม
- พยาบาลจัดการความเจ็บปวดหลังผ่าตัดของผู้ป่วยเด็กอย่างไร และทำไมจึงทำเช่นนั้น	- คุณรู้ได้อย่างไรว่าผู้ป่วยเด็กมีความเจ็บปวดหลังผ่าตัด - ในสถานการณ์ไหนที่ทำให้คุณสงสัยว่าผู้ป่วยเด็กมีความเจ็บปวด
- พยาบาลบริหารยาแก้ปวดอย่างไร - ทำไมพยาบาลจึงตัดสินใจให้ยาแก้ปวด	- คุณบริหารยาแก้ปวดอย่างไร - ทำไมคุณจึงตัดสินใจให้ยาแก้ปวด - คุณมีความรู้เกี่ยวกับยาแก้ปวดที่ให้หรือไม่ อย่างไร
- รูปแบบของปฏิสัมพันธ์ระหว่างพยาบาลและแพทย์เป็นอย่างไร	- คุณเคยพบปัญหาในขณะที่จัดการความเจ็บปวดหลังผ่าตัดของผู้ป่วยเด็กหรือไม่ ถ้ามี เป็นอย่างไร - คุณจัดการกับปัญหาที่เกิดขึ้นในระหว่างการจัดการความเจ็บปวดอย่างไร
- พยาบาลให้การพยาบาลทางเลือกอย่างไร - รูปแบบของการให้การพยาบาลทางเลือกเป็นอย่างไร	- คุณปฏิบัติอย่างไรเมื่อผู้ป่วยเด็กมีความเจ็บปวดหลังผ่าตัด - คุณให้การพยาบาลทางเลือกแก่ผู้ป่วยเด็กอย่างไร
- พยาบาลและผู้ดูแลมีความเกี่ยวข้องกันอย่างไรเพื่อจัดการความเจ็บปวดหลังผ่าตัดของผู้ป่วยเด็ก - รูปแบบของปฏิสัมพันธ์ระหว่างพยาบาลและผู้ดูแลเป็นอย่างไร	- คุณกับผู้ดูแลมีความเกี่ยวข้องกันอย่างไรเพื่อจัดการความเจ็บปวดหลังผ่าตัดของผู้ป่วยเด็ก - คุณคิดอย่างไรกับการเข้ามาเกี่ยวข้องของผู้ดูแลในการจัดการความเจ็บปวด

ตัวอย่างคำถามเพิ่มเติม

- กรุณาช่วยอธิบายเกี่ยวกับ_____
- กรุณาเล่ารายละเอียดให้ดิฉันฟังเกี่ยวกับ_____
- กรุณาอธิบายให้ดิฉันฟังว่าทำไม_____
- มีอะไรบ้างที่คุณอยากเล่าเพิ่มเติมเกี่ยวกับการจัดการความเจ็บปวดในเด็กหลังผ่าตัด

APPENDIX C

INTERVIEW GUIDE FOR INTERVIEWING PHYSICIAN

General / Opening Statement

Please tell me about your experiences in managing postoperative pain in children

Specific / Focused Questions

Research Question	Questions Asked
- What are the patterns of the nurse-physician relationship?	- What do you think about nurses' management of postoperative pain in children? - How do you control or alleviate postoperative pain in children? - What problems or barriers do nurses face in alleviating children's pain?

Additional Questions

- Could you explain about……?_____
- Could you tell me about…….?_____
- Could you tell me why……?_____
- Is there anything else that you want to tell me about postoperative pain management in your child?

INTERVIEW GUIDE FOR INTERVIEWING PHYSICIAN

(THAI): แนวคำถามในการสัมภาษณ์แพทย์

คำถามทั่วไป

กรุณาเล่าให้ดิฉันฟังถึงประสบการณ์ของคุณในการรักษาพยาบาลผู้ป่วยเด็กที่มีความเจ็บปวดในระยะหลังผ่าตัด

คำถามเฉพาะเจาะจง

คำถามการวิจัย	คำถามที่ถาม
- รูปแบบของปฏิสัมพันธ์ระหว่างพยาบาลและแพทย์เป็นอย่างไร	- คุณคิดอย่างไรกับการจัดการของพยาบาลต่อความเจ็บปวดหลังผ่าตัดของผู้ป่วยเด็ก - คุณควบคุมหรือลดความเจ็บปวดหลังผ่าตัดของผู้ป่วยเด็กอย่างไร - คุณคิดว่าปัญหาหรืออุปสรรคใดที่พยาบาลต้องเผชิญในการบรรเทาความเจ็บปวดของผู้ป่วยเด็ก

ตัวอย่างคำถามเพิ่มเติม

- กรุณาช่วยอธิบายเกี่ยวกับ_____
- กรุณาเล่ารายละเอียดให้ดิฉันฟังเกี่ยวกับ_____
- กรุณาอธิบายให้ดิฉันฟังว่าทำไม_____
- มีอะไรบ้างที่คุณอยากเล่าเพิ่มเติมเกี่ยวกับการจัดการความเจ็บปวดในเด็กหลังผ่าตัด

APPENDIX D

INTERVIEW GUIDE FOR INTERVIEWING CAREGIVER

General / Opening Statement

Please tell me about your experiences in dealing with postoperative pain in your child

Specific / Focused Questions

Research Question	Questions Asked
- How do nurses involve with family members to manage postoperative pain in children? - What are the patterns of the nurse-caregiver interaction?	- What do you think about nurses' pain management of your child? - What do you think about when your child has postoperative pain? - What do you do when your child has postoperative pain? - What problems or barriers do nurses face in alleviating your child's pain?

Additional Questions

- Could you explain about……?_____
- Could you tell me about…….?_____
- Could you tell me why……?_____
- Is there anything else that you want to tell me about postoperative pain management in your child?

INTERVIEW GUIDE FOR INTERVIEWING CAREGIVER
(THAI): แนวคำถามในการสัมภาษณ์ผู้ดูแล

คำถามทั่วไป

กรุณาเล่าประสบการณ์ของคุณในการดูแลเด็กที่มีความเจ็บปวดในระยะหลังผ่าตัด

คำถามเฉพาะเจาะจง

คำถามการวิจัย	คำถามที่ถาม
- พยาบาลและสมาชิกในครอบครัวมีส่วนร่วมกันอย่างไรเพื่อจัดการความเจ็บปวดหลังผ่าตัดของผู้ป่วยเด็ก - รูปแบบของปฏิสัมพันธ์ระหว่างพยาบาลและผู้ดูแลเป็นอย่างไร	- คุณคิดอย่างไรกับการจัดการของพยาบาลต่อความเจ็บปวดหลังผ่าตัดของผู้ป่วยเด็ก - คุณคิดอย่างไรกับความเจ็บปวดหลังผ่าตัดของบุตรของคุณ - คุณทำอย่างไรเมื่อบุตรของคุณมีความเจ็บปวดหลังผ่าตัดเกิดขึ้น - คุณคิดว่าปัญหาหรืออุปสรรคใดที่พยาบาลต้องเผชิญในการบรรเทาความเจ็บปวดของผู้ป่วยเด็ก

ตัวอย่างคำถามเพิ่มเติม

- กรุณาช่วยอธิบายเกี่ยวกับ_____
- กรุณาเล่ารายละเอียดให้ดิฉันฟังเกี่ยวกับ_____
- กรุณาอธิบายให้ดิฉันฟังว่าทำไม_____
- มีอะไรบ้างที่คุณอยากเล่าเพิ่มเติมเกี่ยวกับการจัดการความเจ็บปวดของเด็กที่คุณดูแลในระยะหลังผ่าตัด

APPENDIX E
NURSE DATA FORM

Ward_____ Date _____/_____/_____

Demographic Characteristics

Directions: Please fill in the blanks or check / the option that best corresponds to your answer.

Date of birth …… Age ……

Education

( ) Bachelor Degree

( ) Master degree

( ) Others_____

1. How many years of experience do you have working as **a nurse**? (For example, a nurse who graduated in 2000 and worked all of 2000, 2001, and 2002 and worked half of 2003 would have worked 3 years and 6 months.)

_____ years_____months

2. How many years of experience do you have working **as a pediatric surgical nurse**? (For example, a nurse who graduated in 2000 and worked all of 2000, 2001, and 2002 and worked half of 2003 would have worked 3 years and 6 months.)

_____ years_____months

3. Have you participated in any training in pain management in children?

[ ] yes [ ] no

Nurse Data Form (THAI): ข้อมูลส่วนบุคคลของพยาบาล

หอผู้ป่วย_____ วันที่ _____/_____/_____

ข้อมูลส่วนบุคคล

<u>คำแนะนำ:</u> กรุณาเติมข้อความในช่องว่างหรือขีด / หน้าข้อที่คุณเลือกตอบ

วัน เดือน ปี เกิด ..... อายุ .....

ระดับการศึกษา

( ) ปริญญาตรี

( ) ปริญญาโท

( ) อื่นๆ_____

1. คุณมีประสบการณ์ในการทำงานเป็น**พยาบาล**มาเป็นเวลากี่ปี (ตัวอย่างเช่น พยาบาลที่จบการศึกษาในปี พ.ศ. 2543 และทำงานตลอดปี 2543, 2544, 2545 และ ทำงานอีกครึ่งปีของปี พ.ศ. 2546 จะมีประสบการณ์ในการทำงาน 3 ปี 6 เดือน

_____ ปี_____เดือน

2. คุณมีประสบการณ์ในการทำงานเป็น**พยาบาลศัลยกรรมเด็ก**มาเป็นเวลากี่ปี (ตัวอย่างเช่น พยาบาลที่จบการศึกษาในปี พ.ศ. 2543 และทำงานตลอดปี 2543, 2544, 2545 และ ทำงานอีกครึ่งปีของปี พ.ศ. 2546 จะมีประสบการณ์ในการทำงาน 3 ปี 6 เดือน

_____ ปี_____เดือน

4. คุณเคยเข้ารับการฝึกอบรมเกี่ยวกับการจัดการความเจ็บปวดในเด็กหรือไม่?

[ ] เคย [ ] ไม่เคย

APPENDIX F
CHILD DATA FORM

Case No._____Ward_____Date ___/___/___

Demographic Characteristics

Sex ( ) male ( ) female

Date of birth …… Age …… Weight……..

Date of admission …….Date of surgery ……..

Diagnosis…….....

Operation……

Duration of operation……..

Does your child have previous pain experiences? ☐ Yes ☐ No

If yes, please describe the pain experiences your child has had before.

……

……

If a child can communicate, ask him/her with this question.

Tell me about the hurt you have had before.

……

……

Child Data Form (THAI): ข้อมูลส่วนบุคคลของเด็ก

เด็กคนที่_____ หอผู้ป่วย_____วันที่ ____/____/____

ข้อมูลส่วนบุคคล

เพศ ( ) ชาย ( ) หญิง

วันเดือนปีเกิด…… อายุ …… น้ำหนัก……..

วันที่เข้าอยู่โรงพยาบาล ……วันที่ผ่าตัด ……..

วินิจฉัยโรค…….....

ผ่าตัด……

ระยะเวลาการผ่าตัด……..

เด็กที่คุณดูแลเคยมีประสบการณ์ความเจ็บปวดมาก่อนหรือไม่?

☐ เคย ☐ ไม่เคย

ถ้าเคย กรุณาอธิบายรายละเอียดเกี่ยวกับประสบการณ์ความเจ็บปวดของเด็กที่คุณดูแล

…….

…….

ในกรณีที่เด็กสามารถพูดได้ ถามเด็กด้วยคำถาม

เล่าให้ฟังเกี่ยวกับเหตุการณ์ ที่ทำให้หนูรู้สึกเจ็บปวดหน่อยสิ

คะ……

……

APPENDIX G
CAREGIVER DATA FORM

Case No._____Ward_____Date ___/___/___

Demographic Characteristics

Sex ( ) male ( ) female

Date of birth …… Age ……

Education

( ) Bachelor Degree

( ) Master degree

( ) Others_____

Please tell me about your status with a child that you care for ……...

Caregiver Data Form (THAI): ข้อมูลส่วนบุคคลของผู้ดูแล

ผู้ดูแลคนที่_____ หอผู้ป่วย_____วันที่ ____/____/____

ข้อมูลส่วนบุคคล

เพศ ( ) ชาย ( ) หญิง

วันเดือนปีเกิด…… อายุ ……

ระดับการศึกษา

( ) ปริญญาตรี

( ) ปริญญาโท

( ) อื่นๆ_____

โปรดระบุความเกี่ยวข้องของคุณกับเด็ก .....

APPENDIX H
ANALGESIC ADMINISTRATION FORM

Patient case #_____

Start time_____End time_____

Analgesic Medication Ordered by the Physician

Date	Time	Drug	Amount	Route	Frequency	Date Discontinued

The maximum amount that the nurse could administer _____MSEQ

Analgesic Medication Administered by the Nurse

Date	Drug	Amount	Route	Time

The total amount of the analgesic actually administered =_____MSEQ

The percent of total amount of the analgesic ordered by the physician and actually administered by the nurses =_____

Note: MSEQ = Morphine Equianalgesic Doses

Analgesic Administration Form (THAI):

แบบบันทึกการให้ยาแก้ปวด

ผู้ป่วยคนที่_____

เวลาเริ่ม_____เวลาสิ้นสุด_____

ยาแก้ปวดที่แพทย์สั่ง

วันที่	เวลา	ชื่อยา	จำนวน	ทางที่ให้	ความถี่ของการให้	วันที่หยุดให้

จำนวนสูงสุดของยาแก้ปวดที่พยาบาลสามารถให้ได้ _____MSEQ

ยาแก้ปวดที่พยาบาลให้แก่เด็ก

วันที่	ชื่อยา	จำนวน	ทางที่ให้	เวลา

จำนวนยาแก้ปวดที่พยาบาลให้ในสถานการณ์จริง=_____MSEQ

เปอร์เซ็นต์ของจำนวนยาที่พยาบาลได้ให้แก่เด็ก =_____

APPENDIX I

PERMISSION TO USE

APPROXIMATE EQUIANALGESIC DOSE TABLE

From : Catherine Vincent <vincentc@uic.edu>
Sent : Monday, April 10, 2006 3:56 PM
To : sudaporn2@hotmail.com
Subject : Re: Fwd: Ask for permission

Sudaporn Payakkaraung
Thank you for your interest in my research.
You are welcome to use the equianalgesic table found in the Journal of Pediatric Nursing article that you mention below, as long as you cite it in your materials.
I have had an earlier question about the table about how to use it. So in case it is not clear to you, all amounts listed are approximately equivalent to 10 mg morphine. For example 60mg po morphine = 10 mg IV/IM morphine, 130 mg po codeine = 10 mg IV/IM morphine, 75 mg IV/IM codeine = 10 mg Morphine etc
If you wish to obtain the APS document, you can do so on their website http://www.ampainsoc.org/
Please no not hesitate to contact me with any future questions but please note my current location below.
Best wishes for a successful project!

Catherine Vincent, RN, PhD
Assistant Professor
Department of Maternal-Child Nursing (MC 802)
College of Nursing
University of Illinois at Chicago
845 South Damen Ave, Room 854
Chicago IL 60612-7350
(312) 355-3283
(312) 996-8871 FAX
vincentc@uic.edu

APPENDIX J
APPROCIMATE EQUIANALGESIC DOSES

Researcher modified equianalgesic doses table calculated by C. Vincent (2004), Based on Dosages Determined by Agency for Health Care Policy and Research (AHCPR) and American Pain Society (APS)

Analgesic	PO	IV/IM
Morphine (AHCPR)	60 mg	10 mg
Codeine (AHCPR)	130 mg	75 mg
Dilaudid (AHCPR)	7.5 mg	1.5 mg
Hydrocodone (AHCPR)	30 mg	NA
Meperidine (AHCPR)	300 mg	100 mg
Oxycodone (AHCPR)	30 mg	NA
Ketoralac (AHCPR)	NA	30 mg
Fentanyl (APS)	NA	0.01 mg
Acetaminophen (APS)	3,000 mg	NA
Ibuprofen (APS)	1,200 mg	NA
Nalbuphine (AHCPR)	NA	10 mg
Naproxen (AHCPR)	1,700 mg	NA

NA = Not available

Information from Agency for Health Care Policy and Research, Public Health Service. (1992). Acute pain management: Operative or medical procedures and trauma (AHCPR Publication No. 92-00332). Rockville, MD: Department of Health and Human Services. American Pain Society. (1992). Principles of analgesic use in the treatment of acute pain and cancer pain (3rd ed.). Glenview, IL:Auther

APPENDIX K
NURSE-RESPONDENT INFORMATION SHEET
(THAI VERSION)

เอกสารชี้แจงแก่พยาบาลผู้เข้าร่วมการวิจัย

ในเอกสารนี้อาจมีข้อความที่ท่านอ่านแล้วยังไม่เข้าใจ โปรดสอบถามผู้วิจัย จนกว่าจะเข้าใจดี ท่านอาจจะขอเอกสารนี้กลับไปอ่านก่อน เพื่อช่วยในการตัดสินใจเข้าร่วมการวิจัย

ชื่อโครงการ การจัดการของพยาบาลต่อความเจ็บปวดหลังผ่าตัดในผู้ป่วยเด็กไทย: การวิจัยกรณีศึกษาแบบองค์รวม

ชื่อผู้วิจัย นางสาวสุดาภรณ์ พยัคฆเรือง นักศึกษาปริญญาเอก สาขาการพยาบาล มหาวิทยาลัยมหิดล

สถานที่วิจัย หอผู้ป่วยไอซียูอินทรสุขศรี หอผู้ป่วยศัลยกรรมเด็ก (ตะวันออก) หอผู้ป่วยศัลยกรรมเด็ก (ตะวันตก) และหอผู้ป่วยสลากกินแบ่งรัฐบาล 5

สถานที่ติดต่อ 115/250 หมู่บ้านบิวตี้เฮ้าส์ 5 ถ. สวนผัก 50 แขวง ฉิมพลี เขต ตลิ่งชัน กรุงเทพมหานคร เบอร์โทรศัพท์ 081-689-7688

อาจารย์ที่ปรึกษา ผศ.ดร.จริยา วิทยะศุภร ภาควิชาพยาบาลศาสตร์ คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี เบอร์โทรศัพท์ 02-201-2343

ผู้ให้ทุน -

โครงการวิจัยนี้ทำขึ้นเพื่อศึกษาการรับรู้และการจัดการของพยาบาลเกี่ยวกับความเจ็บปวดในเด็กหลังผ่าตัด ปัจจัยที่มีผลต่อการจัดการความเจ็บปวดในเด็กหลังผ่าตัด รวมทั้งผลที่เกิดขึ้นจากการจัดการของพยาบาลเกี่ยวกับความเจ็บปวดในเด็กหลังผ่าตัด ซึ่งมีประโยชน์ที่คาดว่าจะได้รับคือสามารถนำข้อมูลที่ได้ไปพัฒนาประสิทธิภาพในการจัดการความเจ็บปวดในเด็กหลังผ่าตัดอย่างเป็นระบบ

ท่านได้รับเชิญให้เข้าร่วมการวิจัยครั้งนี้เพราะท่านคือพยาบาลซึ่งดูแลผู้ป่วยเด็กที่ได้รับการผ่าตัด ความชำนาญในการปฏิบัติงานและประสบการณ์ของท่าน จะเป็นประโยชน์ต่อการทำความเข้าใจในเรื่องการจัดการความเจ็บปวดในผู้ป่วยเด็กหลังผ่าตัด รวมทั้งปัญหาและอุปสรรคที่อาจเกิดขึ้นได้เป็นอย่างดี ดังนั้นท่านคือบุคคลที่เหมาะสมในการให้ข้อมูลในการวิจัยครั้งนี้ ในการดำเนินการวิจัย ผู้วิจัยขอเชิญพยาบาลทุกท่านในหอผู้ป่วยที่ท่านทำงานเข้าร่วมในการวิจัย จะมีพยาบาลเข้าร่วมการวิจัยนี้ประมาณ 8-16 คน ระยะเวลาที่จะทำวิจัยทั้งสิ้นประมาณ 6 เดือน

เมื่อท่านเข้าร่วมการวิจัยแล้ว ผู้วิจัยจะขอสอบถามข้อมูลส่วนตัวของท่านเกี่ยวกับ อายุ ระดับการศึกษา ระยะเวลาการทำงาน ประสบการณ์ในการฝึกอบรมเกี่ยวกับการจัดการความเจ็บปวดในเด็ก และเพื่อเรียนรู้ในเรื่องการจัดการความเจ็บปวดในเด็กหลังผ่าตัดของท่าน ผู้วิจัยจะขอสังเกตการให้การดูแลเด็กหลังผ่าตัดในช่วงที่ท่านปฏิบัติงานในเวรเช้าและเวรบ่าย ผู้วิจัยจะขอสัมภาษณ์ท่าน ในสถานที่และเวลาที่ท่านสะดวก ซึ่งใช้เวลาในการสัมภาษณ์ประมาณ 30 – 60 นาที โดยบันทึกการพูดคุยขณะสัมภาษณ์ด้วยเทปบันทึกเสียงเพื่อถ่ายทอด

เนื้อหาของการสนทนาในเทปไปสู่ข้อความบนกระดาษ ซึ่งทำให้ผู้วิจัยสามารถวิเคราะห์ข้อมูลได้ในภายหลัง เรื่องที่สัมภาษณ์จะเกี่ยวข้องกับการจัดการความเจ็บปวดในเด็กหลังผ่าตัดตามวัตถุประสงค์ที่กล่าวมาข้างต้น ผู้วิจัยจะเป็นผู้ถอดข้อมูลจากการสนทนาในเทปไปสู่กระดาษด้วยตนเองและจะลบข้อมูลที่ได้จากการบันทึกเทปทันทีที่ถอดเทปเสร็จ ข้อมูลนี้จะถูกเก็บไว้ในตู้ที่ปลอดภัยเป็นเวลา 5 ปี แล้วจึงทำลายทิ้ง ผู้ที่เข้าถึงข้อมูลจากการถอดเทปคือผู้วิจัย ส่วนในขั้นตอนของการวิเคราะห์ข้อมูลซึ่งผู้วิจัยจำเป็นต้องนำข้อมูลไปปรึกษาอาจารย์ที่ปรึกษา ข้อมูลนั้นจะไม่ปรากฏชื่อของท่าน

เนื่องจากการศึกษาครั้งนี้ ผู้วิจัยใช้การสังเกตโดยไม่ได้เข้าไปมีส่วนร่วมในการทำงานของท่าน และใช้การสัมภาษณ์เป็นหลักในการเก็บข้อมูล จึงไม่ก่อให้เกิดความเสี่ยงใดๆแก่ท่าน หรือรบกวนการทำงานของท่าน อย่างไรก็ตามท่านอาจเสียเวลาบ้างในการให้ข้อมูลและตอบคำถามในการพูดคุยสัมภาษณ์

หากท่านตัดสินใจไม่เข้าร่วมในการวิจัยครั้งนี้ จะไม่มีผลกระทบใดๆต่อท่านและการปฏิบัติงานของท่าน

หากขณะที่ผู้วิจัยทำการสังเกต หรือสัมภาษณ์ท่าน ทำให้ท่านไม่สบายใจ ท่านสามารถถอนตัวได้ทันที หากท่านมีข้อข้องใจที่จะสอบถามเกี่ยวข้องกับการวิจัย ท่านสามารถติดต่อ นางสาวสุดาภรณ์ พยัคฆเรือง ได้ทันที ที่หมายเลขเบอร์โทรศัพท์ 081-689-7688

ท่านจะไม่ได้รับค่าตอบแทนใดๆในช่วงที่ผู้วิจัยสังเกตการให้การดูแลเด็กหลังผ่าตัดของท่าน หากท่านเป็นผู้หนึ่งที่ผู้วิจัยขอสัมภาษณ์ หากมีข้อมูลเพิ่มเติมทั้งทางด้านประโยชน์และโทษที่เกี่ยวข้องกับการวิจัยนี้ ผู้วิจัยจะแจ้งให้ทราบโดยเร็ว ไม่ปิดบัง

ข้อมูลส่วนตัวของผู้เข้าร่วมการวิจัยจะถูกเก็บรักษาไว้ ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นข้อมูลส่วนรวม ข้อมูลของผู้ร่วมการวิจัยเป็นรายบุคคลอาจมีคณะบุคคลบางกลุ่มเข้ามาตรวจสอบได้ เช่น ผู้ให้ทุนวิจัย, สถาบัน หรือองค์กรของรัฐที่มีหน้าที่ตรวจสอบ, คณะกรรมการจริยธรรมฯ เป็นต้น

ผู้เข้าร่วมการวิจัยมีสิทธิ์ถอนตัวออกจากโครงการวิจัยเมื่อใดก็ได้ โดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมการวิจัยหรือถอนตัวออกจากโครงการวิจัยนี้จะไม่มีผลกระทบต่อการปฏิบัติงานของท่านประการใด

หากท่านได้รับการปฏิบัติที่ไม่ตรงตามที่ได้ระบุไว้ในเอกสารชี้แจงนี้ ท่านสามารถแจ้งให้ประธานคณะกรรมการจริยธรรมฯ ทราบได้ที่ สำนักงานคณะกรรมการจริยธรรมวิจัยในคน ตึกอดุลยเดชวิกรม ชั้น 5 ร.พ. ศิริราช เบอร์โทร (02) 419-7000 ต่อ 6405

ข้าพเจ้าได้อ่านรายละเอียดในเอกสารนี้ครบถ้วนแล้ว

ลงชื่อ...../*วันที่*.....

(……..)

APPENDIX L
NURSE-RESPONDENT INFORMED CONSENT (THAI VERSION)

หนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัยของพยาบาล

วันที่.....เดือน.....พ.ศ. .....

ข้าพเจ้า.....อายุ.....ปี อาศัยอยู่บ้านเลขที่.....

ถนน.....ตำบล.....อำเภอ.....

จังหวัด.....รหัสไปรษณีย์.....โทรศัพท์.....

ขอแสดงเจตนายินยอมเข้าร่วมโครงการวิจัย เรื่อง “การจัดการของพยาบาลต่อความเจ็บปวดหลังผ่าตัดในผู้ป่วยเด็กไทย: การวิจัยกรณีศึกษาแบบองค์รวม” โดยข้าพเจ้าได้รับทราบรายละเอียดเกี่ยวกับที่มาและจุดมุ่งหมายในการทำวิจัย รายละเอียดขั้นตอนต่างๆที่จะต้องปฏิบัติหรือได้รับการปฏิบัติ ประโยชน์ที่คาดว่าจะได้รับจากการวิจัยและความเสี่ยงที่อาจจะเกิดขึ้นจากการเข้าร่วมวิจัย รวมทั้งแนวทางป้องกันและแก้ไขหากเกิดอันตรายขึ้น โดยได้อ่านข้อความที่มีรายละเอียดอยู่ในเอกสารชี้แจงผู้เข้าร่วมการวิจัยโดยตลอด อีกทั้งยังได้รับคำอธิบายและตอบข้อสงสัยจากผู้วิจัยเป็นที่เรียบร้อยแล้ว

ข้าพเจ้าจึงสมัครใจเข้าร่วมโครงการวิจัยนี้:

หากข้าพเจ้ามีข้อข้องใจเกี่ยวกับขั้นตอนของการวิจัย หรือหากเกิดผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัยกับข้าพเจ้า ข้าพเจ้าจะสามารถติดต่อกับ นางสาวสุดาภรณ์ พยัคฆเรือง นักศึกษาปริญญาเอก สาขาการพยาบาล มหาวิทยาลัยมหิดล ที่เบอร์โทรศัพท์ 081-689-7688

หากข้าพเจ้าได้รับการปฏิบัติไม่ตรงตามที่ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย ข้าพเจ้าสามารถติดต่อกับประธานคณะกรรมการจริยธรรมการวิจัยในคน หรือผู้แทน ได้ที่ สำนักงานคณะกรรมการจริยธรรมวิจัยในคน ตึกอดุลยเดชวิกรม ชั้น 5 ร.พ. ศิริราช เบอร์โทร (02) 419-7000 ต่อ 6405

ข้าพเจ้าได้ทราบถึงสิทธิ์ที่ข้าพเจ้าจะได้รับเพิ่มเติมทั้งทางด้านประโยชน์และโทษจากการเข้าร่วมการวิจัย และสามารถถอนตัวหรืองดเข้าร่วมการวิจัยได้ทุกเมื่อ โดยจะไม่มีผลกระทบต่อการทำงานของข้าพเจ้าที่จะได้รับต่อไปในอนาคต และยินยอมให้ผู้วิจัยใช้ข้อมูลส่วนตัวของข้าพเจ้าที่ได้รับจากการวิจัย แต่จะไม่เผยแพร่ต่อสาธารณะเป็นรายบุคคล โดยจะนำเสนอเป็นข้อมูลโดยรวมจากการวิจัยเท่านั้น

ข้าพเจ้าได้เข้าใจข้อความในเอกสารชี้แจงผู้เข้าร่วมการวิจัย และหนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัยนี้โดยตลอดแล้ว จึงลงลายมือชื่อไว้

ลงชื่อ.....ผู้เข้าร่วมการวิจัย/ ผู้แทนโดยชอบธรรม วันที่.....

(.....)

ลงชื่อ.....ผู้ให้ข้อมูลและขอความยินยอม/ วันที่.....

(.....)

APPENDIX M
INFORMATION SHEET FOR PHYSICIAN- OR PRACTICAL NURSE- RESPONDENTS (THAI VERSION)

เอกสารชี้แจงแก่แพทย์หรือผู้ช่วยพยาบาลผู้เข้าร่วมการวิจัย

ในเอกสารนี้อาจมีข้อความที่ท่านอ่านแล้วยังไม่เข้าใจ โปรดสอบถามผู้วิจัย จนกว่าจะเข้าใจดี ท่านอาจจะขอเอกสารนี้กลับไปอ่านก่อน เพื่อช่วยในการตัดสินใจเข้าร่วมการวิจัย

ชื่อโครงการ การจัดการของพยาบาลต่อความเจ็บปวดหลังผ่าตัดในผู้ป่วยเด็กไทย: การวิจัยกรณีศึกษาแบบองค์รวม

ชื่อผู้วิจัย นางสาวสุดาภรณ์ พยัคฆเรือง นักศึกษาปริญญาเอก สาขาการพยาบาล มหาวิทยาลัยมหิดล

สถานที่วิจัย หอผู้ป่วยไอซียูอินทรสุขศรี หอผู้ป่วยศัลยกรรมเด็ก (ตะวันออก) หอผู้ป่วยศัลยกรรมเด็ก (ตะวันตก) และหอผู้ป่วยสลากกินแบ่งรัฐบาล 5

สถานที่ติดต่อ 115/250 หมู่บ้านบิวตี้เฮ้าส์ 5 ถ. สวนผัก 50 แขวง ฉิมพลี เขต ตลิ่งชัน กรุงเทพมหานคร เบอร์โทรศัพท์ 081-689-7688

อาจารย์ที่ปรึกษา ผศ.ดร.จริยา วิทยะสุภร ภาควิชาพยาบาลศาสตร์ คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี เบอร์โทรศัพท์ 02-201-2343

ผู้ให้ทุน -

โครงการวิจัยนี้ทำขึ้นเพื่อศึกษาการรับรู้และการจัดการของพยาบาลเกี่ยวกับความเจ็บปวดในเด็กหลังผ่าตัด ปัจจัยที่มีผลต่อการจัดการความเจ็บปวดในเด็กหลังผ่าตัด รวมทั้งผลที่เกิดขึ้นจากการจัดการของพยาบาลเกี่ยวกับความเจ็บปวดในเด็กหลังผ่าตัด ซึ่งมีประโยชน์ที่คาดว่าจะได้รับคือสามารถนำข้อมูลที่ได้ไปพัฒนาประสิทธิภาพในการจัดการความเจ็บปวดในเด็กหลังผ่าตัดอย่างเป็นระบบ

ท่านได้รับเชิญให้เข้าร่วมการวิจัยครั้งนี้เพราะท่านคือบุคลากรทางการแพทย์ซึ่งอยู่ในทีมการรักษาพยาบาลผู้ป่วยเด็กที่ได้รับการผ่าตัดและเกี่ยวข้องกับการทำงานของพยาบาล ผู้วิจัยจึงขอเชิญท่านเข้าร่วมในการวิจัย หากท่านคือแพทย์ผู้มีส่วนในการรักษาเพื่อจัดการกับความเจ็บปวดของผู้ป่วยเด็กในระยะหลังผ่าตัด ผู้วิจัยขอสังเกตการทำงานของท่านเฉพาะในส่วนที่เกี่ยวข้องกับการจัดการความเจ็บปวด และขอสัมภาษณ์ท่านเกี่ยวกับปัจจัยที่มีผลต่อการจัดการความเจ็บปวดอย่างมีประสิทธิภาพ ในสถานที่และ เวลาที่ท่านสะดวก ซึ่งใช้เวลาในการสัมภาษณ์ประมาณ 30 – 60 นาที โดยบันทึกการพูดคุยขณะสัมภาษณ์ด้วยเทปบันทึกเสียงเพื่อถ่ายทอดเนื้อหาของการสนทนาในเทปไปสู่ข้อความบนกระดาษ ซึ่งทำให้ผู้วิจัยสามารถวิเคราะห์ข้อมูลได้ในภายหลัง ผู้วิจัยจะเป็นผู้ถอดข้อมูลจากการสนทนาในเทปไปสู่กระดาษด้วยตนเองและจะลบข้อมูลที่ได้จากการบันทึกเทปทันทีที่ถอดเทปเสร็จ ข้อมูลนี้จะถูกเก็บไว้ในตู้ที่ปลอดภัยเป็นเวลา 5 ปี แล้วจึงทำลายทิ้ง ผู้ที่เข้าถึงข้อมูลจากการถอดเทปคือผู้วิจัยส่วนในขั้นตอนของการวิเคราะห์ข้อมูลซึ่งผู้วิจัยจำเป็นต้องนำข้อมูลไปปรึกษาอาจารย์ที่ปรึกษา ข้อมูลนั้นจะไม่

ปรากฏชื่อของท่าน หากท่านเป็นผู้ช่วยพยาบาลผู้วิจัยขอสังเกตการทำงานของท่าน เมื่อท่านเข้าร่วมการวิจัยแล้ว ผู้วิจัยจะขอขอสังเกตการทำงานของท่านในส่วนที่เกี่ยวข้องกับพยาบาลเพื่อให้การดูแลเด็กหลังผ่าตัด

ระยะเวลาที่จะทำวิจัยทั้งสิ้นประมาณ 6 เดือน จะมีแพทย์เข้าร่วมการวิจัยประมาณ 2-3 คน ส่วนผู้ช่วยพยาบาล แล้วแต่ความสมัครใจในการอนุญาตให้ผู้วิจัยสังเกต

เนื่องจากการศึกษาครั้งนี้ใช้การสังเกตและการสัมภาษณ์เป็นหลักในการเก็บข้อมูล จึงไม่ก่อให้เกิดความเสี่ยงใดๆแก่ท่าน อย่างไรก็ตามท่านอาจเสียเวลาบ้างในการให้ข้อมูลและตอบคำถามในการพูดคุยสัมภาษณ์

หากท่านตัดสินใจไม่เข้าร่วมในการวิจัยครั้งนี้ จะไม่มีผลกระทบใดๆต่อท่านและการปฏิบัติงานของท่าน

หากขณะที่ผู้วิจัยทำการสังเกต ทำให้ท่านไม่สบายใจ ท่านสามารถถอนตัวได้ทันที หากท่านมีข้อข้องใจที่จะสอบถามเกี่ยวข้องกับการวิจัย ท่านสามารถติดต่อ นางสาวสุดาภรณ์ พยัคฆเรือง ได้ทันที ที่หมายเลขเบอร์โทรศัพท์ 081-689-7688

ท่านจะไม่ได้รับค่าตอบแทนใดๆในช่วงที่ผู้วิจัยสังเกตการให้การดูแลเด็กหลังผ่าตัดของท่าน

หากมีข้อมูลเพิ่มเติมทั้งทางด้านประโยชน์และโทษที่เกี่ยวข้องกับการวิจัยนี้ ผู้วิจัยจะแจ้งให้ทราบโดยเร็ว ไม่ปิดบัง

ข้อมูลส่วนตัวของผู้เข้าร่วมการวิจัยจะถูกเก็บรักษาไว้ ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นข้อมูลส่วนรวม ข้อมูลของผู้ร่วมการวิจัยเป็นรายบุคคลอาจมีคณะบุคคลบางกลุ่มเข้ามาตรวจสอบได้ เช่น ผู้ให้ทุนวิจัย, สถาบัน หรือองค์กรของรัฐที่มีหน้าที่ตรวจสอบ, คณะกรรมการจริยธรรมฯ เป็นต้น

ผู้เข้าร่วมการวิจัยมีสิทธิ์ถอนตัวออกจากโครงการวิจัยเมื่อใดก็ได้ โดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมการวิจัยหรือถอนตัวออกจากโครงการวิจัยนี้จะไม่มีผลกระทบต่อการปฏิบัติงานของท่านประการใด

หากท่านได้รับการปฏิบัติที่ไม่ตรงตามที่ได้ระบุไว้ในเอกสารชี้แจงนี้ ท่านสามารถแจ้งให้ประธานคณะกรรมการจริยธรรมฯ ทราบได้ที่ สำนักงานคณะกรรมการจริยธรรมวิจัยในคน ตึกอดุลยเดชวิกรม ชั้น 5 ร.พ. ศิริราช เบอร์โทร (02) 419-7000 ต่อ 6405

ข้าพเจ้าได้อ่านรายละเอียดในเอกสารนี้ครบถ้วนแล้ว

ลงชื่อ...../*วันที่*.....

(……..)

APPENDIX N
PHYSICIAN - OR PRACTICAL NURSE – RESPONDENTS INFORMED CONSENT (THAI VERSION)

หนังสือแสดงเจตนายินยอมแก่แพทย์หรือผู้ช่วยพยาบาล

วันที่.....เดือน.....พ.ศ. .....

ข้าพเจ้า.....อายุ.....ปี อาศัยอยู่บ้านเลขที่.....
ถนน.....ตำบล.....อำเภอ.....
จังหวัด.....รหัสไปรษณีย์.....โทรศัพท์.....

ขอแสดงเจตนายินยอมเข้าร่วมโครงการวิจัย เรื่อง “การจัดการของพยาบาลต่อความเจ็บปวดหลังผ่าตัดในผู้ป่วยเด็กไทย: การวิจัยกรณีศึกษาแบบองค์รวม” โดยข้าพเจ้าได้รับทราบรายละเอียดเกี่ยวกับที่มาและจุดมุ่งหมายในการทำวิจัย รายละเอียดขั้นตอนต่างๆที่จะต้องปฏิบัติหรือได้รับการปฏิบัติ ประโยชน์ที่คาดว่าจะได้รับจากการวิจัยและความเสี่ยงที่อาจจะเกิดขึ้นจากการเข้าร่วมวิจัย รวมทั้งแนวทางป้องกันและแก้ไขหากเกิดอันตรายขึ้น โดยได้อ่านข้อความที่มีรายละเอียดอยู่ในเอกสารชี้แจงผู้เข้าร่วมการวิจัยโดยตลอด อีกทั้งยังได้รับคำอธิบายและตอบข้อสงสัยจากผู้วิจัยเป็นที่เรียบร้อยแล้ว

ข้าพเจ้าจึงสมัครใจเข้าร่วมโครงการวิจัยนี้:

หากข้าพเจ้ามีข้อข้องใจเกี่ยวกับขั้นตอนของการวิจัย หรือหากเกิดผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัยกับข้าพเจ้า ข้าพเจ้าจะสามารถติดต่อกับ นางสาวสุดาภรณ์ พยัคฆเรือง นักศึกษาปริญญาเอก สาขาพยาบาล มหาวิทยาลัยมหิดล ที่เบอร์โทรศัพท์ 081-689-7688

หากข้าพเจ้าได้รับการปฏิบัติไม่ตรงตามที่ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย ข้าพเจ้าสามารถติดต่อกับประธานคณะกรรมการจริยธรรมการวิจัยในคน หรือผู้แทน ได้ที่ สำนักงานคณะกรรมการจริยธรรมวิจัยในคน ตึกอดุลยเดชวิกรม ชั้น 5 ร.พ. ศิริราช เบอร์โทร (02) 419-7000 ต่อ 6405

ข้าพเจ้าได้ทราบถึงสิทธิ์ที่ข้าพเจ้าจะได้รับเพิ่มเติมทั้งทางด้านประโยชน์และโทษจากการเข้าร่วมการวิจัย และสามารถถอนตัวหรือองดเข้าร่วมการวิจัยได้ทุกเมื่อ โดยจะไม่มีผลกระทบต่อการทำงานของข้าพเจ้าที่จะได้รับต่อไปในอนาคต และยินยอมให้ผู้วิจัยใช้ข้อมูลส่วนตัวของข้าพเจ้าที่ได้รับจากการวิจัย แต่จะไม่เผยแพร่ต่อสาธารณะเป็นรายบุคคล โดยจะนำเสนอเป็นข้อมูลโดยรวมจากการวิจัยเท่านั้น

ข้าพเจ้าได้เข้าใจข้อความในเอกสารชี้แจงผู้เข้าร่วมการวิจัย และหนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัยนี้โดยตลอดแล้ว จึงลงลายมือชื่อไว้

ลงชื่อ.....ผู้เข้าร่วมการวิจัย/ ผู้แทนโดยชอบธรรม/ วันที่.....

(.....)

ลงชื่อ.....ผู้ให้ข้อมูลและขอความยินยอม/ วันที่.....

(.....)

APPENDIX O
CHILD –RESPONDENT AND PARENT INFORMATION SHEET (THAI VERSION)

เอกสารชี้แจงแก่ผู้ปกครองของเด็กที่เข้าร่วมการวิจัย

ในเอกสารนี้อาจมีข้อความที่ท่านอ่านแล้วยังไม่เข้าใจ โปรดสอบถามผู้วิจัย จนกว่าจะเข้าใจดี ท่านอาจจะขอเอกสารนี้กลับไปอ่านที่บ้านเพื่อปรึกษาหารือกับญาติพี่น้อง เพื่อนสนิท แพทย์ประจำตัวของเด็กในปกครองของท่าน หรือแพทย์ท่านอื่น เพื่อช่วยในการตัดสินใจเข้าร่วมการวิจัย

ชื่อโครงการ การจัดการของพยาบาลต่อความเจ็บปวดหลังผ่าตัดในผู้ป่วยเด็กไทย: การวิจัยกรณีศึกษาแบบองค์รวม

ชื่อผู้วิจัย นางสาวสุดาภรณ์ พยัคฆเรือง นักศึกษาปริญญาเอก สาขาการพยาบาล มหาวิทยาลัยมหิดล

สถานที่วิจัย หอผู้ป่วยไอซียูอินทรสุขศรี หอผู้ป่วยศัลยกรรมเด็ก (ตะวันออก) หอผู้ป่วยศัลยกรรมเด็ก (ตะวันตก) และหอผู้ป่วยสลากกินแบ่งรัฐบาล 5

สถานที่ติดต่อ 115/250 หมู่บ้านบิวตี้เฮ้าส์ 5 ถ. สวนผัก 50 แขวง ฉิมพลี เขต ตลิ่งชัน กรุงเทพมหานคร เบอร์โทรศัพท์ 081-689-7688

อาจารย์ที่ปรึกษา ผศ.ดร.จริยา วิทยะสุภร ภาควิชาพยาบาลศาสตร์ คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี เบอร์โทรศัพท์ 02-201-2343

ผู้ให้ทุน -

โครงการวิจัยนี้ทำขึ้นเพื่อศึกษาการรับรู้และการจัดการของพยาบาลเกี่ยวกับความเจ็บปวดในเด็กหลังผ่าตัด ปัจจัยที่มีผลต่อการจัดการความเจ็บปวดในเด็กหลังผ่าตัด รวมทั้งผลที่เกิดขึ้นจากการจัดการของพยาบาลเกี่ยวกับความเจ็บปวดในเด็กหลังผ่าตัด ซึ่งมีประโยชน์ที่คาดว่าจะได้รับคือสามารถนำข้อมูลที่ได้ไปพัฒนาประสิทธิภาพในการจัดการความเจ็บปวดในเด็กหลังผ่าตัดอย่างเป็นระบบ

เด็กในปกครองของท่านได้รับเชิญให้เข้าร่วมการวิจัยครั้งนี้เพราะเด็กในปกครองของท่านเป็นผู้ป่วยเด็กในระยะหลังผ่าตัดซึ่งได้รับการดูแลจากพยาบาล

ในการดำเนินการวิจัย ใช้ระยะเวลาที่จะทำวิจัยทั้งสิ้นประมาณ 6 เดือน จะมีผู้ป่วยเด็กเข้าร่วมการวิจัยนี้ประมาณ 8-16 คน

เมื่อเด็กในปกครองของท่านเข้าร่วมในการวิจัยแล้ว ผู้วิจัยจะขอสอบถามข้อมูลส่วนตัวของเด็กในปกครองของท่านเกี่ยวกับ อายุ เพศ น้ำหนัก วันที่เข้ารักษาในโรงพยาบาล วันที่ที่ได้รับการผ่าตัดและประสบการณ์ความเจ็บปวดในอดีต รวมทั้งขอดูรายละเอียดในเวชระเบียนผู้ป่วยของเด็กในปกครองของท่านเกี่ยวกับการผ่าตัด บันทึกการรักษาด้วยยาเพื่อบรรเทาความเจ็บปวด รวมทั้งบันทึกการจัดการความเจ็บปวดที่เด็กในปกครองของท่านได้รับจากพยาบาล ผู้วิจัยจะสังเกตการปฏิบัติงานของพยาบาลเกี่ยวกับการบรรเทาความ

เจ็บปวดที่ให้แก่เด็กในปกครองของท่าน และขอสังเกตพฤติกรรมของเด็กในปกครองของท่านในช่วงหลังผ่าตัด

ในช่วงเวลาของการสังเกต ผู้วิจัยจะขอประเมินความเจ็บปวดของเด็กในปกครองของท่าน เมื่อเริ่มการสังเกต และเมื่อสิ้นสุดการสังเกต หากเด็กในปกครองของท่านมีอายุน้อยกว่า 5 ปี ผู้วิจัยจะใช้แบบประเมินความเจ็บปวดโดยสังเกตจากพฤติกรรมของเด็กในปกครองของท่าน หากเด็กในปกครองของท่านอายุมากกว่า 5 ปี ผู้วิจัยจะขอให้เด็กในปกครองของท่านเป็นผู้บอกระดับของความเจ็บปวดด้วยตนเอง ซึ่งเครื่องมือที่ใช้ในการประเมินความเจ็บปวด เป็นเครื่องมือที่พยาบาลประจำหอผู้ป่วยนี้ใช้ในการประเมินระดับความเจ็บป่วยให้แก่เด็กในปกครองของท่านเป็นปกติอยู่แล้ว ดังนั้นการวิจัยครั้งนี้จึงไม่ก่อให้เกิดความเสี่ยงหรือมีผลกระทบใดๆ ต่อเด็กในปกครองของท่าน หากผู้วิจัยพบว่าเด็กในปกครองของท่านมีความเจ็บปวดอยู่ในระดับที่สูง ผู้วิจัยจะแจ้งให้หัวหน้าหอผู้ป่วยหรือพยาบาลที่รับผิดชอบทราบเพื่อช่วยบรรเทาความเจ็บปวดตามสมควร

หากเด็กในปกครองของท่านไม่เข้าร่วมในการวิจัยนี้ เด็กในความปกครองของท่านก็จะยังคงได้รับการรักษาพยาบาลตามวิธีการที่เป็นมาตรฐาน

หากขณะที่ผู้วิจัยทำการสังเกตเด็กในปกครองของท่าน ทำให้ท่านหรือเด็กในปกครองของท่านไม่สบายใจ ท่านสามารถถอนตัวได้ทันที หากท่านมีข้อข้องใจที่จะสอบถามเกี่ยวข้องกับการวิจัย ท่านสามารถติดต่อ นางสาวสุดาภรณ์ พยัคฆเรือง ได้ทันที ที่หมายเลขเบอร์โทรศัพท์ 081-689-7688

ในการสังเกตพฤติกรรมของเด็กในปกครองของท่าน ท่านจะไม่ได้รับค่าตอบแทนใดๆ

หากมีข้อมูลเพิ่มเติมทั้งทางด้านประโยชน์และโทษที่เกี่ยวข้องกับการวิจัยนี้ ผู้วิจัยจะแจ้งให้ทราบโดยเร็ว ไม่ปิดบัง

ข้อมูลส่วนตัวของผู้เข้าร่วมการวิจัยจะถูกเก็บรักษาไว้ ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นข้อมูลส่วนรวม ข้อมูลของผู้ร่วมการวิจัยเป็นรายบุคคลอาจมีคณะบุคคลบางกลุ่มเข้ามาตรวจสอบได้ เช่น ผู้ให้ทุนวิจัย, สถาบัน หรือองค์กรของรัฐที่มีหน้าที่ตรวจสอบ, คณะกรรมการจริยธรรมฯ เป็นต้น

ผู้เข้าร่วมการวิจัยมีสิทธิ์ถอนตัวออกจากโครงการวิจัยเมื่อใดก็ได้ โดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมการวิจัยหรือถอนตัวออกจากโครงการวิจัยนี้จะไม่มีผลกระทบต่อการบริการและการรักษาที่เด็กในปกครองของท่านสมควรจะได้รับแต่ประการใด

หากเด็กในปกครองของท่านได้รับการปฏิบัติที่ไม่ตรงตามที่ได้ระบุไว้ในเอกสารชี้แจงนี้ ท่านสามารถแจ้งให้ประธานคณะกรรมการจริยธรรมฯ ทราบได้ที่ สำนักงานคณะกรรมการจริยธรรมวิจัยในคน ตึกอดุลยเดชวิกรม ชั้น 5 ร.พ. ศิริราช เบอร์โทร (02) 419-7000 ต่อ 6405

ข้าพเจ้าได้อ่านรายละเอียดในเอกสารนี้ครบถ้วนแล้ว

ลงชื่อ...../วันที่.....

(.....).

APPENDIX P
CHILD-RESPONDENT AND PARENT INFORMED CONSENT (THAI VERSION)

หนังสือแสดงเจตนายินยอมให้เด็กในปกครองเข้าร่วมการวิจัย

วันที่.....เดือน.....พ.ศ.....

ข้าพเจ้า.....อายุ.....ปี อาศัยอยู่บ้านเลขที่.....
ถนน.....ตำบล.....อำเภอ.....
จังหวัด.....รหัสไปรษณีย์.....โทรศัพท์.....

ขอแสดงเจตนายินยอมเข้าร่วมโครงการวิจัยและยินยอมให้เด็กในปกครองของข้าพเจ้าเข้าร่วมโครงการวิจัย เรื่อง "การจัดการของพยาบาลต่อความเจ็บปวดหลังผ่าตัดในผู้ป่วยเด็กไทย: การวิจัยกรณีศึกษาแบบองค์รวม" โดยข้าพเจ้าได้รับทราบรายละเอียดเกี่ยวกับที่มาและจุดมุ่งหมายในการทำวิจัย รายละเอียดขั้นตอนต่างๆ ที่จะต้องปฏิบัติหรือได้รับการปฏิบัติ ประโยชน์ที่คาดว่าจะได้รับจากการวิจัยและความเสี่ยงที่อาจจะเกิดขึ้นจากการเข้าร่วมวิจัย รวมทั้งแนวทางป้องกันและแก้ไขหากเกิดอันตรายขึ้น โดยได้อ่านข้อความที่มีรายละเอียดอยู่ในเอกสารชี้แจงผู้เข้าร่วมการวิจัยโดยตลอด อีกทั้งยังได้รับคำอธิบายและตอบข้อสงสัยจากผู้วิจัยเป็นที่เรียบร้อยแล้ว

ข้าพเจ้าจึงสมัครใจเข้าร่วมโครงการวิจัยและให้เด็กในปกครองของข้าพเจ้าเข้าร่วมโครงการวิจัยนี้:

หากข้าพเจ้ามีข้อข้องใจเกี่ยวกับขั้นตอนของการวิจัย หรือหากเกิดผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัยกับเด็กในปกครองของข้าพเจ้า ข้าพเจ้าจะสามารถติดต่อกับนางสาวสุดาภรณ์ พยัคฆเรือง นักศึกษาปริญญาเอก สาขาพยาบาล มหาวิทยาลัยมหิดล ที่เบอร์โทรศัพท์ 081-689-7688

หากข้าพเจ้าหรือเด็กในปกครองของข้าพเจ้าได้รับการปฏิบัติไม่ตรงตามที่ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย ข้าพเจ้าสามารถติดต่อกับประธานคณะกรรมการจริยธรรมการวิจัยในคน หรือผู้แทน ได้ที่สำนักงานคณะกรรมการจริยธรรมวิจัยในคน ตึกอดุลยเดชวิกรม ชั้น 5 ร.พ. ศิริราช เบอร์โทร (02) 419-7000 ต่อ 6405

ข้าพเจ้าได้ทราบถึงสิทธิ์ที่ข้าพเจ้าจะได้รับเพิ่มเติมทั้งทางด้านประโยชน์และโทษจากการเข้าร่วมการวิจัย และสามารถถอนตัวหรืองดเข้าร่วมการวิจัยได้ทุกเมื่อ โดยจะไม่มีผลกระทบต่อการบริการและการรักษาที่สมควรจะได้รับแต่ประการใดที่จะได้รับต่อไปในอนาคต และยินยอมให้ผู้วิจัยใช้ข้อมูลส่วนตัวของข้าพเจ้าและเด็กในปกครองของข้าพเจ้าที่ได้รับจากการวิจัย แต่จะไม่เผยแพร่ต่อสาธารณะเป็นรายบุคคล โดยจะนำเสนอเป็นข้อมูลโดยรวมจากการวิจัยเท่านั้น

ข้าพเจ้าได้เข้าใจข้อความในเอกสารชี้แจงผู้เข้าร่วมการวิจัย และหนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัยนี้โดยตลอดแล้ว จึงลงลายมือชื่อไว้

ลงชื่อ.....ผู้เข้าร่วมการวิจัย/ ผู้แทนโดยชอบธรรมวันที่.....

(.....)

ลงชื่อ.....ผู้ให้ข้อมูลและขอความยินยอม/ วันที่.....

(.....)

ในกรณีที่ผู้ปกครองของเด็กอ่านหนังสือไม่ออก ผู้ที่อ่านข้อความทั้งหมดแทนผู้ปกครองคือ

.....จึงลงลายมือชื่อไว้เป็นพยาน

ลงชื่อ.....พยาน/ วันที่.....

(.....)

ในกรณีที่ผู้ป่วยเด็กสามารถเขียนหนังสือได้และต้องการลงชื่อ

หนูยินดีให้คุณสังเกตหนู

ลงชื่อ.....ผู้ป่วยเด็ก วันที่.....

(.....)

APPENDIX Q
CAREGIVER INFORMATION SHEET
(THAI VERSION)

เอกสารชี้แจงแก่ผู้ดูแลเด็ก

ในเอกสารนี้อาจมีข้อความที่ท่านอ่านแล้วยังไม่เข้าใจ โปรดสอบถามผู้วิจัย จนกว่าจะเข้าใจดี ท่านอาจจะขอเอกสารนี้กลับไปอ่านที่บ้านเพื่อปรึกษาหารือกับญาติพี่น้อง เพื่อนสนิทของท่าน หรือแพทย์ท่านอื่น เพื่อช่วยในการตัดสินใจเข้าร่วมการวิจัย

ชื่อโครงการ การจัดการของพยาบาลต่อความเจ็บปวดหลังผ่าตัดในผู้ป่วยเด็กไทย: การวิจัยกรณีศึกษาแบบองค์รวม

ชื่อผู้วิจัย นางสาวสุดาภรณ์ พยัคฆเรือง นักศึกษาปริญญาเอก สาขาการพยาบาล มหาวิทยาลัยมหิดล

สถานที่วิจัย หอผู้ป่วยไอซียูอินทรสุขศรี หอผู้ป่วยศัลยกรรมเด็ก (ตะวันออก) หอผู้ป่วยศัลยกรรมเด็ก (ตะวันตก) และหอผู้ป่วยสลากกินแบ่งรัฐบาล 5

สถานที่ติดต่อ 115/250 หมู่บ้านบิวตี้เฮ้าส์ 5 ถ. สวนผัก 50 แขวง ฉิมพลี เขต ตลิ่งชัน กรุงเทพมหานคร เบอร์โทรศัพท์ 081-689-7688

อาจารย์ที่ปรึกษา ผศ.ดร.จริยา วิทยะสุภร ภาควิชาพยาบาลศาสตร์ คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี เบอร์โทรศัพท์ 02-201-2343

ผู้ให้ทุน -

โครงการวิจัยนี้ทำขึ้นเพื่อศึกษาการรับรู้และการจัดการของพยาบาลเกี่ยวกับความเจ็บปวดในเด็กหลังผ่าตัด ปัจจัยที่มีผลต่อการจัดการความเจ็บปวดในเด็กหลังผ่าตัด รวมทั้งผลที่เกิดขึ้นจากการจัดการของพยาบาลเกี่ยวกับความเจ็บปวดในเด็กหลังผ่าตัด ซึ่งมีประโยชน์ที่คาดว่าจะได้รับคือสามารถนำข้อมูลที่ได้ไปพัฒนาประสิทธิภาพในการจัดการความเจ็บปวดในเด็กหลังผ่าตัดอย่างเป็นระบบ

ท่านได้รับเชิญให้เข้าร่วมการวิจัยครั้งนี้เพราะท่านเป็นผู้อยู่ใกล้ชิดกับเด็กและดูแลเด็กในขณะพยาบาลให้การดูแล ดังนั้นท่านคือบุคคลที่เหมาะสมในการให้ข้อมูลประกอบในการวิจัยครั้งนี้

ในการดำเนินการวิจัยใช้ระยะเวลาที่จะทำวิจัยทั้งสิ้นประมาณ 6 เดือน จะมีผู้ดูแลเข้าร่วมในการวิจัยนี้ประมาณ 8 -16 คน

เมื่อท่านเข้าร่วมการวิจัยแล้ว ผู้วิจัยจะขอสอบถามข้อมูลส่วนตัวของท่านเกี่ยวกับ อายุ เพศ และการศึกษา และสังเกตท่านในขณะที่ท่านอยู่ดูแลเด็ก และผู้วิจัยจะขอสัมภาษณ์ท่าน ในสถานที่และ เวลาที่ท่านสะดวก ซึ่งใช้เวลาในการสัมภาษณ์ประมาณ 30 – 60 นาที โดยบันทึกการพูดคุยขณะสัมภาษณ์ด้วยเทปบันทึกเสียงเพื่อถ่ายทอดเนื้อหาของการสนทนาในเทปไปสู่ข้อความบนกระดาษ ซึ่งทำให้ผู้วิจัยสามารถวิเคราะห์ข้อมูลได้ในภายหลัง ผู้วิจัยจะเป็นผู้ถอดข้อมูลจากการสนทนาในเทปไปสู่กระดาษด้วยตนเอง และ

จะลบข้อมูลที่ได้จากการบันทึกเทปทันทีที่ถอดเทปเสร็จ ข้อมูลนี้จะถูกเก็บไว้ในตู้ที่ปลอดภัยเป็นเวลา 5 ปี แล้วจึงทำลายทิ้ง ผู้ที่เข้าถึงข้อมูลจากการถอดเทปคือผู้วิจัย ส่วนในขั้นตอนของการวิเคราะห์ข้อมูลซึ่งผู้วิจัยจำเป็นต้องนำข้อมูลไปปรึกษาอาจารย์ที่ปรึกษา ข้อมูลนั้นจะไม่ปรากฏชื่อของท่าน

เนื่องจากการศึกษาครั้งนี้ใช้การสังเกตและการสัมภาษณ์เป็นหลักในการเก็บข้อมูล จึงไม่ก่อให้เกิดความเสี่ยงใดๆแก่ท่าน อย่างไรก็ตามท่านอาจเสียเวลาบ้างในการให้ข้อมูลและตอบคำถามในการพูดคุยสัมภาษณ์

หากท่านไม่เข้าร่วมในการวิจัยนี้ ท่านจะไม่ได้รับผลกระทบใดๆ และเด็กที่ท่านดูแลก็จะยังคงได้รับการรักษาพยาบาลตามวิธีการที่เป็นมาตรฐาน

หากขณะที่ผู้วิจัยสัมภาษณ์ท่านทำให้ท่านไม่สบายใจ ท่านสามารถถอนตัวได้ทันที หากท่านมีข้อข้องใจที่จะสอบถามเกี่ยวข้องกับการวิจัย ท่านสามารถติดต่อ นางสาวสุดาภรณ์ พยัคฆเรือง ได้ทันที ที่หมายเลขเบอร์โทรศัพท์ 081-689-7688

หากมีข้อมูลเพิ่มเติมทั้งทางด้านประโยชน์และโทษที่เกี่ยวข้องกับการวิจัยนี้ ผู้วิจัยจะแจ้งให้ทราบโดยเร็ว ไม่ปิดบัง

ข้อมูลส่วนตัวของผู้เข้าร่วมการวิจัยจะถูกเก็บรักษาไว้ ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นข้อมูลส่วนรวม ข้อมูลของผู้ร่วมการวิจัยเป็นรายบุคคลอาจมีคณะบุคคลบางกลุ่มเข้ามาตรวจสอบได้ เช่น ผู้ให้ทุนวิจัย, สถาบัน หรือองค์กรของรัฐที่มีหน้าที่ตรวจสอบ, คณะกรรมการจริยธรรมฯ เป็นต้น

ผู้เข้าร่วมการวิจัยมีสิทธิ์ถอนตัวออกจากโครงการวิจัยเมื่อใดก็ได้ โดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมการวิจัยหรือถอนตัวออกจากโครงการวิจัยนี้จะไม่มีผลกระทบต่อการปฏิบัติงานของท่านประการใด

หากท่านได้รับการปฏิบัติที่ไม่ตรงตามที่ได้ระบุไว้ในเอกสารชี้แจงนี้ ท่านสามารถแจ้งให้ประธานคณะกรรมการจริยธรรมฯ ทราบได้ที่ สำนักงานคณะกรรมการจริยธรรมวิจัยในคน ตึกอดุลยเดชวิกรม ชั้น 5 ร.พ. ศิริราช เบอร์โทร (02) 419-7000 ต่อ 6405

ข้าพเจ้าได้อ่านรายละเอียดในเอกสารนี้ครบถ้วนแล้ว

ลงชื่อ...../วันที่.....

(……..)

APPENDIX R
CAREGIVER INFORMED CONSENT (THAI VERSION)

หนังสือแสดงเจตนายินยอมแก่ผู้ดูแลเด็ก

วันที่.....เดือน.....พ.ศ.....

ข้าพเจ้า.....อายุ.....ปี อาศัยอยู่บ้านเลขที่.....
ถนน.....ตำบล.....อำเภอ.....
จังหวัด.....รหัสไปรษณีย์.....โทรศัพท์.....

ขอแสดงเจตนายินยอมเข้าร่วมโครงการวิจัยและยินยอมให้เด็กในปกครองของข้าพเจ้าเข้าร่วมโครงการวิจัย เรื่อง “การจัดการของพยาบาลต่อความเจ็บปวดหลังผ่าตัดในผู้ป่วยเด็กไทย: การวิจัยกรณีศึกษาแบบองค์รวม” โดยข้าพเจ้าได้รับทราบรายละเอียดเกี่ยวกับที่มาและจุดมุ่งหมายในการทำวิจัย รายละเอียดขั้นตอนต่างๆ ที่จะต้องปฏิบัติหรือได้รับการปฏิบัติ ประโยชน์ที่คาดว่าจะได้รับจากการวิจัยและความเสี่ยงที่อาจจะเกิดขึ้นจากการเข้าร่วมวิจัย รวมทั้งแนวทางป้องกันและแก้ไขหากเกิดอันตรายขึ้น โดยได้อ่านข้อความที่มีรายละเอียดอยู่ในเอกสารชี้แจงผู้เข้าร่วมการวิจัยโดยตลอด อีกทั้งยังได้รับคำอธิบายและตอบข้อสงสัยจากผู้วิจัยเป็นที่เรียบร้อยแล้ว

ข้าพเจ้าจึงสมัครใจเข้าร่วมโครงการวิจัยและให้เด็กในปกครองของข้าพเจ้าเข้าร่วมโครงการวิจัยนี้:

หากข้าพเจ้ามีข้อข้องใจเกี่ยวกับขั้นตอนของการวิจัย หรือหากเกิดผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัยกับข้าพเจ้า ข้าพเจ้าจะสามารถติดต่อกับนางสาวสุดาภรณ์ พยัคฆเรือง นักศึกษาปริญญาเอก สาขาพยาบาล มหาวิทยาลัยมหิดล ที่เบอร์โทรศัพท์ 081-689-7688

หากข้าพเจ้าได้รับการปฏิบัติไม่ตรงตามที่ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย ข้าพเจ้าสามารถติดต่อกับประธานคณะกรรมการจริยธรรมการวิจัยในคน หรือผู้แทน ได้ที่ สำนักงานคณะกรรมการจริยธรรมวิจัยในคน ตึกอดุลยเดชวิกรม ชั้น 5 ร.พ. ศิริราช เบอร์โทร (02) 419-7000 ต่อ 6405

ข้าพเจ้าได้ทราบถึงสิทธิ์ที่ข้าพเจ้าจะได้รับเพิ่มเติมทั้งทางด้านประโยชน์และโทษจากการเข้าร่วมการวิจัย และสามารถถอนตัวหรืองดเข้าร่วมการวิจัยได้ทุกเมื่อ โดยจะไม่มีผลกระทบต่อการบริการและการรักษาที่สมควรจะได้รับแต่ประการใดที่จะได้รับต่อไปในอนาคต และยินยอมให้ผู้วิจัยใช้ข้อมูลส่วนตัวของข้าพเจ้าที่ได้รับจากการวิจัย แต่จะไม่เผยแพร่ต่อสาธารณะเป็นรายบุคคล โดยจะนำเสนอเป็นข้อมูลโดยรวมจากการวิจัยเท่านั้น

ข้าพเจ้าได้เข้าใจข้อความในเอกสารชี้แจงผู้เข้าร่วมการวิจัย และหนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัยนี้โดยตลอดแล้ว จึงลงลายมือชื่อไว้

ลงชื่อ.....ผู้เข้าร่วมการวิจัย/ ผู้แทนโดยชอบธรรมวันที่.....

(.....)

ลงชื่อ.....ผู้ให้ข้อมูลและขอความยินยอม/ วันที่.....

(.....)

APPENDIX S

GENERAL INFORMATION OF CHILD-RESPONDENTS

Case No.	Observation		Child				Child's caregive
	Time	Total (hours/min)	sex	Age	Type of operation	Duration of operation	
1	1	3 hrs	female	6 yrs	Abdominal surgery	1 hr	mother
	2	2 hrs 45 mins	female	10 mths	Abdominal surgery	1 hr 30 mins	mother
2	1	2 hrs	female	1 mth	Abdominal surgery	40 mins	-
	2	2 hrs	female	3 yrs	Abdominal surgery	1 hr 45 mins	mother
	3	2 hrs 15 mins	male	1 yr	Abdominal surgery	5 hrs	-
	4	2 hrs	female	3 days	Thoracic surgery	4 hrs	-
3	1	2 hrs	male	1 yr	Thoracic surgery	5 hrs	mother
	2	2 hrs	female	4 days	Abdominal surgery	4hrs	-
	3	3 hrs	female	2 days	Abdominal surgery	2 hrs 40 mins	-
	4	3 hrs 15 mins	male	11 yrs	Abdominal surgery	6 hrs	mother
4	1	3 hrs 20 mins	female	9 yrs	Plastic surgery	1 hr 45 mins	-
	2	3 hrs	female	3 yrs 1 mths	Abdominal surgery	2 hrs 25 mins	mother
	3	2 hrs	female	5 yrs	Plastic surgery	1 hr 30 mins	mother
5	1	2 hrs 30 mins	female	1 yr 8 mths	Plastic surgery	1 hr 25 mins	mother
	2	2 hrs 30 mins	female	4 mths	Plastic surgery	2 hrs 15 mins	mother
	3	2 hrs	female	4 mths	Plastic surgery	1 hr 15 mins	mother
	4	2 hrs 45 mins	male	5 yrs	Neuro surgery	4 hrs 30 mins	-
	5	2 hrs	female	12 yrs	Plastic surgery	4 hrs	mother
6	1	2 hrs	female	1 yr 8 mths	Plastic surgery	1 hrs 25 mins	mother
	2	2 hrs	female	4 mths	Plastic surgery	2 hrs 25 mins	mother

APPENDIX T
AN EXAMPLE OF A CASE STUDY DATABASE

Examples of Case Study Database

The following data show some parts of the case study database from the observation of the first case study nurse's management of postoperative pain in children.

1. **Data Sources:** The observation of the first case study was made from 0.00 to 03.00 p.m. on August 6, 2007 along with reviewing a child's chart -- a 6-year-old girl who was admitted to hospital on August 5, 2007. A child, diagnosed with rupture appendicitis, underwent an appendectomy on 5.50 a.m., August 5, 2007 and after the one-hour surgery, a child was moved back to the pediatric surgical intensive care unit on 01.45 p.m. with a Foley's catheter, a NG tube, and receiving intravenous solution.

The observation was taken on August 6, 2007, one day after surgery. During that time, a child was being given an intravenous infusion of fluids rated 150 ml/hr. Physician prescribed Morphine sulphate of 1 mg. via intravenous injection for four to six hours as part of the pain treatment. The observation was made in the morning shift on Monday found seven beds of children including five infants lived in the incubators, 1 young child, and 1 older child; two of them were monitored their vital signs for 24 hours. One bed was vacant. The observation started on 0.00 p.m. which was the period of lunchtime of nurses. There were six nurses and one practical nurse on duty in the morning shift.

During the observation, four nurses were performing their duty and they included the nurse in Case 1, two newly graduated nurses and a practical nurse. It was found that while a child and her mother, as her caregiver, were watching TV in the TV room in the unit. A girl coughed, cried, and complained "I hurt." The girl said and put her hands rubbing over the abdominal wound. Her mother asked her with a worrying face that "Where do you hurt?", "Why do you keep feeling a pain there?" and consoled a girl that "Be patient, my dear." Mother tried to comfort a girl by holding

the girl's hands or placing her hand on the girl's stomach while Case 1 was caring another crying infant. When a child felt drowsy 15 minutes later, mother asked Case 1 to take her daughter back to her bed. During walking to her bed, Case 1 talked to support a child.

Upon arriving at the bed, Case 1 put a girl lie with her head elevated and places a cloth under a girl's knees and then turned off the light and advised mother to hold the girl's hand. Five minutes later, a girl started to whimper with a facial grimace and complained of pain while her mother tried to console a girl by saying "Be patient! Are you really in pain?" On 0.25 p.m., a girl still complained of pain more often and said to her mother "Mama, I feel pain. I need painkiller." Mother walked to Case 1 and said "My girl is complaining of pain and asking for pain relief." Case 1 stopped her ongoing task of caring another child to visit a girl and said "Well, let me assess your pain intensity first."

During monitor blood pressure, Case 1 asked the patient "Do you feel pain?" and a girl nodded, so Case 1 continued asking "Are you very hurt?" Without any words, a girl started crying then, her mother asked a girl "Do you really feel pain? Can you tolerate it, my dear?" A girl kept crying while putting her hands on the surgical wound. Case 1 complained "Taking too many doses of painkillers could cause you has abdominal distension." (A child's chart showed that a child was given analgesic on 0.00 p.m. and 07.00 a.m.) Mother told her daughter "Could you tolerate it, my dear? So you don't need drugs." The girl nodded while holding her mother's hand and complained of pain again when she coughed. Case 1 asked her again "Tell me if you feel a sharp pain, so I'll give you pain relief. Do you need it? The girl responded "Yes, I do." and that made her mother confused and say "How come? Why did you change your mind?"

It was 0.30 p.m. when Case 1 finished a pain assessment and recorded the pain score, pulse rate, respiratory rate, and blood pressure in a pain score record. Pain score using CHEOPS tool was 10. Case 1 went to prepare analgesic. After that a practical nurse called her to pick up a phone call asking the condition of a child in the unit. At that time, a child was coughing with a facial grimace. Case 1 told her that "I'll give you painkiller in a minute." Case 1 brought analgesic for a child on 0.45 p.m. and then sat besides the bed to slowly inject analgesic to a child which the process took about 4

minutes. She told a child that “I’ll turn off the lights, so you can sleep.” That child could get to sleep within 2 minutes only.

Case 1 then continued her job but she came to see a child occasionally. On 1.00 p.m., Case 1 paid a visit to a child, checked the pulse and used a syringe to draw the air from the open NG tube attached to a bag. The review of the child’s chart showed the information that the pain score was rated 5 using the CHEOPS tool on 1.00 p.m. whereas nurses’ note indicated that “pain assessment with CHEOPS was done every 2-4 hours and pain score was rated 5-10” and “pain score was lower after giving Morphine injection and a child could sleep.”

2. Data Sources: Caregiver, a child’s mother, was interviewed in the meeting room outside the ward from 3.20 to 3.45 p.m. on August 6, 2007. Caregiver described the pain suffered by her child that “Her pain remains. She told me that she still feels pain at her abdomen. So I asked her why? Your appendix was removed. She always rubbed over her wound at the same area that she felt pain before an operation. It made me wonder what was wrong with her as she was removed the appendix. I think her inner wound probably caused her pain, but she didn’t know how to describe it.”

Caregiver also gave information when caring her child who complained of pain that:

> When she told of her pain, I’d advise her to take patience, so that she could go home. I told her if she still complains of pain, the doctor would continue giving her a medicine and will not let her go home. That made her quiet and she’ll try to say that she doesn’t feel any pain.

> When her pain occurs, I want to help and alleviate her pain but don’t know how to do. So I try to hold her hands. It’s a way to help her when she hurt. She used to ask me to hold her hands. So, when she feels pain I will do as in the past, her pain seems relieved.

Caregiver shared her own feelings toward pain and pain relief of her child that “The nurse told me that taking too many doses of pain medicine could cause abdominal distension. When my child complains of pain, I want her receive painkiller (she said in a soft voice).” She also explained that:

> I want her to receive painkillers, but I concern about side effects of analgesic. When seeing her suffering from pain, I want her to take painkillers right away. Actually, I want her to be patient and she believes me. I told her to tolerate with her pain if her pain is only mild, so that she don't need painkiller. She believes me. If we don't give her painkillers, she can bear it.

Caregiver gave comment on Case 1's pain management for her own child, saying that "She (Case 1) always pays attention to my child. When my child feels pain, she would actively manage a child' pain." "I saw a nurse (Case 1) paying close attention as she always gives a look to my child." "She (Case 1) could help alleviation of my child's pain as seen that my child could get to sleep."

3. Data Sources: Case 1 were interviews for four time (the first time at her own room on September 5, 2007, the second in a room at the ward on October 27, 2007; and lastly in a room at the ward on June 1, 2008).

> When a child cry, I must check first what makes him cry and see if he pees or passes stools or feels discomfort from having the same sleeping position for too long. Or he may feel hungry. We don't know if the child has other illnesses like flatulence that could make him cry.
>
> An older child could cry because he wants to implore his caregivers or fears over being separated. He could be afraid or wants to attract attention. All of these causes could cause an error to pain assessment.
>
> If it's a solvable problem like hunger, I'll give a patient a pacifier. Or I could cuddle and pacify him or place him in a sit box. For a case in an incubator, I'll take him out if allowed. Some child stops crying suddenly when I cuddle him or some could get to sleep when I wrap him.
>
> A young child must be assessed for pain by monitoring both physical and behavioral aspects. As when he cries, his heart rate will be rapid while his

respiratory rate will be fast and his blood pressure will shoot. All of these must be considered together.

It doesn't depend that a child aged 5-6 years can use a pain scale or a face scale. A pain assessment tool must be chosen appropriately case by case.

If an older child is assessed with pain, I'll check his medical order to see what medicines the doctor prescribes and when the last dose was. If his last dose was given a while ago, I'd give him another dose.

If a child requests painkillers within less than 3 hours while the doctor prescribes for every 4 hours, I have to delay the administration. But if it happens again, I'd report to the doctor that the dose prescribed might not be sufficient. And it depends on his judgment.

I'll report to the doctor if a child can't bear the pain. It means he would cry and doesn't stop even how hard I try to comfort him with several methods. I would ask the doctor to increase the dose and he would adjust it.

I would purge medicine to a patient first before reporting to the doctor. I won't increase the dose rate on my own, but I'll wait for the doctor and inform him of the purge as the patient can't bear the pain and it's likely that the dose rate is not efficacious. I'll consult the doctor and he'll consider increasing the dose rate.

I won't purge medicine to a case that is put into a drip via an epidural catheter as the anesthetist would instruct the dose range. If that patient can't bear the pain, the dose rate could be increased. For some cases, the doctor would order how many cc I can purge if the patient feels a sharp pain and I could increase the rate later.

When admitting a postoperative child from the operation room, I must check the medical order first. If there is not pain medication in the prescription, I'd immediately ask the doctor about painkillers for alleviating pain. If there are some problems that I cannot check the medical order at that time, I don't ask the doctor right away as a child does not yet feel pain. I'll wait for the doctor. Or if the pain occurs, I'll call the doctor to inform him how many pain score a child got and tell that he didn't prescribe any medicine and ask him if he wants to prescribe any drugs.

If a pain score does not correlate with the behaviors and symptoms, we'll start to detect that there are other associated problems rather than pain.

APPENDIX U
AN EXAMPLE OF THE PERCENTAGE OF ANALGESIC ADMINISTRATION

Nurse		Treatment	Analgesic Administration		
Case	Obs.		Max. dose (MSEQ)	Administered by nurse (MSEQ)	% of analgesic administration
1	1	prn via intravenous	1	1	100%
	2	Drip via epidural catheter	0.36	0.15	41.67%
2	1	prn via intravenous	2	1	50%
	2	prn via intravenous	0.16	0.8	50%
	3	Drip via intravenous	12.6	12.6	100%
	4	Drip via intravenous	2.644	2.64	100%
3	1	Drip via intravenous	12.6	12.6	100%
	2	No analgesic treatment	-	-	-
	3	No analgesic treatment	-	-	-
	4	Drip via epidural catheter	110.48	110.48	100%
4	1	prn via intravenous prn via oral	9	-	0%
	2	drip via intravenous prn via oral	11.9	6.9	57.98%
	3	prn via intravenous prn via oral	10.5	-	0%
5	1	prn via intravenous prn via oral	11.4	10	87.72%
	2	prn via intravenous prn via oral	8.5	-	0%
	3	prn via intravenous prn via oral	6.25	6.25	100%
	4	prn via intravenous prn via oral	21.25	6.25	29.41%
	5	prn via intravenous prn via oral	13	-	0%
6	1	prn via intravenous prn via oral	11.4	10	87.72%
	2	prn via intravenous prn via oral	8.5	-	0%

APPENDIX V

AN EXAMPLE OF DATA TRIANGULATION

Case No. I: Yindi
Chain of evidence No. 1: Analgesic administration

Sources: Date	Data	Key words/ phases	Emerging Themes/ Sub-themes
Observation August 6, 2007	During Yindi provided nursing care to a 6-year-old child one day after she underwent appendectomy, Yindi was informed by the mother, as a caregiver, of a child's pain. Yindi stopped her ongoing task of caring another child to visit that girl and said "Well, let me assess your pain first." She asked a child "Do you feel pain?" and the girl nodded, so she continued asking "Are you very hurt?" Without any words, the girl made a cry face. She took vital signs of a child. Yindi asked a girl again "Tell me if you feel a sharp pain, so I'll give you pain relief. Do you need it? The girl responded "Yes, I do." Then, she went to review a child's chart.	-got information from caregiver - hurried to assess pain - asked the child's feeling -asked a child about the need of receiving painkiller	*Administering Analgesic* -assessing pain intensity from multiple sources - believed in child's self-report
Observation and Chart review August 6, 2007	Yindi check the physician's prescriptions and the nursing monitoring record. The pain treatment was "Morphine sulphate of 1 mg. via intravenous as needed every four to six hours" The chart showed a child was given analgesic on 24.00 p.m. and 07.00 a.m. The space time from 07.00 a.m. was five hours and 30 minutes.	-concerning about the space time from the previous dose. - Spacing was more than ordered	-collect data from multiple sources

Sources: Date	Data	Key words/ phases	Emerging Themes/ Sub-themes
	"If an older child is assessed with pain, I'll check his medical order to see what medicines the doctor prescribes and when the last dose was. If his last dose was given a while ago, I'd give him another dose." The percentage of the maximum amount of the analgesic ordered by the physician and actually administered by the nurse was 100 %.	- checking medical orders Administering the maximum dose of analgesic	*Advocating a child to receive pain medication*
Interview: February, 8 2008	"If children say something hurts, we need to trust them. We must not interpret the situation by ourselves." "Before administration, a child's vital signs must be checked first as part of the physical assessment following the behavioral assessment. It must be consistent with the physical assessment."	- trust a child's report -checking vital signs before administering analgesic	- believed in child's self-report -assessing pain intensity from multiple sources
Observation August 6, 2007	After Yindi finished a pain assessment and recorded the pain score, pulse rate, respiratory rate and blood pressure in a pain assessment chart showing the written data that on 12.30 p.m. and re-assessing pain at 01.00 p.m.	- recording pain score - re-assessing pain	- assess, re-assess, and record pain intensity
Interview: September 5, 2007	"When admitting a postoperative child from the operation room, I must check the medical order first. If there is not pain medication in the prescription, I'd immediately ask the doctor about painkillers for alleviating pain. If there are some problems that I cannot check the medical order at that time, I don't ask the doctor right away as a child does not yet feel pain. I'll wait for the doctor. Or if the pain occurs, I'll call the doctor to inform him how many pain score a child got and tell that he didn't prescribe any medicine and ask him if he wants to prescribe any drugs."	-Checking medical orders - ask a doctor about painkillers -call the doctor to report him pain score -ask a doctor about pain killers	*Advocating a child to receive pain medication*

Sources: Date	Data	Key words/ phases	Emerging Themes/ Sub-themes
Interview: September 5, 2007	"The doctor administered a very small dose of continuous Fentanyl via intravenous though I had to observe the child's behavior. If the child calmed down, I could assume that the pain medication should be at the minimum therapeutic level to control pain"	- very small dose of analgesic - minimum therapeutic level to control pain	- having knowledge about analgesic administration
Interview: October 27, 2007	"If a child requests painkillers within less than three hours while the doctor prescribes for every four hours, I have to delay the administration. But if it happens again, I'd report to the doctor that the dose prescribed might not be sufficient. And it depends on his judgment." "I'll report to the doctor if a child can't bear the pain. He would cry and doesn't stop even how hard I try to comfort him with several methods. I would report and consult the doctor to increase the dose and he would adjust it."	-request painkillers -report to the doctor - insufficient dose -report and consult the doctor to increase the dose	*Collaborating with physician to adjust pain treatment*
Interview: February, 8 2007	"I would push more analgesic to a child first before reporting to the doctor. I won't increase the dose rate on my own, but I'll wait for the doctor and inform him of analgesic administration as a child can't bear the pain and it's likely that the dose rate is not enough to control pain. I'll consult the doctor and he'll consider increasing the dose rate." "I'd report to the doctor if I push more analgesic for 1-2 times. I don't want to do it often as administering for more than 2 times is too much, showing the analgesic given is unable to relieve a child's pain."	- the dose rate is not enough to control pain - consult the doctor - unable to relieve a child's pain	*Collaborating with physician to adjust pain treatment* -administering analgesics based on the knowledge
	"…Each child has different pain threshold. Some with very high threshold would be hardly given any extra dose, but he'd be given with a low dose. When the doctor got him off medicine, he won't be dosed anymore. But some with low threshold would suffer from a severe pain."	-each child has different pain threshold	- perception about child's pain

APPENDIX W

AN EXAMPLE OF PATTERN-MACHING

Chain of evidence No. 1: Analgesic administration

Case	Data	Emerging Themes
Yindi	"I'll report to the doctor if a child can't bear the pain. He would cry and doesn't stop even how hard I try to comfort him with several methods. I would report and consult the doctor to increase the dose and he would adjust it."	- *Collaborating with physician to adjust pain treatment*
	"I'd report to the doctor if I push more analgesic for 1-2 times. I don't want to do it often as administering for more than 2 times is too much, showing the analgesic given is unable to relieve a child's pain."	
Vina	"Sometimes the doctor only gives a half dose. But I know that sometimes the patient needs more than that. So I would negotiate with him and ask permission to give the pain medication earlier than the period prescribed."	
Prida	"If the doctor did not prescribe pain medication, I would ask to confirm why. Just to make sure the doctor did not intentionally give the pain killer for any reason."	*Advocating a child for receiving pain medication*
	"If analgesic isn't prescribed, I'd quickly ask the doctor "Doctor, doesn't this case need analgesic?" It's not that I order him to prescribe. I ask as he could forget to order it and I want to make sure and make a common understanding if he intends not to prescribe it."	
Prani	"If there's no prescription of analgesic in the medical order, I'd ask the doctor right away to make sure that it's his intention. Mostly, when I found no analgesic prescription, I told the doctor and he said that he forgot it. And he then prescribed it."	

Case	Data	Emerging Themes
Waree	"If Paracetamol doesn't work and the child still has severe pain, I may give Morphine. The other senior nurses here also do it this way, which is why I do." "After injection, I'd follow the steps instructed by senior colleagues. That's measuring the vital signs and sedation score. And before injection, I must check if the sedation score is 2 and 3. If it is, an injection isn't allowed."	*Following pain treatment administration*
Mina	"If the doctor orders both one-day and continuous administration, I'll check whether there's a NPO order. If so, I'll administer only medicine by injection, not by mouth. But if no NPO is ordered, and there's the order for one day and continuously; I'll then give this case oral medicine and force him to drink some water. If he got pain again, the injection would be considered." "Normally, I'd re-assess pain15 minutes after analgesic injection. If the child still cries loudly, I'd ask an in-charge nurse or senior nurse if I should consult the doctor whether another dose could be given. In this situation, I must report to my seniors."	

BIOGRAPHY

NAME	Miss Sudaporn Payakkaraung
DATE OF BIRTH	10 January 1973
PLACE OF BIRTH	Angthong, Thailand
INSTITUTE ATTENDED	Mahidol University, 1993: Bachelor of Science in Nursing Mahidol University, 2002: Master of Nursing Science (Pediatric Nursing) Mahidol University, 2009: Doctor of Philosophy (Nursing)
SCHOLARSHIP	The Commission of Higher Education, Ministry of Education
RESEARCH GRANT	Thailand Nursing and Midwifery Council
POSITION & COLLEGE	Instructor, Department of Pediatric Nursing, Faculty of Nursing, Mahidol University, Bangkok, Thailand. e-mail: nsspy@staff1.mahidol.ac.th
HOME ADDRESS	115/250 Beauty House 5 Village, Saun Pak Rd., Soi. Saun Pak 50, Chimpree, Talingchun, Bangkok, Thailand 10170