

**Faculty of Education**

**Nursing Management of Postoperative Pain:  
Perceived Care and Actual Practice**

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## **ABSTRACT**

Postoperative pain management is a major responsibility of nurses who provide care for patients recovering from surgery. In the postsurgical environment, the nurse has a pivotal role in assessing the patient with pain, implementing both doctor and nurse-initiated pain interventions and evaluating the patient's response to pain control treatments.

Apart from its humanitarian utility, effective relief of postoperative pain is a critical element of a patient's postoperative recovery. Failure to manage pain effectively in the immediate postoperative period can produce undesirable immediate and long-term physical and psychological consequences that can severely disrupt an individual's quality of life.

Despite the availability of multidimensional assessment measures, sophisticated pharmacological therapies and a greater range of complementary pain therapies, postoperative pain remains treated ineffectively by those professionally responsible for its management. In particular, evidence indicates that nurses are poor managers of their patients' postoperative pain.

Previous studies offer limited views of the clinical realities of nursing practice in postoperative pain management. From this perspective, there is a need for research that incorporates these realities to permit analysis of clinical practice and greater understanding therefore of the problem of poor postoperative pain management. The purpose of this study was to provide an illuminative and authentic account of nursing practice in postoperative pain management.

This thesis reports research that was conducted in two stages to explore, describe and analyse how nurses managed their patients' postoperative pain and their perceptions of factors that influenced this practice. A predominantly descriptive design was utilised in Stage 1 of the study to collect data from patients' hospital records and with a demographic questionnaire administered to nurses. This was complemented with interview data from nurses in Stage 2.

For the first part of Stage 1, data were collected retrospectively from nurses' documented accounts of pain assessment and intervention over the first three postoperative days for 100 patients in a major adult acute care teaching hospital. Analysis of nurses' documented responses to patients' reports of postoperative pain revealed that less than one-third of all responses could be considered appropriate for pain management. In particular, nurses failed to provide any pharmacological relief for 53% of patients' reports of severe and excruciating pain.

Exploration of the influence of nurses' professional characteristics of education and experience on pain management practice was then undertaken in part 2 of Stage 1 with the use of a demographic questionnaire distributed to 106 nurses who were identified as signatories to the documented responses identified in part 1. Results indicated that length of professional experience accounted for most variations in practice, with older, more experienced nurses managing pain more appropriately than their younger and less experienced colleagues. Irrespective of education or experience, however, nurses failed to respond appropriately to patients reporting excruciating pain.

In Stage 2, in-depth interviews were conducted with 8 nurses caring for postoperative patients at the research site. Thematic content analysis revealed four major themes from nurses' perceptions of their practice of postoperative pain management that served to elucidate and enrich the findings of Stage 1 of the research. These were *finding out about the patient's pain, making decisions about pain and pain management, individual factors affecting pain management, and interpersonal and organisational factors affecting pain management.*

This thesis provides an authentic account of nursing practice in postoperative pain management, and contributes understanding and insight into factors that provoke ineffective management of pain after surgery. It has implications for the development of intervention strategies aimed at improving nursing practice, at both individual and organisational levels, and suggests new directions for nursing education and research toward achieving optimum care and eliminating unnecessary pain for patients recovering from surgery.

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## **CHAPTER ONE**

### **Introduction**

This thesis represents a comprehensive exposition and analysis of the way in which registered nurses practicing in acute care hospital settings manage their patient's postoperative pain. It aims to illuminate the strategies nurses use to relieve pain, when they use these strategies, and under what circumstances. Exploring this area of practice is important because the effectiveness of patients' pain management is determined to a large extent by the clinical decisions of nurses responsible for their care.

This chapter provides a background to current standards and practices in postoperative pain management, and gives an account of the problem of poor pain management by nurses. An overview of the perspectives chosen to view this problem and the objectives guiding the study are then presented. Finally, the significance of this study to nursing is described, and the chapter concludes with an overview of the layout of the thesis.

### **Background to the Study**

More than 250 000 patients are admitted to Western Australian hospitals each year for treatment that includes a surgical procedure (Office of the Auditor General, 1999). Of these, more than half can expect to experience moderate to severe pain following surgery (Carr & Goudas, 1999; Carr & Thomas, 1997). They should also expect that pain to be reasonably controlled, but this is not necessarily the case (Bostrom, Ramberg, Davis, & Fridlund, 1997).

Almost thirty years have elapsed since attention was first drawn to the problem of inadequate pain management, when Marks and Sachar (1973) published what is now considered a classic description of unrelieved pain in hospitalised patients. Moderate to severe pain and distress were experienced by 73% of patients they interviewed.

Patients received approximately one quarter of the prescribed dose of opioid analgesia and in many instances the dose ordered was inadequate to control pain.

More than ten years later, Ketovuori (1987) and Donovan, Dillon and McGuire (1987) found independently little had changed, when up to 80% of patients in these studies reported moderate or intense pain after surgery even with routine and seemingly adequate use of analgesics.

Most recently, it was found that “distressing”, “horrible” or “excruciating” pain was experienced by almost 40% of postoperative patients “all the time” after surgery (Yates et al., 1998). Of the 100 patients in another study, 79 reported moderate to severe pain on the first postoperative day, and 29 continued to experience moderate to severe pain during the second postoperative day. However, only 50 patients in this sample had received maximum doses of opioid analgesia, while only 30 patients had received any information about the importance of prompt pain treatment (Bostrom et al., 1997).

These results are consistent with those of a study that failed to demonstrate a relationship between the amount of pain patients reported and the amount of analgesic medication they received (Puntillo & Weitz, 1998). Patients in that study reported moderate to severe pain in the immediate postoperative period yet received substantially less than the prescribed dose of opioid analgesia.

The findings are typical of other recent studies which report high rates of pain prevalence in postoperative patients and inadequate pain management practices by health professionals (Dahlman, Dykes, & Elander, 1999; Desbiens et al., 1996; Nash et al., 1999). They are also distressingly similar to those of numerous studies conducted during the 1970s and 1980s, which reported that hospitalised patients experienced high levels of unrelieved pain and ineffective pain management. Clearly, the similarities between these recent statistics and those of earlier studies confirm that postoperative pain management has not improved significantly in more than two decades.

The importance of effectively managing pain that occurs after surgery is underscored by a professional ethic and the knowledge of what might occur if pain is treated inadequately. The ethical obligation to manage pain and relieve the patient's suffering is "at the core of a health care professional's commitment to minimise or prevent anything harmful to the patient" (Agency for Health Care Policy and Research [AHCPR], 1992; Greipp, 1992; Lisson, 1987; Omery, Henneman, Billet, Luna-Raines, & Brown-Saltzman, 1995).

Of itself, this is sufficient reason to provide optimal analgesia. However, additional compelling evidence emphasises the physiological value of prompt and effective postoperative pain control (Carr, 1993). Acute pain following surgery was once considered a self-limiting condition from which there was usually progressive improvement over a relatively short period (Carr & Goudas, 1999). It has become increasingly evident, however, that unrelieved postoperative pain can lead to a wide range of undesirable short and long-term consequences.

Failure to manage pain effectively in the immediate postoperative period can lead to reduced mobility, which may lead to deep vein thrombosis, damage to pressure areas, respiratory difficulties and reluctance to mobilise. Pain may also accelerate tissue breakdown, and, following some kinds of surgery, impair bowel and bladder functions (Breivik, 1998; Wasylak, Abbott, English, & Jeans, 1990).

Unrelieved acute pain causes sleep deprivation, anxiety and a feeling of helplessness (Craig, 1984). During the postoperative period this can lead to impaired tissue restoration, as well as mental and postoperative fatigue (Closs, 1992). The risk of morbidity is further increased in patients compromised by certain underlying conditions, such as unstable angina and respiratory insufficiency, if they do not receive adequate postoperative analgesia (Carpenter, 1997).

Patients who suffer inadequate pain management while hospitalised may experience other postoperative pain problems that occur after discharge, including fears and complications associated with pain, analgesic management problems, mobility difficulty, and sleep disruption (McDonald, 1999). In particular, an emerging clinical



literature suggests that unrelieved acute pain may rapidly evolve into chronic pain, which may persist long after the patient's surgical encounter (Carr & Goudas, 1999). It is now known that the central nervous system has the ability to modify its response to a painful stimulus, and that prompt attention to and elimination of that painful stimulus may be important in reducing or eliminating chronic pain that results from surgical intervention (Collins, Ren, Saito, Iwasaki, & Tang, 1990).

Ultimately, unrelieved pain is costly for individuals and society. In the hospitalised patient, pain may be associated with increased length of stay, longer recovery time, and poorer patient outcomes, all of which have health care quality and cost implications. In the long term, pain can significantly affect quality of life and cause disruptions in sleep, eating, and mobility, thus limiting an individual's overall capacity to function as a productive member of society (AHCPR, 1992).

Recognition of the significant morbidity and costs arising from unrelieved postoperative pain has given impetus to a rapid development in pain control technology. Newer approaches to pain management are supplanting older procedures due to the mutual interests of patients anxious to return home quickly with minimal discomfort and surgeons eager to attain complete pain relief and avoid pain-related complications in postoperative patients.

Advanced techniques of postoperative pain intervention now available include epidural or intrathecal administration of local anaesthetics and opioids, as well as various opioid administration techniques, such as continuous intravenous infusions and patient-controlled opioid analgesia, and a variety of routes of administration, including oral, nasal, intra-articular and rectal routes (Filos & Lehmann, 1999).

Innovations in improved delivery techniques have been matched by developments in analgesic pharmacology. These developments have culminated in the evolution of a new generation of non-opioid analgesics, including nonsteroidal anti-inflammatory drugs and  $\alpha_2$ -adrenergic agonists, and the recognition of the potential analgesic properties of existing drugs such as calcium channel antagonists, anticonvulsants and antidepressants (Abrams, 1996; Paterson, Rees, Czarniak, Reiss, & Evans, 1996).

These latest pain management therapies and technologies have been incorporated into guidelines for best practice in postoperative pain management that have been developed by national government peak health organisations, such as the National Health and Medical Research Council (NHMRC) in Australia and the Agency for Healthcare Research and Quality (AHRQ) in the USA. These guidelines provide evidence-based standards of practice for pain assessment, pharmacological and cognitive-behavioural pain management therapies, and protocols for the recognition and treatment of side effects and adverse reactions to pharmacological therapies, in both adults and children.

Moreover, many institutions have moved to establish multidisciplinary teams of specialist physicians and nurses to ensure safe and effective implementation of these advanced strategies at ward level (Baird, 1996; Gould et al., 1992; Miaskowski, Crews, Ready, Paul, & Ginsberg, 1999; Ready, Ashburn, & Caplan, 1995). The formalisation of these teams as acute pain services is now considered essential for high quality postoperative pain management (McLeod, Davies, & Colvin, 1995; Miaskowski et al., 1999; Ready et al., 1995).

Acute pain services consult with the patient, the ward nurse and the medical/surgical team to determine the most appropriate and effective strategy for acute pain management, and monitor the patient on a regular basis for the development of undesirable side effects and adverse reactions to analgesic therapies (McLeod et al., 1995). Often these services are assigned the responsibility of developing practice policies and guidelines that define the acceptable level of monitoring of patients as well as appropriate roles, accountability, and limits of practice for all groups of health care professionals involved in postoperative pain management (American Pain Society Quality of Care Committee, 1995). Such policies define staff competencies, as well as an ongoing program for the certification of skills in the provision of care using the advanced technologies.

Multidisciplinary acute pain services with dedicated medical and nursing staff and sufficient resources have been shown to provide a framework in which postoperative pain can be managed more effectively and in which patients and staff can be

provided with support and up-to-date education regarding pain and its management (Harmer & Davies, 1998). A formal acute pain service can also offer quality improvement and clinical research activity (McLeod et al., 1995; Miaskowski et al., 1999; Ready et al., 1995).

Overall, these advances in analgesic technologies, improvements in implementation of pain management, and the provision of specialist teams, practice guidelines and ongoing education for health providers, could be expected to reduce the incidence of unrelieved postoperative pain. Regrettably, however, the literature remains replete with examples of inadequate pain management practices that fall well below national and international practice standards (Bostrom et al., 1997; Carr, Miaskowski, Dedrick, & Williams, 1998; Hamers, Abu-Saad, van den Hout, & Halfens, 1998; Heath, 1998; Ward, Donovan, & Max, 1998).

### **Statement of the Problem and Rationale for the Study**

Postoperative pain management is a major professional responsibility of nurses working in acute care (Coyne et al., 1999; Idvall & Rooke, 1998). Nurses have a pivotal role in assessing and documenting pain, administering prescribed analgesic medications, managing the technology associated with a variety of medication administration systems, and taking responsibility for detecting, monitoring and reporting side effects and adverse reactions. Throughout this process nurses also provide complementary non-pharmacological therapies and patient education and support (NHMRC, 1999).

Clearly, effective postoperative pain management is largely dependent on the clinical decisions and subsequent actions of nurses (McCaffery & Ferrell, 1997b).

Overwhelming evidence shows, however, that these decisions and actions are often inappropriate and inadequate, and that many patients suffer unrelieved and unnecessary postoperative pain as a consequence (Bostrom et al., 1997; Kitson, 1994; National Institute of Nursing Research [NINR] Priority Expert Panel on Symptom Management: Acute Pain, 1994).

Ineffective nursing management of postoperative pain has been characterised consistently in the literature by inadequate assessment and documentation of pain and management outcomes and inappropriate treatment skills and drug utilisation (Coyne, Smith, Hieser, & Hoover, 1998; Dahlman et al., 1999; Puntillo & Weitz, 1998; Rutledge & Donaldson, 1998). Authors attribute this poor quality of practice to a variety of causes, including insufficient knowledge of the mechanisms of pain and pain therapy, as well as attitudes that interfere with appropriate clinical care of those with acute postoperative pain (Clarke et al., 1996; Heath, 1998; Paice, Mahon, & Faut-Callahan, 1995; Salantera, Lauri, Salmi, & Helenius, 1999).

Others suggest that certain characteristics of the nurse and patient influence nurses' assessment and management practices (Clarke et al., 1996; Coyne et al., 1999). Additionally, nurses themselves have identified barriers to effective pain management, including those associated with the patient and the organisation and/or environment (eg. Oates, Snowdon, & Jayson, 1994).

Despite 20 years of extensive research endeavour, however, efforts to improve pain management have not been universally successful (Brockopp et al., 1998; Coyne et al., 1999; Dalton et al., 1999; Drayer, Henderson, & Reidenberg, 1999; White, 1999), and adequate assessment, treatment, evaluation, and documentation of postoperative pain management remain problematic for nurses (Coyne et al., 1999; Ferrell & McCaffery, 1997; Heath, 1998). The persistence of this problem provided motivation for the investigator, an acute care nurse and academician, to study this area of nursing practice from a perspective that differed to those taken previously. This perspective was determined initially by significant limitations of previous research, and later by the emergent characteristics of the data. Accordingly, this thesis progressed in two stages.

### ***Rationale for Stage One of the Thesis***

Several authors have noted that the body of research that investigates nursing practice in pain management has been largely atheoretical, thus superficial in its approach, and limited in the extent of illumination and guidance it offers toward understanding and solving the problem of poor pain management (McCaffery &

Ferrell, 1997b; NINR Priority Expert Panel on Symptom Management: Acute Pain, 1994; White, 1999). Notwithstanding, existing research has been paramount in raising awareness within the profession of the problem of poor pain management. However, this has been mainly from a perspective that is relatively detached from the clinical reality of the practice milieu in which nurses make their day to day decisions regarding pain management.

Many studies have focused on fragments of the process of pain management practice, examining pain assessment and intervention as independent elements of nursing practice. By neglecting to consider the process as a whole, little is understood about the nature and extent of interaction between these elements in practice. Indeed, the selective descriptions of nursing practice as recorded from these various vantage points, although germane to problem, have been unable to convey a complete picture of the clinical reality of postoperative pain management.

Additionally, most studies conducted in this area have used controlled simulation techniques, primarily survey vignettes, to find out how nurses respond to artificial representations of patients' pain experiences. Although an expedient approach to data collection, these methods can only approximate a clinical encounter, and subjects' responses cannot be assumed to be identical to their responses to the actual event (Davis & Slater, 1989; Lanza & Carifio, 1990; Roberts, While, & Fitzpatrick, 1996). This raises questions about the external validity of the findings, as they present a contextually dissociated view of the problem, and therefore may be neither relevant nor directly applicable to a clinical setting.

In an attempt to address some of the problems apparent in this area of research, and more fully account for the clinical reality of nursing practice, this study commenced by using an alternative approach that examined nursing documentation related to postoperative pain management practices. Nursing documentation is an important source of information for research that focuses on clinical practice because it provides "evidence of care and patients' responses to that care and is the essential link between the care the patient receives and the evaluation of that care" (Martin, Hinds, & Felix, 1999, p.345).

The strength of this approach was reinforced by the knowledge that the documentation to be used in this study was standard for all patients and regulated by procedural guidelines and protocols to contain regular reports of patients' postoperative pain levels and notations of nurses' responses to the patients' pain reports. Therefore, the whole process of postoperative pain management as it occurred in practice, including pain assessment, intervention and documentation, could be examined and analysed.

### ***Rationale for Stage Two of the Thesis***

The level of detailed examination of nurses' documented accounts of postoperative pain management achieved in Stage One revealed significant commissions and omissions of care that could not be explained empirically or theoretically. It seemed that by their actions, and more often inactions, nurses prolonged patients' pain and suffering after surgery, thus jeopardising patients' surgical recovery.

In order to attend to the emergent characteristics of these data, it was important to re-frame the context of the study and examine postoperative pain management from the nurses' perspective. This provided an opportunity to explore substantively the meaning of postoperative pain management to nurses, and to describe their implementation of pain management strategies. These findings could then be used to help interpret and explain the findings of stage one of the thesis (Steckler, McLeroy, Goodman, Bird, & McCormick, 1992).

In recent years, nurse researchers have come to value different research methods for their unique contributions to nursing knowledge, and support has grown for the use of integrated methods of inquiry to explicate nursing phenomena (Baker, Norton, Young, & Ward, 1998; Foster, 1997; Foster, 1990). However, studies of this type are rare in the literature on pain management. An extensive search of the literature concerning postoperative pain management failed to provide any detailed construction of the clinical picture of nursing practice in this area.

Effective and enduring solutions to the problem of poor pain management remain elusive. Research that examines nursing practice of postoperative pain management

from several vantage points, takes cognisance of contextual factors, and permits analysis of authentic practice, will contribute to understanding and resolution of the problem of poor pain management.

### **Purpose of the Study**

The general public assumes, and patients hope, that nurses, by virtue of their education and experience, possess a comprehensive and relevant knowledge base that is readily translated into clinical practice. To honour the public's trust and effect positive patient outcomes, nurse professionals are committed, on an ongoing basis, to examining their knowledge base and practice patterns to ensure they are congruent with current standards of practice and reflect innovative approaches obtained from clinical research studies. This professional mandate of accountability and self-scrutiny is important at the best of times. When practice is less than its best, as it is in the case of nurses managing postoperative pain, this becomes crucial.

The purpose of this study was to illuminate nursing practice in postoperative pain management. Using a succession of descriptive and interpretive approaches it was possible to explore, describe and analyse how nurses managed their patients' postoperative pain and their perceptions of factors that influenced this practice. This study examined nurses' documented accounts of their actions in relation to patients' pain reports, then sought information from nurses that described their understanding, experiences and interpretations of factors that influenced their actions.

### **Research Questions and Study Objectives**

The following questions gave structure to the thesis during its development:

1. What do nurses do to manage their patients' postoperative pain?
2. What factors influence the ways in which nurses respond to patients' postoperative pain?

### ***Stage One***

In the first part of stage one of the study, nurses' documented accounts of their pain management practice were reviewed in order to:

- Identify the strategies nurses use to manage postoperative pain.
- Determine the extent to which nurses vary their pain management strategies as a function of the patients' reported level of pain.

In the second part of stage one, nurses' documented accounts of postoperative pain management were examined in relation to certain of their professional characteristics in order to:

- Determine the extent to which nurse responses to patients' reports of postoperative pain varied as a function of nurses' level of professional education and clinical experience.

### ***Stage Two***

Stage two of this thesis was predicated on the desire to obtain a broad view of nursing practice in postoperative pain management that might assist in interpreting and explaining the findings of stage one of the study. The objective of stage two was to discover nurses' perceptions of their practice in postoperative pain management. Nurses who regularly cared for postoperative patients were interviewed in order to:

- Explore and describe nurses' perceptions of what they do to manage postoperative pain.
- Identify factors perceived by nurses that assist or hinder their management of patients' postoperative pain.

### **Significance of the Study**

The importance of this study is that it exposes the substance of nursing practice of postoperative pain management as it is carried out on a day to day basis during patients' recovery from surgery. As a result, information can be utilised to provide a



more valid and encompassing account of what is perceived and what is practiced by nurses caring for patients in pain following surgery. Recommendations emanating from this perspective are of greater utility to nurse clinicians, nurse academics and nurse researchers in their endeavours to develop and implement relevant strategies for improving postoperative pain management.

The study of nursing practice in postoperative pain management also has wider significance to the development of the nursing profession. The legitimization of nursing as a profession rests with its ability to substantiate its claim as a distinct discipline among its contemporaries in health care. This requires scrutiny of service-oriented activities, knowledge base as a rationale for practice, and application of knowledge in autonomous practice (Meleis, 1992). This process is pertinent to policy development, formulation of nursing practice standards, and the development of educational programs for nurses (Shorten & Wallace, 1996; Wallace, Shorten, & Russell, 1997b).

Furthermore, nursing practice is enacted and defined within a social and organisational context. There is a critical relationship between nursing as it is practiced and the “practice milieu” (Boyd, 1993b). Research endeavours that incorporate this relationship are necessary for greater understanding and explication of issues that impact on nursing research, education and practice.

### **Overview of the Thesis**

This thesis is presented in nine chapters. Chapter One has outlined the background to the study, given a rationale for the study, and provided the research objectives. Chapters Two and Three of the thesis present an extensive review of the literature that is relevant to how nurses manage their patients’ postoperative pain, and factors that influence this practice. Chapter Three concludes with a rationale for Stage One. The research methods used for the first and second parts of Stage One are outlined in Chapter Four. Chapter Five presents an analysis of nurses’ documented accounts of their practice of postoperative pain management, while Chapter Six extends the findings of part 1 to examine differences in nurses’ pain management practice as a

function of their education and experience. This chapter raises specific issues that justify continuing the study from a different perspective in Stage Two.

Chapter Seven presents the justification for, and method of, exploring nurses' perceptions of their pain management practice from an interpretive perspective, and Chapter Eight provides a descriptive narrative and discussion of the major themes and categories emergent from these data. To conclude the thesis, Chapter Nine presents a summary of the major findings this study, draws reasoned conclusions and proposes recommendations relevant to nursing research, nursing education and nursing practice in postoperative pain management.

### **Glossary of Terms**

The following definitions were used in this study:

***Postoperative pain management:*** all actions undertaken in relation to assessment and treatment of the pain experienced by patients recovering from surgery while in hospital.

***Continuous intravenous opioid infusion:*** an intravenous infusion containing a prescribed dose of opioid analgesia and delivered continuously at a prescribed rate.

***Breakthrough pain:*** pain that occurs incidentally while the patient is receiving a continuous intravenous infusion of opioid analgesia.

***Acute care hospital setting:*** any ward or patient care unit in a hospital that admits patients for intervention in acute medical or surgical conditions.

***Western Australian (WA) Nursing Career Structure:*** an employment structure of career advancement for registered nurses working in Western Australia that includes four areas of professional practice: clinical nursing, nursing management, nursing staff development, and nursing research. There are identified positions in all four streams, ranging from Level 1, the starting position which is in clinical nursing only,

to Level 4, the role of Coordinator for each stream. The positions between 2 and 4 inclusive in each stream are promotional. Level 5 is reserved for one position of Director of Nursing (Cruickshank, Mackay, Matsuno, & Williams, 1994).

***Level 1 Registered Nurse:*** Registered nurse working in a clinical position at the lowest level of the WA Nursing Career Structure.

***Level 2 Clinical Nurse:*** Registered nurse working in a clinical position at the second level of the WA Career Structure. Generally nurses working in this position were responsible periodically for coordinating patient care on an entire ward.

## **CHAPTER TWO**

### **Nursing Practice in Postoperative Pain Management**

This research is directed toward understanding nursing practice in postoperative pain management. Nursing practice is manifest in the broad range of activities associated with patient care. In this study, patient care that is delivered for managing postoperative pain is studied through nurses' documented accounts of that care, then elaborated through the narratives of nurses who manage postoperative pain on a day-to-day basis. It is anticipated that this approach will provide a more authentic account of the way in which nurses manage postoperative pain.

The literature that is examined in relation to nursing management of postoperative pain is reviewed in Chapters Two and Three. The decision to examine the literature within two chapters reflects the range of the issues with which the research is concerned. Broadly, these issues encompass the substance and rationale of nursing practice in postoperative pain management.

In Chapter Two, literature is reviewed in order to identify current practice standards in postoperative pain management and to examine the range and effectiveness of nursing actions for managing postoperative pain. In relation to this perspective, Chapter Three reviews literature that examines the nature and effect of various factors impacting on nursing practice in postoperative pain management.

#### **Pain: An Overview**

Pain is an experience at once both universal and unique. It is a complex phenomenon defined by subjectivity and perception, produced by the integration of sensory, emotional and cognitive processes, and mediated by physical and psychological factors (Dalton et al., 1999; Davis, 1992; Loeser & Melzack, 1999). Historically, pain was described purely in terms of its physical nature, that is, a sensory response indicating physical injury (Carter, 1998). This view was expanded by the Gate Control Theory of Pain, a theory formulated and later modified by Melzack and Wall

to recognise the perceptual nature of the phenomenon (Loeser & Melzack, 1999; Melzack & Wall, 1965, 1996).

More recently, pain has been recognised for its multidimensionality, possessing intensity, quality, temporality, impact and personal meaning (Turk, 1993; Turk & Okifuji, 1999). This broad perspective was incorporated into the following definition of pain, originally proposed in 1979 by the International Association for the Study of Pain (IASP) Subcommittee on Taxonomy (1979), and re-affirmed in 1994 by the IASP Task Force on Taxonomy (Merskey & Bogduk, 1994): “Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.” It is further stated that “Pain is always subjective” and that on the occasions people report pain with no evidence of tissue damage, “...it should still be accepted as pain.” (p.210). At the very least, pain should be considered to be “whatever the experiencing person says it is, existing whenever [s]he says it does” (McCaffery, 1979, p.2).

Notwithstanding the inadequacies of this statement with respect to individuals incapable of self-report (Anand & Craig, 1996; Anand, Rovnaghi, Walden, & Churchill, 1999) and those experiencing the phenomenon of phantom limb pain (Melzack, 1990), widespread acceptance of this definition has provoked major advances in pain management through extensive research, rapid technological growth, and pharmacological advancements. An emerging neurobiological and clinical literature has challenged traditional tenets (Besson, 1999; Carr, 1993; Carr & Goudas, 1999; Jones, 1997; Loeser & Melzack, 1999) and contributed to enhanced medical knowledge, the development of new theories, a better understanding of pain mechanisms, and new approaches to pain assessment and management (Carroll, 1996; McQuay, 1999; Thomas, 1997; Wulf & Neugebauer, 1997).

Advances in knowledge and understanding of pain and pain therapies have been paralleled by a renewed optimism that significant improvements in pain management are possible. This has prompted multiple health disciplines and specialties to promulgate relevant standards and clinical practice guidelines (American Pain Society Committee on Quality Assurance Standards, 1989; American Pain Society

Quality of Care Committee, 1995; American Society of Anesthesiologists, 1995; Charity Hospital Acute Pain Service, 1994; Ready et al., 1995; Schmidt, Alpen, & Rakel, 1996), oftentimes with substantial overlap in responsibility for care and in some cases conflicting recommendations for treatment (Afilalo, Cantees, & Ducharme, 1996).

To overcome this confusion, national government peak health bodies in America (AHCPR, 1992) and Australia (NHMRC, 1988, 1999) have pursued a multidisciplinary approach to publish systematically-developed statements and evidence-based information and recommendations to assist practitioners and patients decide about appropriate care for pain in a variety of contexts. These guidelines are premised on scientific principles of pain management and describe a process of patient management predicated on clinical condition, intervention and patient outcome (Good & Moore, 1996).

Broadly, these guidelines have been developed to assist clinical decision-making in pain management. They do not, however, offer rigid prescriptions for care, which would be inappropriate because "...patients vary greatly in the severity of their pre-existing pain, medical conditions, and pain experiences; the extensiveness of pathology and associated operations; responses to interventions; personal preferences; and the settings in which they receive care..." (AHCPR, 1992,p.1). It is intended that all health care professionals involved in pain management will use information from the guidelines relevant to their field and scope of practice to make effective clinical judgments about pain control (NHMRC, 1999).

Table 2.1 outlines the key strategies derived from these guidelines that are relevant for pain assessment and management in postoperative patients. These strategies are aimed at reducing the incidence and severity of postoperative pain, enhancing patient comfort and satisfaction, and contributing to improved patient outcomes and shorter hospital stays. Collectively, they represent best practice standards that should frame nurses' clinical decisions in postoperative pain management.

Table 2.1. Key Recommendations for Postoperative Pain Management based on the AHCPR Guidelines (1992) and the NHMRC Report (1999).

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***Assessment***

- Patient involvement in the initial and continuing assessment of their pain is essential because pain varies markedly between individuals.
- Patients should choose a preferred measurement tool for pain assessment and a criterion for pain control based on the chosen tool.
- Patients should be encouraged to report any unrelieved pain.
- Where possible, self-report techniques should be used to monitor pain and response to therapy, and appropriate alternative techniques used for patients with communication difficulties or other special needs.
- Postoperative pain should be assessed and reassessed frequently and thoroughly, and at a suitable interval after each intervention.
- Pain should be assessed both at rest and during movement, and documented in a readily available and visible form.

***Intervention***

- Patients should be involved in the development of an individualised pain management plan before surgery. Preoperative patient education should involve a detailed description of the surgical procedures, expected discomfort, and measures to decrease pain.
- Patients' misconceptions about pain and its management should be corrected.
- Pain should be treated early and aggressively, and prevented whenever possible.
- Opioids should be administered regularly for the first 48 hours after surgery, and titrated to balance the amount of pain relief reported by the patient with the occurrence of side effects.
- Nonsteroidal anti-inflammatory drugs should be combined with opioids to produce more effective pain control and allow a reduction in opioid dosage.
- Non-pharmacological interventions should be used to complement drug therapy.

## **Nursing Practice and Postoperative Pain Management**

Nurses' ineffective use of best practice guidelines in their decisions regarding postoperative pain management has been documented extensively in the literature (Bostrom et al., 1997; Clarke et al., 1996; Kitson, 1994; NINR Priority Expert Panel on Symptom Management: Acute Pain, 1994). In fact, evidence indicates that nurses inadequately assess and document pain and pain relief generally (Allcock, 1996; Bowman, 1994; Briggs & Dean, 1998; Coyne et al., 1998; MacLellan, 1997; McKinley & Botti, 1991; Romsing, Moller-Sonnergaard, Hertel, & Rasmussen, 1996; Rutledge & Donaldson, 1998; Stephenson, 1994) and that in most practice contexts, they make inappropriate decisions concerning pain treatment, particularly drug utilisation (Closs, 1992; Cohen, 1980; Dahlman et al., 1999; McCaffery & Ferrell, 1994b; Puntillo & Weitz, 1998; Salmon & Manyande, 1996; Saxey, 1986).

### ***Pain assessment and documentation by nurses***

Assessment is fundamental to many nursing care situations. It can provide a basis for intervention, judge the progress of patients, the impact and efficacy of treatments, and is essential for arriving at a proper diagnosis (Choiniere, Melzack, Girard, Rondeau, & Paquin, 1990). Failure to adequately assess pain is one of the most common problems in pain undertreatment (Francke, Abu-Saad, & Grypdonck, 1995; Jurf & Nirschl, 1993; Rutledge & Donaldson, 1998).

Clearly, assessment of pain determines what strategies are used for its relief. In particular, for the postoperative patient, assessment of pain is a precursor of clinical decisions regarding analgesic requirements. Therefore, if the patient's pain is inadequately assessed, analgesic intervention is also likely to be ineffective. For this reason, extensive attention has been given to investigating pain assessment by nurses.

When asked, nurses are often the first to admit that inadequate pain assessment is a significant barrier to effective pain management (Bookbinder et al., 1996; Clarke et al., 1996; Dalton, 1989). Despite this level of self-reflection and insight, however, inadequate and inconsistent pain assessment by nurses persists in practice. Generally, nursing assessment of pain is characterised by lack of primary reliance on the



patient's self-report of pain (Dalton et al., 1999; Drayer et al., 1999; Dufault, Bielecki, Collins, & Willey, 1995) and irregular and insufficient assessment and/or documentation of pain and patient responses to pain therapy (Briggs & Dean, 1998; Tittle & McMillan, 1994).

Comprehensive pain assessment requires evaluation of patient perceptions, physiological responses, behavioural responses and communications with other healthcare providers and family members. In particular, the mainstay of postoperative pain assessment should be the patient's self-report to assess pain perceptions (AHCPR, 1992; Cleeland, 1989; Ferrell, Eberts, McCaffery, & Grant, 1991; Francke et al., 1995; Harrison, 1991; Jacox, 1979; Krivo & Reindenberg, 1996; McCaffery & Ferrell, 1994a).

Patient self-report is the single most reliable indicator of the existence and intensity of acute pain and any concomitant affective discomfort or distress (Anonymous, 1987; NINR Priority Expert Panel on Symptom Management: Acute Pain, 1994). Yet, despite the recommendation that patients' self-reports of pain must be considered the "gold-standard" in pain assessment, evidence suggests that nurses frequently attempt to assess patients' pain apart from this self-report (Clarke et al., 1996).

In only one early study was it found that nurses inferred more pain from verbal than non-verbal communication (Baer, 1970). This finding has been consistently contradicted by subsequent reports. Less than 70% of nurses ( $N = 35$ ) interviewed in a more recent study chose patient behaviour as the criterion most indicative of pain, although 86% agreed that "pain is what the patient says it is" (Saxey, 1986). Furthermore, even those nurses who strongly agreed that the patient's self-report was the most reliable indicator of pain seemed reluctant to use this report as the best indicator of pain.

Similarly, in a study that examined nurses' decision-making in pain assessment, 91% of nurses ( $N = 53$ ) said they asked the patient about pain as a method of determining pain intensity (Ferrell et al., 1991). Only 45%, however, said this was the most

influential factor in their assessment. Seers (1987) reported finding that nurses felt they had to be able to verify a patient's report of pain with behavioural and physiological signs. These results were later confirmed when a survey of orthopaedic nurses ( $N=35$ ) found that more than 50% of respondents believed pain should be validated by the patient's behaviour (Hunt, 1995).

Nurses' reliance on patient behaviour as an indicator of pain is not restricted to adult patient populations. In a study that explored factors influencing assessment of acute pain in children (Manne, Jacobsen, & Redd, 1992), nurses made their assessments of pain based on the evidence of overt distress instead of the child's self-report of pain. These findings were confirmed in a later study in which nurses ( $N=20$ ) were interviewed to discover how they assessed pain in children (Hamers et al., 1998). Informants in this study agreed that it was a child's vocal expressions, not their verbal report, which most influenced pain assessment.

As these and other studies suggest, nurses often regard patient behaviour as one of the most significant factors in pain assessment (Anand et al., 1999; Carr & Goudas, 1999). In many circumstances patient behaviour is critical for thorough assessment of pain. Indeed, observation of pain behaviour is essential when assessing pain in non-verbal patients, such as preverbal infants, critically ill and intubated patients, and elderly patients with dementia.

However, while certain behaviours provide excellent cues to the possible existence and severity of pain in some patients, the absence of these behaviours does not mean absence of pain (Jacox, 1979; McCaffery & Beebe, 1989). It is therefore of considerable concern that evidence suggests that in some circumstances nurses rely only on observable cues and do not even *attempt* to elicit a pain report from the patient (Heidrich & Perry, 1982).

Donovan et al. (1987) interviewed medical-surgical patients ( $N=353$ ) and found that of those who had experienced pain during hospitalisation, only 45% could recall a nurse ever discussing it with them. This rate was 43% in a similar study with cancer patients (Donovan & Dillon, 1987). These findings were confirmed in a later study

when patients ( $N = 10$ ) on a surgical ward of a district hospital in the United Kingdom were interviewed about their pain experiences (Carr & Thomas, 1997). Only half of these informants could remember the nurse asking them about their pain. More recently, similar results were obtained when almost half of the respondents in a survey of 351 postsurgical adolescent patients felt that nurses did not know when they were in pain (Gillies, Smith, & Parry-Jones, 1999).

When nurses were surveyed about their pain assessment practices, less than 25% ( $N = 78$ ) responded that they directly asked patients whether they were experiencing pain (Dalton, 1989). Instead, most nurses observed patient behaviour to determine the existence of pain. A recent study demonstrated that little has changed, when researchers found that 55% of the nurses ( $N = 128$ ) surveyed admitted that they did not directly question the patient about pain (Franke, Luiken, de Schepper, Abu-Saad, & Grypdonck, 1997).

These findings might not be so disturbing if some assurance could be given that there was a reasonable correlation between observational measures of pain and patient self-reports of pain. However, this correlation may be affected by many variables, including anxiety, depression, patient response style, physical or mental pathologies and ethnicity (Oberle, Wry, & Paul, 1990; Scott, Clum, & Peoples, 1983; Strauss, 1988; Turk & Okifuji, 1999) and is thus far from perfect.

The somewhat tenuous relationship between observable behaviour and self-report was demonstrated in one study (Teske, Daut, & Cleeland, 1983), where the variance in observed pain behaviours accounted for only 10 – 15% of the variance in patients' self-reported pain. Comparable findings were obtained by Drayer et al. (1999). In their survey of hospitalised patients ( $N = 50$ ), results indicated only a weak correlation between the patient's self-reported pain intensity and the observed pain behaviour rating.

Best practice guidelines for effective management of postoperative pain emphasise the importance of the patient's self-report in determining pain status. Without the patient's self-report of pain, it is highly likely that pain assessment will be inaccurate,

and as such pain interventions may be ineffective (Rutledge & Donaldson, 1998). Understandably then, pain assessment practices that minimise the importance of patients' self-reports of pain are of some considerable concern. These concerns are further amplified in the knowledge that there is frequently little accord between pain ratings by patients and nurses.

Many studies have been conducted to examine the congruency between patients' and nurses' ratings of pain, and these are discouragingly consistent in finding that nurses generally either underestimate or overestimate patients' pain status (Allcock, 1996; Camp, 1987; Choiniere et al., 1990). In a study of medical-surgical and chronic pain patients, nurses' ratings of patients' pain on a visual analogue scale (VAS) consistently underestimated patients' self-ratings (Teske et al., 1983).

Similarly, McKinley and Botti (1991) surveyed patients and their responsible nurses to compare VAS ratings. Findings revealed that pain ratings of these two groups were also poorly correlated, although in this case nurses overestimated their patients' pain. In both cases, therefore, the validity of the nurses' assessments of their patients' pain is demonstrated to be low because they fail to correlate with patients' pain ratings.

Grossman, Sheidler, Swedeen, Mucenski and Piantadosi (1991) asked the responsible nurses, house officers, and oncology fellows to estimate each of 104 cancer patients' pain using a 10-cm VAS. When patients rated their pain from 7-10 on the VAS scale, nurses, house officers, and oncology fellows would place their rating of the patient's pain in this range 7%, 20%, and 27% of the time, respectively. Overall, findings indicated that the agreement between caregivers' and patients' scores decreased as patients' pain scores increased.

In another study, nurses ( $N = 30$ ) and physicians ( $N = 30$ ) were interviewed to determine whether their assessments of pain were congruent with patient's reports of pain (Sjostrom, Haljamae, Dahlgren, & Lindstrom, 1997). Findings indicated that both groups overestimated low and underestimated high levels of pain indicated by patients.

Bowman (1994) conducted a descriptive study of postoperative patients to determine if there were any differences in the pain ratings of nurses and patients using a 10-cm graphic rating scale. The difference between the mean score for patients (7.59) and nurses (4.59) was significant, and results were comparable to previous studies' findings that nurses underestimate patients' pain.

Somewhat better results were obtained by Everett et al. (1994) who found no discrepancy between nurses' and patients' pain ratings 54% of the time, and that nurses' underestimations and overestimations of patients' pain occurred 12% and 34% of the time respectively. However, in another study that compared patients' assessments of pain following caesarean section with those made by their nurses (Olden, Jordan, Sakima, & Grass, 1995), results indicated that nurses were just as likely to underestimate as to overestimate patients' pain (55% versus 43% of the time, respectively).

Nurses in one study underestimated pain in patients 43% of the time and overestimated the relief afforded by analgesia compared with patients' reports (57% versus 27%) (Choiniere et al., 1990). These results are also consistent with those reported in another study which compared nurses' and patients' perceptions of postsurgical pain (Stephenson, 1994). Responses to the McGill Pain Questionnaire, Present Pain Intensity (MPQ-PPI) and the VAS indicated that nurses scored patients lower on average than patients scored themselves, both before pain medication and after pain relief.

Using these same instruments, nurses' assessments of postoperative pain severity from observed behaviour were found to be low, and correlated poorly with patients' self-reports (Thomas, Robinson, Champion, McKell, & Pell, 1998). Findings gave no indication of agreement between nurses' ratings of pain severity, based on observations of patient-related verbal, vocal, facial and motor behaviour and patients' self-reports of postoperative pain.

The most concerning aspect of this identified discordance is that several studies reveal that nurses often conclude that where discrepancies occur, it is the *patient*

providing the inaccurate assessment. This is irrespective of whether the patient reports more or less pain than the nurse. For example, in one study, experienced paediatric nurses ( $N = 10$ ) were interviewed to explore their perceptions of factors that influenced their pain assessments and interventions in children (Hamers, Abu-Saad, Halfens, & Schumacher, 1994). Most stated that they had doubts concerning the reliability of children's self-reports of pain.

Similar results were evident in a study by Wakefield (1995), in which a group of five nurses were engaged in a series of in-depth unstructured interviews to discuss their ideas regarding how postoperative pain should be managed. Analyses of these interviews revealed that nurses place more credence in their own judgments of pain than the verbal complaints of patients.

Comparable findings were again reported by Brunier, Carson and Harrison (1995) who surveyed nurses ( $N = 514$ ) working in acute care and long term settings to examine their knowledge of and attitudes toward pain. Almost half of these respondents agreed with a statement that the estimation of pain by a physician or a nurse is more valid than the patient's self-report.

More recently, in an attempt to explicate perceived barriers to optimal pain management, Drayer et al. (1999) interviewed 50 patients in pain, their nurses and their physicians, about the pain experienced by patients. Not only did both nurses and physicians tend to rate pain intensity as less than the patients' assessments, but there was also a reported attitude among staff that patients exaggerate the intensity of their pain.

Clearly, the studies reviewed here highlight general inadequacies in nurses' assessments of patients' pain. These inadequacies manifest as nurses' inappropriate and/or incomplete use of what the patient in pain says and does, and the mistaken view that patients' reports of pain are less reliable and valid than their own interpretations and clinical judgments. Unfortunately, these problems of inadequate assessment are further exacerbated by irregular and inconsistent assessment

procedures and incomplete nursing documentation of pain and patients' responses to pain interventions.

Studies that evaluate pain assessment practice generally conclude that to be done adequately, pain assessment should be carried out simply, consistently, and frequently, using a standardised form of assessment (Coyne et al., 1999; Dalton et al., 1999; NHMRC, 1999; NINR Priority Expert Panel on Symptom Management: Acute Pain, 1994; Royal College of Surgeons and the College of Anaesthetists, 1990; Turk & Okifuji, 1999; White, 1999). Furthermore, to eliminate any "guesswork", and facilitate seamless care between all healthcare providers concerned with managing patients' pain, documentation of pain assessment and management should be clear, complete and readily accessible to all healthcare practitioners involved in the patient's care (Scott, 1994).

Numerous studies reported in the literature have found a paucity of pain documentation and inconsistent use of any type of standardised patient self-assessment tool or flow sheet to evaluate pain or the effectiveness of pain relief strategies. The results of a chart audit ( $N = 372$ ) in one study found it difficult to discern from the documentation the manner in which a patient's pain was being addressed, followed, and relieved over time (Clarke et al., 1996). These findings are congruent with those of other researchers (Camp, 1987; Ferrell et al., 1991; McCaffery & Ferrell, 1997b; Meurier, 1998; Scott, 1994; Teske et al., 1983; Tittle & McMillan, 1994; Watt-Watson, 1987).

Scrutiny of patient records in the study by Donovan et al.(1987), which was discussed earlier in this chapter, revealed that of those patients reporting pain in the last 72 hours, it was documented in only 32% of nursing care plans and 49% of patient progress notes. Camp (1987) obtained pain descriptions from medical, surgical and oncology patients ( $N = 84$ ), and compared these descriptions with the documentations of pain assessment made by nurses providing care for these patients. For each patient group, nurses documented significantly less than 50% of what the patients described in their self-assessments. Whether nurses only failed to document

the assessment, or neglected to both perform and document the assessment, was indeterminable from this study.

Subsequently, Camp (1988) conducted a study to determine what nurses asked their patients about pain, and how much of this assessment was then documented. Results indicated that nurses recorded less than 19% of cancer patients' pain and that there was less than 14% agreement between what patients described and what nurses documented.

Similar findings were reported in a recent study in which postoperative patients ( $N = 65$ ) were interviewed about their pain condition before transcripts of their personal patient record were analysed (Briggs & Dean, 1998). The results of content analysis of records demonstrated that while 91% of patients expressed experiencing pain, only 34% of the records identified pain as a postoperative problem.

These findings were consistent with those reported in another study, in which medical and nursing notes from 136 patient records were reviewed to determine the extent of documentation regarding pain management (MacLellan, 1997). Pain was considered documented if site, duration or intensity of pain was noted in the patients' records. This chart audit revealed that less than 30% of patients had pain documented in either the nursing or medical notes, and no patients had any follow-up record concerning pain relief.

Clarke and others (1996) found that although 76% of nurses ( $N = 120$ ) surveyed stated using a patient self-report pain assessment tool, there was little documented evidence (23%) of the use of such tools in the patient record. This finding was supported in another study which found that pain documentation was absent in 53% ( $N = 30$ ) of the medical records reviewed (Coyne et al., 1998). Of these records, only 60% contained documentation of some form of systematic pain assessment, and on average this assessment was documented only once every 24 hours.

Nurses' inadequacy in pain assessment and documentation has been demonstrated extensively in the studies reviewed in this section. In brief, pain assessment by nurses



is generally incomplete, irregular and of questionable reliability or validity, and nurses' documentation of pain assessment is inconsistent and sporadic. Contradictory to best practice guidelines, nurses minimise and undervalue patients' self-reports of pain, preferring to use less valid indicators of pain in their determinations.

Additionally, nurses make minimal use of systematic pain assessment tools, and their frequency of pain assessment and detail of documentation are unreliable. These findings assume greater significance for postoperative pain management in view of reports that surgical nurses are less likely than nurses in other practice contexts to assess pain adequately (de Rond et al., 1999; Rawal, Hylander, & Arner, 1993).

Systematic assessment and documentation of patients' pain is the foundation for all subsequent decisions concerning intervention strategies (American Pain Society Quality of Care Committee, 1995; Miaskowski, Jacox, Hester, & Ferrell, 1992; NHMRC, 1999). Therefore, when postoperative pain assessment is inadequate, pain relief may be compromised.

This was clearly illustrated in a study of nurses' provision of analgesia to postoperative critical care patients (Puntillo et al., 1997). Findings revealed that patients received less than the maximum prescribed dose of analgesia throughout the immediate postoperative period. They further indicated that analgesia administration was correlated with nurses' ratings of pain but not with patients' ratings. Of most significance, however, was that nurses underestimated their patients' pain intensity.

The obvious conclusion from these findings is that if nurses' assessments of pain are inadequate then their decisions regarding pain relief are also likely to be inadequate. As the literature will show, nurses generally make not only inappropriate decisions concerning patients' need for analgesia, but also insufficient use of non-pharmacological strategies for pain relief.

### ***Nurses' interventions in pain management***

Current therapeutics in pain management are based on pharmacological and non-pharmacological strategies (Afilalo et al., 1996; AHCPR, 1992; American Society of Anesthesiologists, 1995; Carpenter, 1997; Coyne et al., 1999; Filos & Lehmann,

1999; International Association for the Study of Pain, 1998; NHMRC, 1999; Salantera et al., 1999; Sindhu, 1996). Pharmacological approaches to pain management include opioid analgesics, non-steroidal antiinflammatory drugs, and adjuvant and other medications.

Non-pharmacological approaches that are complementary to pharmacological therapies include an array of cognitive-behavioural and non-invasive techniques. Cognitive-behavioural strategies include preparatory information, simple relaxation, imagery, and distraction. Physical techniques include application of superficial heat or cold, massage, and electrical impulse (TENS) therapy (McCaffery & Beebe, 1989).

Nurses carry much of the responsibility for deciding how to incorporate both these approaches in their practice of pain management to optimise pain relief and minimise adverse effects (NHMRC, 1999; NINR Priority Expert Panel on Symptom Management: Acute Pain, 1994). Within the parameters established by clinical guidelines and medical prescriptions, nurses make decisions about whether to give analgesia, which one to give, what dose to use and at what time to administer it. The effectiveness of these decisions is paramount to the patient recovering from surgery, for whom analgesia, particularly opioid analgesia, is the cornerstone of pain management (Carr, 1993; Carr & Goudas, 1999).

To augment pharmacological strategies, while not prescriptive generally, nurses' use of non-pharmacological techniques of pain intervention is advocated by national guidelines for acute postoperative pain management and is given in-principle endorsement by nursing regulatory authorities (NHMRC, 1999; Royal College of Nursing Australia, 1998). Unfortunately, nurses' decisions regarding how to use these pharmacological and non-pharmacological approaches for pain management tend to be both inappropriate and ineffective (Camp, 1988; Cohen, 1980; Coyne et al., 1999; Donovan & Dillon, 1987; Heath, 1998; Nash et al., 1999; Paice et al., 1995).

**Pharmacological interventions.** Insufficient provision of analgesics by nurses has been reported persistently in the literature (Charap, 1978). A retrospective analysis of the medication charts of 36 postoperative patients revealed that the proportion of prescribed drugs actually received by patients in the first 24 hours following surgery was only 30-35% (Closs, 1990). These results confirmed those of a 1972 study that investigated analgesia provision in postoperative patients ( $N = 106$ ) (Keeri-Szanto & Heaman, 1972). Records of medication prescriptions and administrations revealed that during the first 48 hours following surgery, nurses were administering less than 50% of analgesics that had been already underprescribed by physicians.

Much better results were obtained in a previous study (Sriwatanakul et al., 1983) that reported that patients received an average of 70% of the maximum prescribed dose in the immediate postoperative period. Donovan et al. (1987), however, found that the average amount of analgesic administered was less than a quarter of the average prescribed dose. In one day, half the patients in this sample ( $N = 353$ ) received approximately one-tenth of the prescribed 24-hour dose of analgesia. Similarly, Carr (1990) found in her study of postoperative patients that on the first postoperative day, the majority of patients received only one dose of opioid analgesia, and no patient received the maximum prescribed dose of analgesia.

These results were confirmed more recently when an audit of the charts of 136 postoperative patients found that only 41% of the maximum prescribed dose of analgesia was administered in the first day following surgery (MacLellan, 1997). Carr and Thomas (1997) found in their review of analgesic administrations that when prescriptions included a variable dose, nurses always chose to administer the dose at the lower end of the range. Clarke et al. (1996) noted from their study that although ordered frequently, adjunct non-opioid analgesics, including non-steroidal antiinflammatory drugs, also remained relatively underused by nurses.

To examine the relationship between patients' pain reports and nurses' provision of analgesia, Closs (1992) interviewed 100 patients about their experiences of pain and night-time sleep following surgery, then examined their medication charts to gather data on analgesic provision. Although almost three-quarters of patients in this study

reported that their sleep had been disturbed by pain, their charts revealed that the least number of doses of analgesics were administered at night.

In another study (Puntillo & Weitz, 1998), postoperative patients ( $N = 39$ ) were asked to rate their pain at regular intervals in the immediate postoperative period using a numeric rating scale (NRS). Each NRS score was then correlated with the amount of opioid given by the patient's nurse in the subsequent 5 minutes. Results showed that nurses administered opioids in doses less than the maximum amount prescribed, and that these amounts seldom correlated with the patient's reported degree of pain. This means that generally, patients remained undermedicated after surgery.

Insufficient provision of analgesia was also found by Johnston, Abbott, Gray-Donald and Jeans (1992), who assessed the pain experience of randomly selected children in hospital. Using a 10-point pain ladder, children were asked to rate their worst, usual and least pain intensity in a 24-hour period. The pain intensity scores were grouped into four categories: no pain, and mild (1-3), moderate (4-7) and severe (8-10) pain. The results indicated that more than 87% of children reported having had pain within 24 hours and, of those, 19% reported their pain as severe. However, only 38% of the children had received analgesic medication during this period.

Similar results were obtained in a year-long study of 2415 hospitalised patients (Abbott et al., 1992). Researchers interviewed patients to ascertain their current pain status, then extracted data on the administration of analgesics from the patients' charts. Of all patients reporting moderate to severe pain at the time of interview, 39% had not received any form of analgesia within the preceding 24 hours and only 17% had received 4 or more doses of an analgesic during the same period. Additionally, when administered, opioid analgesia was always given in doses less than the maximum amount prescribed.

Nurses' reluctance to administer analgesics is also evident in findings that show that , nurses often fail to administer prescribed analgesics, even when they identify the presence of moderate to severe pain. In what is now considered a classic study,

Cohen (1980) used a structured interview to investigate the adequacy of patients' ( $N = 109$ ) pain relief. Nurses ( $N = 121$ ) were given a questionnaire derived from an earlier study by Marks & Sachar (1973). This was a written self-administered questionnaire consisting of a series of clinical situations in the form of vignettes and multiple choice questions, which, among other things, assessed how the nurses decided on the doses of analgesics to administer. Nurses' responses showed that although they attributed moderate to severe pain to the patients described in the survey vignettes, they selected analgesic dosages far below the real needs of the patient. These findings were confirmed by patients who reported that their pain levels remained high.

Using a similar strategy, Burokas (1985) surveyed 134 nurses about their intentions to medicate children after surgery. In response to patient vignettes within the questionnaire most nurses indicated that they would administer substantial analgesia. However, a chart audit of paediatric postoperative cases from hospitals where these nurses were working found that only 2% of the patients received all the analgesia ordered.

Differences in nurses' stated and actual practices in analgesic administration were also revealed by Gillies et al. (1999), who investigated the experience and management of postoperative pain in adolescents from the perspective of patients, their parents and healthcare providers. Interviews with nurses ( $N = 77$ ) were conducted to determine their pain assessment and management practices with respect to adolescent patients. Most nurses (89%) stated that they gave analgesics regularly, that is, at least 4-6 hourly. This was in marked contrast to the findings from drug charts where only a small percentage of patients (9%) received analgesics regularly within 24 hours of surgery.

In an Australian study which inquired into nurses' attitudes and knowledge concerning postoperative pain (Chapman, Ganendran, & Scott, 1987), it was shown that 25% of the nurses ( $N=86$ ) would wait until a patient was in severe pain before administering charted intramuscular analgesics. The nurses were asked: For how long should a patient be given intramuscular analgesics post-operatively? Only 43%

felt (correctly) that postoperative analgesics should be given for as long as required, and 36% answered 48 hours. The remaining nurses answered 72 hours, 36 hours or 24 hours, respectively.

In another study, McCaffery and Ferrell (1994b) used vignette surveys to explore nurses' analgesic choices for patients in pain. Each vignette contained assessment data indicating the presence of severe to excruciating pain that had not been relieved by recently administered analgesia. More than half of the respondents reported an unwillingness to administer an increased dose of analgesia. Furthermore, one third of these nurses would actually worsen the pain being experienced by administering nothing or less than half of the previous ineffective dose.

The studies reviewed in this section give ample evidence of nurses' ineffective use of pharmacological strategies for managing patients' pain. Nurses make insufficient use of analgesics by administering doses that are substantially less than the maximum prescription; thus their patients remain in pain. Nurses also appear reluctant to administer adequate analgesia even when *they* identify the presence of moderate to severe pain.

A recent study by Dahlman et al.(1999) most poignantly illustrates these points. These researchers undertook a study to examine patients' evaluation of pain and nurses' management of analgesics after surgery. In an interview prior to discharge, when the patients were asked to recall their pain, 76% ( $N = 80$ ) said that they had experienced moderate pain postoperatively. Then, nurses were asked to indicate how much analgesia they would administer within a dose-interval prescribed by standing orders in response to a survey question that described the pain experience of an average patient. Most nurses chose an analgesic dose equivalent to 60% of the maximum prescribed dose. Finally, a review of patient charts revealed that when these nurses administered the drug to patients in reality, they gave on average only 40% of the maximum prescribed dose.

The aim of postoperative pain management is to attain a level of subjective comfort whereby patients can breathe, cough and move more easily. This will enhance their

recovery and reduce the incidence of postoperative complications (de Nicola, 1997). While pharmacological analgesic techniques remain the most effective tools for achieving pain relief, the literature supports the efficacy of non-pharmacological interventions to supplement pharmacological approaches in total postoperative pain management (Good et al., 1999; Heiser, Chiles, Fudge, & Gray, 1997; Johnston & Voge, 1993; Seers & Carroll, 1998; Sindhu, 1996; Turner, Clark, Gauthier, & Williams, 1998).

Complementary therapies are generally recognised for their affinity with the holistic philosophies of nursing. As such, their use in practice affords nurses a significant opportunity for independent decision-making and therapeutic mediation in pain management. Additionally, many non-pharmacological therapies are simple and require minimal nursing time to implement - a significant advantage in a busy postoperative unit. However, in spite of their apparent advantages for both patient and nurse, there is little evidence of nurses utilising these therapies in practice (Coyne et al., 1999; NINR Priority Expert Panel on Symptom Management: Acute Pain, 1994).

***Non-pharmacological interventions.*** Use of non-pharmacological interventions, including education, relaxation, distraction, imagery, massage, application of heat or cold packs, and electroanalgesia, can reduce the need for drugs for mild pain and enhance pharmacological treatment of moderate to severe pain following surgery (AHCPR, 1992; Anonymous, 1987; NHMRC, 1999). These methods may be particularly attractive because they allow patients to self-initiate several relatively simple therapies at will and therefore maintain a degree of control over their pain management (Devine, 1993; Pellino & Ward, 1998).

Research into the efficacy of non-pharmacological strategies in alleviating pain is still in its infancy. Consequently, there are few studies that have investigated nurses' use of non-pharmacological techniques for pain management. The studies that have been reported, however, provide meagre evidence of nurses' use of these strategies in practice for effective management of patients' pain (Carr et al., 1998; Coyne et al., 1999; Ferrell et al., 1991; Tittle & McMillan, 1994).

In one study (Clarke et al., 1996), documentation of the utilisation of non-pharmacological treatments for pain was minimal to non-existent. Ninety percent of the 82 charts reviewed had no documented evidence that any non-pharmacological interventions to relieve pain were used.

These findings are consistent with those reported by Carr et al.(1998), who surveyed 223 hospitals across the USA to provide “benchmark” data on current practices of in-hospital postoperative pain management. They distributed a 59-item questionnaire that incorporated key points contained in national published guidelines of best-practice standards in acute postoperative pain management, including the use of non-pharmacological techniques to supplement drug therapy. Although the use of non-pharmacological techniques for managing postoperative pain was repeatedly stressed in the published guidelines, in this survey, measures such as relaxation, guided imagery, hypnosis, and transcutaneous electrical nerve stimulation (TENS) were used by less than 5% of respondents.

Minimal documentation of non-pharmacological pain interventions was also a feature of a recent study by Devine et al. (1999). This research team audited the charts of 703 patients to determine the extent to which nationally endorsed recommendations for postoperative pain management was evident in postoperative patient care. Findings suggested that the documented use of non-pharmacological methods of pain control was quite low. Similarly, Coyne et al.(1998) found minimal documentary evidence of nurses’ use of non-pharmacological pain relief strategies in the hospital records of 30 postsurgical patients. For the entire data set, the average frequency of recording of non-drug pain interventions was less than once during the first 5 days following surgery.

Comparable results were reported in a descriptive study of postoperative orthopaedic patients ( $N = 65$ ) in a large teaching hospital. This study was conducted to determine how pain was managed in the first 3 days following surgery (Briggs & Dean, 1998). Content analysis of nursing documentation revealed that non-pharmacological pain interventions were rarely mentioned.



Several studies that have sought to elicit nurses' perceptions of their pain management practices have included survey questions focused on non-pharmacological techniques. Ferrell et al.(1991) surveyed nurses ( $N = 53$ ) to find what decisions they made related to assessment and management of pain. Nurses were asked to complete the survey after actually caring for a patient in pain, and to relate their answers to the care they had just given. With respect to questions concerning non-drug interventions, data analysis found very few of these respondents suggested use of methods such as application of heating pad or ice pack for pain relief. Overall, non-pharmacological interventions were used in only 6% of the patients described by nurses in their responses.

To assess nurses' pain management skills, Dalton (1989) distributed a questionnaire to nurses ( $N = 59$ ) working in medical and surgical services of a small community hospital. In general, respondents were relatively familiar with a range of non-pharmacological strategies of pain intervention, yet indicated that they would rarely use them, and would not spend any significant amount of time teaching patients how to use these strategies for pain relief.

Nurses' use of non-pharmacological pain interventions in paediatric patient settings is not significantly different. Broome, Richtsmeier, Maikler and Alexander (1996) conducted a nationwide survey in U.S. teaching hospitals in which they studied paediatric pain management practices of nurses and physicians. Among other things, they asked the 113 respondents about the use of nine non-pharmacological pain techniques. More than 50% of respondents mentioned that they used such techniques as relaxation, distraction, imagery, positioning, and massage "often" or "sometimes", and techniques such as behavioural therapy, TENS, and hypnosis "sometimes". On the other hand, as in Dalton's study (1989), many respondents stated that it was unlikely that patients or their parents would receive instruction in using the techniques.

More recently, in a similar study, Salanter et al.(1999) surveyed paediatric nurses ( $N = 265$ ) to examine their knowledge base and practice of pain management. Of the nine items concerning various simple and more advanced non-pharmacological

interventions 79% of respondents answered correctly at least 50% of the time. However, when asked to say how often non-pharmacological methods were used in practice, just 50% used only simple therapies, such as distraction, repositioning, and massage. Even fewer respondents indicated that they taught children or children's parents how to self-initiate these simple strategies.

Generally, these studies, albeit few in number, indicate inadequate use of non-pharmacological pain techniques by nurses. Not only is documentary evidence of their use sparse, but also, by their own admission, nurses rarely use non-pharmacological pain relief strategies in practice.

### **Summary**

There is no doubt that nurses have a pivotal role in the postoperative setting. This includes assessing and documenting pain, administering prescribed analgesic medications, managing the technology associated with the variety of medication administration systems, initiating and implementing non-pharmacological pain interventions, and taking responsibility for detecting, monitoring and appropriate reporting of side effects and adverse reactions. Throughout this process nurses also provide patient education and support.

The literature reviewed here, however, clearly establishes that nursing practice in many, and perhaps all, of these aspects of pain management is largely inadequate and ineffective. These empirical studies document compelling evidence of gross inadequacies of practice with respect to minimally acceptable standards of care for pain management.

Generally, the nature of inadequate practice has been characterised in the literature as inaccurate assessment of pain and ineffectual use of pain interventions. Nurses' assessments of pain have been shown to be largely insufficient, inconsistent and invalid, and rarely documented in a manner that communicates relevant information to other members of the health care team. Furthermore, nurses diminish pain relief by their reluctance to administer effective doses of analgesic medications and their

random and intermittent use of complementary non-pharmacological pain interventions.

It is not surprising, therefore, that over the last two decades, extensive research has been undertaken to explore factors that exist as possible explanations for nurses' poor pain management skills. The results of these efforts are discussed extensively in Chapter Three.

## **CHAPTER THREE**

### **Correlates of Postoperative Pain Management**

In the present study, in addition to establishing the nature of nursing practice in postoperative pain management, understanding is sought of factors that influence practice. This chapter reviews the literature that discusses the range of factors that have been identified as correlates of nursing management of patients' postoperative pain.

#### **Factors Impacting on Practice : An Overview**

Primarily, authors have attributed nurses' poor practice in postoperative pain management to the consequences of inadequate knowledge of, and inappropriate attitudes and beliefs toward, pain and pain relief (Brockopp, Warden, Cloclough, & Brockopp, 1993; Brunier et al., 1995; Clarke et al., 1996; Ferrell, McGuire, & Donovan, 1993; Furstenberg et al., 1998; Harrison, 1991; Heath, 1998; McCaffery, Ferrell, O'Neil-Page, Lester, & Ferrell, 1990; McCaffery & Ferrell, 1997b; Paice et al., 1995; Salantera et al., 1999; Vortherms, Ryan, & Ward, 1992).

Other studies have suggested that certain characteristics of the nurse and patient influence nurses' assessment and management practices (Clarke et al., 1996; Coyne et al., 1999; Davitz & Davitz, 1981). Additionally, nurses themselves have identified barriers to effective pain management, including those associated with the patient and the organisation/environment (Cohen, 1980; Donovan, 1983; Ferrell et al., 1991; Krivo & Reindenberg, 1996; McCaffery & Ferrell, 1992; Strauss, Fagerhaugh, & Glaser, 1974).

#### **Nurses' Knowledge, Attitudes and Beliefs of Pain and Pain Management**

Effective pain management is predicated on skills, attitudes and beliefs developed through comprehensive knowledge and understanding of pain and pain management (Brockopp et al., 1998; Coyne et al., 1999; Sjostrom et al., 1997). Given that nurses

demonstrate poor pain management in practice, it is not surprising that studies have shown consistently that lack of knowledge of pain and pain management is prevalent among nurses (Brockopp et al., 1993; Chapman et al., 1987; Charap, 1978; Ferrell & McCaffery, 1997; Heath, 1998; McCaffery & Ferrell, 1997b).

### ***Knowledge of pain management***

Typically, studies that investigate nurses' knowledge of pain and pain management report that nurses are least knowledgeable about the pharmacological management of pain. Specifically, this includes knowledge of commonly used analgesics, including preferred routes of administration, drug choice, equianalgesic dose, and the likelihood of psychological dependence (addiction) to opioids occurring as a result of use for pain control (Carpenter, 1997; Carr, 1993; McCaffery & Ferrell, 1997b). Nurses also fail to understand the nature, origin and transmission of pain, the effects of anxiety and depression on pain, and differences and links between acute and chronic pain (Taylor, Skelton, & Butcher, 1984; Watt-Watson, 1987).

Nurses ( $N = 70$ ) working on surgical, orthopaedic, and gynaecology wards responded to a mail-back multiple-choice questionnaire as one part of a larger study on postoperative analgesic care, overall goals of the treatment of pain, and the nurses' opinion as to whether pain control was adequate (Weis, Sriwatanakul, Alloza, Weintraub, & Lasagna, 1983). Of the questions to determine knowledge of analgesic use, results indicated that nurses had inaccurate ideas about the likelihood of addiction, respiratory depression, and potentiators of analgesics. For example, the likelihood that addiction would occur in 16% or more of patients was selected inappropriately by 48% of the nurses.

Cohen's (1980) questionnaire survey of 121 nurses also revealed that nurses had inaccurate knowledge of opioid analgesics and were overly concerned about the possibility of opioid addiction. When asked to estimate the number of patients who become addicted as a result of being treated with narcotic drugs in the hospital, only 32% of the nurses correctly thought it was 1% or less whereas 65% thought it was greater. Thirteen percent of this sample estimated the chance of opioid addiction at 26% or greater.

Nurses' lack of knowledge of analgesic pharmacology was confirmed in a later study in which nurses ( $N = 35$ ) were interviewed about, amongst other things, their knowledge of narcotic/opioid analgesia (Saxey, 1986). More than three-quarters of the nurses interviewed were unable to explain the mechanism of action of this group of analgesic drugs. Furthermore, less than one fifth of nurses knew that factors such as the patient's personality and sociocultural background affected pain perception.

A Canadian study conducted in 1987 (Watt-Watson, 1987) sampled 106 graduate nurses from medical or neuroscience settings, and 101 second and third year baccalaureate nursing students attending pain education programs. The aim of the study was to examine nurses' knowledge base about pain assessment and opioid administration. Analysis of the nurses' responses confirmed previous findings of a lack of knowledge about pain assessment and analgesic pharmacology.

In assessing pain, the majority of graduates (58%) and students (73%) expected (inaccurately) to see changes in vital signs and did not differentiate chronic from acute pain. Most of this sample did not know equianalgesic doses or the correct duration of action of commonly used opioids. Sixty-six percent of practicing nurses and 63% of nursing students believed inaccurately that more than 10% of hospitalised patients with organic pain developed an opioid addiction.

Responses from a pretest questionnaire collected from nurses attending a series of pain workshops in 14 states across the U.S. provided data to determine current nursing knowledge of opioid analgesic drugs and the incidence of psychological dependence (McCaffery et al., 1990). Respondents ( $N = 2,459$ ) were given a short questionnaire to examine their knowledge of the drug classification of seven analgesic drugs as a narcotic or non-narcotic.

The last question tested nurses' knowledge of drug addiction. This survey item included definitions of addiction, physical dependence, and tolerance, and asked respondents to select the rate of addiction in hospitalised patients receiving opioid analgesia as <1%, 1%, 5%, 25%, 50%, 75%, or 100%. The results showed that there was a tendency for nurses to incorrectly classify milder narcotic analgesic drugs as

non-narcotics. Only 40% knew that the incidence of addiction among hospitalised patients was 1% or less. Moreover, an alarming 23% believed that addiction would occur in 25% or more of patients receiving opioid analgesia for pain relief.

In a similar study two years later, a survey of 2,135 nurses revealed that more than one-half of this sample had insufficient knowledge of opioid dosing and equianalgesia, and that nurses' choices for analgesic management of pain would have left patients undermedicated (McCaffery & Ferrell, 1992). Additionally, the level of exaggerated fear that addiction would occur in 25% or more of patients receiving opioids had risen to 30%, while those correctly identifying an addiction rate of 1% or less remained much the same (41%).

Using a similar survey, Hamilton and Edgar (1992) found that the nurses in their study ( $N = 318$ ) were somewhat more knowledgeable about drug classifications. Conversely, their knowledge of principles of opioid pharmacology, including addiction, ceiling effect, equivalent dosing, and respiratory depression, was generally weak. As in previous studies, these researchers also found that only 31% of nurses responded correctly that the likelihood of opioid addiction was 1% or less.

Vortherms et al. (1992) surveyed 790 nurses about their knowledge of pharmacological management of cancer pain. Specifically they included items testing respondents' knowledge of opioids, pain mechanisms and medication scheduling regimens. Nurses performed poorly with respect to overall knowledge of pain and analgesic pharmacology and opioid knowledge in particular. The mean score for this part of the questionnaire was only 37%. In response to a specific question concerning addiction, only 16% of respondents knew that the incidence of psychological dependence as a result of the legitimate use of opioid narcotic pain-relieving drugs in patients with cancer is less than one in 1,000 patients.

Furstenburg et al. (1998) also examined nurses' ( $N = 248$ ) knowledge of cancer pain management. These researchers constructed a survey that addressed the nature of the pain experience, the scope of the pain problem in cancer patients, principles of pain assessment and relief, and knowledge of opioid pharmacology, including tolerance

and addiction issues. Although overall scores were encouraging, and addiction was not perceived as an issue for cancer patients, nurses demonstrated poor knowledge of doses, routes, and schedules of opioid administration. In addition, respondents seemed confused about the development of tolerance to side effects, mistakenly believing that opioid administration would lead inevitably to respiratory depression and death.

Nurses' knowledge of pain assessment and management appeared to have improved in the results of a later study by McCaffery and Ferrell (1997b). When given contemporary definitions for addiction, tolerance and physical dependence, 63% of respondents ( $N = 537$ ), correctly identified that less than 1% of patients receiving opioids for pain relief were likely to develop addiction.

In the same study, even more nurses (86%) rightly estimated this same risk for patients receiving opioid analgesics for 1-3 days. However, only 24% of the nurses knew that less than 1% of patients receiving opioids for 3-6 months developed addiction, where 35% had an exaggerated fear that addiction would occur in 25% or more of patients. Furthermore, fewer than one-half of these nurses knew how to increase opioid dosage both safely and therapeutically.

A more recent study by Heath (1998) used the same questionnaire developed by McCaffery and Ferrell (1997b) to survey 42 nurses in an Australian hospital. She found that 72% of all incorrect answers concerned opioid pharmacology. Nurses in this sample had a poor understanding of opioid administration and respiratory depression, and only 41% of respondents knew that addiction occurred in less than 1% of patients receiving opioid analgesia.

Nurses' knowledge of opioid pharmacology was the focus of a study of nurses ( $N = 82$ ) working in medical, surgical and oncology areas of clinical practice (Ferrell & McCaffery, 1997). As in earlier studies, findings indicated major knowledge deficits among nurses with respect to opioid pharmacology and management principles. Even when given a chart that explained equianalgesic doses between different types of opioid analgesics, 25% of the respondents could not calculate correct dosages of



opioids. Similarly, few of these respondents knew how to adjust opioid dosage to achieve effective pain relief. One-quarter of the nurses in this study would have inappropriately managed the side effects of opioid analgesia because they did not understand the pharmacokinetics of these drugs.

Nurses' lack of knowledge of pain management is not limited to pharmacological knowledge, but extends to non-pharmacological techniques as well. However, this area of nursing knowledge has not been extensively examined in the literature. Generally, in studies that investigate nurses' knowledge of pain interventions, findings are reported as overall test scores, and therefore it is not possible to differentiate results for questions concerning non-pharmacological interventions from those regarding pharmacological interventions.

Nonetheless, several authors posit that minimal use of non-pharmacological pain interventions by nurses reflects a general lack of knowledge and understanding of these types of interventions (Carr et al., 1998; Ferrell et al., 1991; Hamers et al., 1994; Tittle & McMillan, 1994). For example, Hamers et al. (1994) found, as did Ferrell et al. (1991), that the range of non-pharmacological interventions used by nurses in practice is less than that described in the literature. They concluded that an explanation for this would be that few nurses are acquainted with non-pharmacological interventions and their effects.

Similarly, Clarke et al. (1996) suggested that their inability to find documentary evidence of the use of non-pharmacological pain interventions in 90% ( $N = 82$ ) of the charts they surveyed was a reflection of the lack of relevant educational preparation reported by the majority of nurses ( $N = 120$ ) in the same study.

More recently, Salantera et al. (1999) surveyed 265 paediatric nurses about their knowledge base and practice of pain management in children. With regard to non-pharmacological pain interventions, almost one-quarter of the respondents answered incorrectly on at least five questions out of a total of nine questions. When asked what non-pharmacological interventions they used in practice, nurses identified only nine interventions from a list of twenty interventions. Finally, nurses' opinions of

their own knowledge base indicated that they were well aware of their lack of knowledge of non-pharmacological pain techniques.

Undertreatment of pain, therefore, remains a critical problem for patients recovering from surgery. Despite having at their disposal an arsenal of highly effective strategies to identify and treat pain, nurses continue to assess patients' pain inadequately and manage postoperative pain ineffectively. Arguably, as suggested by the studies presented here, this is because nurses possess insufficient knowledge of these strategies.

Knowledge, on the other hand, is considered an important precursor of skills, attitudes and beliefs (Hogg & Vaughn, 1995; Holmes, Corrigan, Williams, Canar, & Kubiak, 1999; Koballa, 1995). Thus, inaccurate knowledge of pain and pain management can only support inappropriate attitudes and beliefs about pain, the person in pain, and how best to treat him or her.

### *Attitudes and beliefs*

Studies suggest that lack of knowledge of pain and pain management may underscore nurses' negative attitudes towards patients with pain and their inappropriate goals for pain relief (Charap, 1978; Davitz & Davitz, 1981; Ferrell et al., 1993; Hamilton & Edgar, 1992; Weis et al., 1983). Nurses often think patients exaggerate their pain, and that the pain should be verified against the patient's behaviour and the extent of their surgery (Abu-Saad & Hamers, 1997; Atchison, Guercio, & Monaco, 1986; Hamers et al., 1994; Nash, Edwards, & Nebauer, 1993). Nurses also believe that some pain should be expected after surgery, and that patients should be able to cope with a degree of suffering (Salmon & Manyande, 1996; Wakefield, 1995).

The belief of many nurses that patients' reports of pain cannot be trusted has been demonstrated in the literature reviewed previously in this chapter. Generally, nurses tend to believe that patients' behaviours and physical cues are more reliable and valid indicators of the "real" severity of pain than what patients say about their pain

(Allcock, 1996; Bowman, 1994; Hamers, van den Hout, Halfens, Abu-Saad, & Heijltjes, 1997; McCaffery & Ferrell, 1997b; Seers, 1987).

Further research indicates that nurses also think that patients overestimate their pain condition. In a statewide survey of randomly selected nurses ( $N = 790$ ), more than 50% reported believing that 22% of patients complain of greater pain than that which is experienced (Vortherms et al., 1992). Similar findings were reported by Drayer et al. (1999), who interviewed nurses regarding their attitudes to pain and its relief. Nurses' beliefs that patients exaggerated pain were reflected in their refusal to administer additional analgesia when requested by patients.

The expectation that patients *should* suffer some pain after surgery was indicated by more than half of the 35 orthopaedic nurses who were surveyed in one study to assess their attitudes to pain and its relief (Hunt, 1995). A more recent study designed to determine barriers to effective pain management revealed that nurses were unwilling to believe patients' reports of pain, and felt that a degree of suffering was "an important part of life" (Brockopp et al., 1998).

Nurses may believe patient's pain as imaginary if they do not believe the patient's condition warrants the pain intensity complained of by the patient (Wakefield, 1995). For example, in a study by Taylor et al. (1984), 268 registered nurses were randomly assigned to one of 24 descriptions of a hypothetical patient of constant age and unspecified gender. These descriptions varied by duration of pain (3 years or 14 days), physical pathology (yes or no), diagnosis (headache, low back pain, and joint pain), and signs of depression (yes or no). Nurses were asked to rate their pain-estimation of the patient using a 10-point scale. Findings revealed that nurses assessed less intense pain when the hypothetical patient had no physical pathology and when pain was a long duration and chronic in nature. Further, it was found that nurses inferred that patients with chronic pain or those without physical pathology were demanding, complaining and unpleasant.

In part, comparable findings were reported by Halfens, Evers and Abu-Saad (1990) when they replicated Taylor et al.'s study (1984). In the absence of physical

pathology, nurses ( $N = 133$ ) attributed less pain to the patient and rated the patient as less positive. However, acuity or chronicity of pain had no influence on nurses' perception of the patient or on their assessment of pain intensity. The authors attributed this finding to the diversity of the study sample, which included student nurses as well as registered nurses.

The influence of a patient's diagnosis on nurses' assessment and management of children in pain was evident from interviews with 20 paediatric nurses (Hamers et al., 1994). Findings indicated that nurses' perceptions of patients' pain were related to nurses' beliefs about the severity of the patients' diagnosis. As one nurse commented:

*The assessment of pain also depends on the reason for the patient's admission to the hospital. A patient who is admitted with a medical diagnosis, for which you can expect pain, is "allowed" to be in pain. It is to be expected.*

This observation also holds for the implementation of pain-relieving interventions. Medical diagnoses seemed to justify the administration of analgesics:

*In the case of a child who has undergone surgery and complains about pain, there is a clear relationship between the operation and the reported pain. But when a child complains about pain as his parents are leaving, then distraction will be used [as an intervention].*

The conclusion drawn by the authors from these and other interviews was that the worse the medical diagnosis, the higher the pain assessment and the sooner an analgesic would be administered.

The extent to which nurses' attitudes towards patients influence their decisions about medication administration for pain relief was revealed in a study by Atchinson et al. (1986). When nurses caring for paediatric burn patients were asked to describe their attitudes toward analgesic administration, 48% admitted that they felt annoyed when

patients asked for pain medication. As one nurse expressed, annoyance occurred “when my assessment of their pain is different from their’s”, and for another it was “if the patients are not trying to help themselves to decrease their pain”.

In addition, only 50% of these nurses stated that they would encourage the patient to take medication for pain; that “it would depend on the type of injury or surgery”, and then only “if I feel they really need it”. These findings confirm sentiments expressed by Lisson (1987), who reflected that “nurses continue to give analgesia proportional to the degree of pain they expect a certain type of surgery to evoke” (p.657).

Nurses’ reluctance to give sufficient analgesia following surgery is related to their beliefs in justifiable pain as well as their misconceptions that the best possible outcome in pain management is pain reduction and not pain relief (Cohen, 1980; Jacavone & Dostal, 1992; Weis et al., 1983). When asked about their goal for pain management during the first 2 days following surgery, 40% of nurses stated that it was to relieve just enough pain for the patient to function (Cohen, 1980).

Nurses are not united on the goal of pain management, with many supporting reduction rather than relief of pain (Hunt, 1995). Several studies have shown that only a limited number of nurses feel strongly that patients can and should be maintained in a pain-free state (Bowman, 1994; Brockopp et al., 1998; Brunier et al., 1995). In one study of graduate and student nurses, pain reduction, and not pain relief, was the goal of most respondents (Watt-Watson, 1987). Only 10% of these nurses said patients should experience no pain. In addition, 49% of graduate nurses, and 60% of student nurses believed that patients should be encouraged to increase their pain tolerance.

These findings were comparable to those of a later study, in which only 50% of this sample felt that patients should be pain-free (Dalton, 1989). However, when asked what they believed “pain-free” referred to, only one-third said they thought this meant no pain. Instead, most nurses thought it reflected comfort levels and the patient’s ability to perform activities of daily living.

Complete pain relief was the goal of only 12% of paediatric nurses asked to report their goal of pain management (Burokas, 1985). Almost one-quarter of these nurses reported their goal was to relieve pain to the point where the patient could function, and 4% would relieve only enough pain so that the patient could tolerate it. These findings are particularly distressing because the “patients” referred to here were all very young children.

As well as aspiring to less than complete pain relief, nurses may also feel that pain management is not a priority of postoperative care. In one study (Saxey, 1986), nurses interviewed were adamant that pain relief was essential to patient recovery following surgery. Yet, these nurses rated observation for haemorrhage and monitoring vital signs as higher priorities than pain relief in postoperative care. This would tend to support the findings of Cohen (1980) that postoperative pain relief is not ranked high by nurses.

It is apparent from the studies reviewed that nurses lack sufficient knowledge and skill to manage pain effectively. Nurses’ knowledge deficits of the mechanisms and management of pain compromise the adequacy of their assessment of pain and the effectiveness of their pharmacological and non-pharmacological interventions for pain relief. Moreover, nurses hold negative attitudes and values that mitigate the appropriateness of their decisions for pain management. Consequently, patients recovering from surgery may be left in pain because nurses doubt both the severity of patients’ pain and their need for analgesia; nurses expect patients to be able tolerate some pain after surgery; and nurses lack the knowledge and confidence to administer analgesia effectively.

Several studies indicate that nurses themselves are well aware of their lack of knowledge and inadequate practice in pain management (Brockopp et al., 1998; Drayer et al., 1999; Salanterä et al., 1999; Wallace, Reed, Pasero, & Olsson, 1995). Yet this self-awareness seems to have done little to improve practice. In an attempt to gain greater understanding of why poor pain management persists, attention has been given in the literature to investigating nurse and patient characteristics as factors influencing nurses’ assessment and management practices.

## **Nurse Characteristics**

The literature that examines nurse characteristics in relation to pain practice is generally contradictory and therefore inconclusive. Some authors have suggested that level of education and years in nursing are important (Benner, 1984; Coyne et al., 1999; Dudley & Holm, 1984) but the data do not bear this out (Burokas, 1985; Cohen, 1980; Myers, 1985). There is some support for the notion that personal experience with pain is related to better assessment of pain and suffering (Holm, Cohen, Dudas, Medema, & Allen, 1989; Teske et al., 1983), yet, again, this is refuted by others (Burokas, 1985). Some investigators have suggested that age is important (Dalton, 1989), whereas others have found that it is not (Burokas, 1985; Cohen, 1980).

### ***Education and experience***

It is generally assumed that *education* and practical *experience* increase clinical performance and expertise (Beckett, 1996; Benner, 1984; Brenner & Howard, 1976; Garb, 1989; Lauri & Salantera, 1998). Understandably then, researchers have looked to these factors as two of the most likely mediators of nurses' behaviours in respect of clinical practice in pain management (Clarke et al., 1996; Dalton et al., 1999; McCaffery & Ferrell, 1997b).

Studies conducted to examine how education and experience influence nurses' assessments of pain have revealed different results. Everett et al.(1994) found that educational level, years of nursing experience and years of burn nursing experience were unrelated to the accuracy of nurses' assessment of pain experienced during burn wound debridement. Similarly, education level and experience did not influence first year student nurses' ( $N = 271$ ), fourth year student nurses' ( $N = 222$ ) and paediatric nurses' pain ratings of hypothetical patients (Hamers et al., 1997).

However, Lenburg, Burnside and Davitz (1970) suggested that education does influence pain assessments: first-year nursing students attributed more pain to hypothetical patients than did second-year students. This finding was supported by

Davitz and Davitz (1981), who found that the estimated intensity of patients' physical pain decreased in the course of students' education.

Other authors suggest that more experienced nurses tend to provide more accurate pain assessments (Benner, 1984; Harrison, 1991), which is an indication that their education and experience make them more skilful at interpreting pain cues and better at predicting the pain and distress associated with different medical conditions and surgical procedures. This conclusion was supported by the findings of one study, which revealed that assessments of pain increased in the course of education: student nurses in the last two years of their education assessed pain as more intense than student nurses in the first year of their education (Halfens et al., 1990).

These results confirm those of an earlier study, in which results indicated that education may influence pain assessment (Dudley & Holm, 1984). That is, the higher the educational preparation of the nurse, the greater the likelihood that pain ratings will be overestimated. However, there were no associations found between experience and pain assessment.

Other studies suggest, however, that it is not nurses' educational preparation which affects pain assessments, but nursing experience. In one study that compared nurses' and patients' assessments of patients' pain, nurses with less than one year of experience tended to assess pain higher than patients, while pain assessments made by nurses with six to ten years experience were generally lower than patients' assessment (Mason, 1981). In other words, nurses are more likely to underestimate pain with increasing years of experience.

These findings were supported in a later study of nurses ( $N = 42$ ) caring for burn patients (Choiniere et al., 1990), in which it was found that the number of years of burn-nursing experience had a significant influence on nurses' estimations of patients' pain during therapeutic procedures. Nurses who had more experience tended to underestimate pain more frequently, while nurses with less experience overestimated pain.



Several authors explain this response pattern as a consequence of repeated exposure to severe trauma and pain (Davitz & Pendleton, 1969; Fagerhaugh, 1974; Lander, 1990; Lenburg, Glass, & Davitz, 1970; Perry & Heidrich, 1982). In other words, less experienced nurses may be overwhelmed and emotionally affected when faced with severe and excruciating pain, and therefore may infer more pain than patients actually experience. With time and repeated exposure, however, nurses may develop some form of defense mechanism that manifests as insensitivity to pain, thus their assessments of pain intensity are often less than those reported by patients.

Other authors suggest that underestimation of pain is a response characteristic of experienced nurses who see pain as a normal feature of their day-to-day practice. In a study to examine strategies for assessing postoperative pain, nurses ( $N = 30$ ) claimed that from experience they learned “a typology of patients, and “what to look for” when assessing pain, thus expanding their conception of normality (Sjostrom et al., 1997). Further, nurses who underestimate patient suffering are more likely to continue nursing pain patients, while nurses who cannot cope with their patients’ pain will tend to move into nursing roles that require less exposure to pain and suffering (Harrison, 1991).

As more experienced nurses become acculturated into the role of a professional, their perceptions of pain and attitudes of pain management may alter from those they hold as individuals. McCaffery and Ferrell (1997a) studied the influence of professional versus personal role on nurses’ pain assessment and management decisions. Nurses responded to a vignette survey in the role of either the patient’s nurse ( $N = 301$ ) or the patient’s sibling ( $N = 306$ ). Data analysis revealed that nurses in their professional role were less sensitive to the patient’s pain, choosing to minimise both the patient’s verbal reports of pain and the subsequent analgesia given to relieve pain.

It is evident from this literature that the relationship between nurses’ education and professional experience and their assessments of pain remains uncertain. Some authors suggest that with education and experience comes a greater likelihood of sensitivity and accuracy in assessment of patients’ pain. Others state just the

opposite: that nurses become *less* accurate and *less* sensitive as they accumulate knowledge and practical experience. Furthermore, several researchers conclude that level of education and years of experience make no difference to nurses' pain assessments.

Another group of studies investigates the relationship between these characteristics and pain intervention, as distinct from pain assessment. Generally they do so indirectly, by examining how education and experience influence nurses' knowledge, skills, attitudes and beliefs of pain and pain management. This approach is based on the assumption that nurses' decisions regarding pain-relieving interventions are influenced by their knowledge, skills, attitudes and beliefs of pain and pain management, and that these attributes are, in turn, moderated by education and practical experience.

The effect of educational preparation on knowledge of pain management was examined in a recent survey of 232 registered nurses (Coyne et al., 1999). Mean scores of overall knowledge of pain management were lower among nurses with lower educational qualifications, suggesting that more highly educated nurses were more knowledgeable about pain management. A similar conclusion was reached by Brunier et al. (1995) who surveyed nurses ( $N = 514$ ) working in acute and long-term care settings. However, contradictory results have been reported elsewhere (Fothergill-Bourbonnais & Wilson-Barnett, 1992; Hamers et al., 1997).

The educational level of nurses (101 student nurses and 106 graduate nurses) was not significantly related to subjects' overall scores on a survey of knowledge of pain assessment and narcotic administration (Watt-Watson, 1987). Moreover, among the graduate nurses, the number of years of nursing experience did not influence total scores. These findings were confirmed by Hamilton and Edgar (1992), who surveyed acute care registered nurses ( $N = 318$ ) about their knowledge of pain assessment and management. Results revealed no significant correlation between nurses' educational preparation, years of experience and total survey scores.

However, both Dalton (1989) and McCaffery and Ferrell (1992) found that nurses who had worked in cancer nursing had more extensive pain-assessment techniques and more in-depth understanding of opioid addiction prevalence and equianalgesic doses.

Similar results were reported in another study which showed that more knowledgeable nurses had greater experience working with cancer patients (Vortherms et al., 1992). On the other hand, a recent study showed that knowledge of pain assessment and management in cancer patients did not differ among nurses with varying lengths of experience (1 month to 10 years) in oncology care (Sloan, Vanderveer, Snapp, Johnson, & Sloan, 1999).

Clarke et al. (1996) investigated whether education and professional experience had an impact on nurses' knowledge of, attitudes toward, and clinical practice in pain management. From their findings the researchers concluded that only specialist pain education improved knowledge and attitudes of pain management. Findings are consistent with those of an earlier study, in which it was found that more knowledgeable nurses, determined so by their scores on a survey testing pain management knowledge, had attended more hours of continuing education in pain management (Vortherms et al., 1992).

Comparable findings were reported following implementation of a pain management program for cancer pain in one large oncology centre (Bookbinder et al., 1996). Prior to the program nurses completed a survey that tested their knowledge of and attitudes toward pain management. Testing after the program using the same survey revealed significant improvements in nurses' knowledge of pain assessment and analgesic dosing, and their attitudes to the validity of patients' verbal pain reports.

These results were refuted in one study in which it was found that attendance at specialised educational sessions may not improve knowledge in pain management (McCaffery et al., 1990). In this study, nurses' responses to a knowledge questionnaire were analysed according to the level of the audience. Subjects were divided into basic and advanced audiences. The advanced session was targeted

toward those nurses who had previously attended a basic pain management course and who believed they had acquired an understanding of the basic principles of pain management. These analyses indicated that attendees at the basic sessions were more knowledgeable about narcotic drug classifications. The advanced session attendees had significantly more correct responses in regard to the addiction item. Overall, however, there was no significant difference in the total scores of each group, indicating the possible influence of other factors.

Similarly, in another study, efforts to improve nurses' knowledge of cancer pain management through continuing education proved unsuccessful with oncology nurses (Camp-Sorrell & O'Sullivan, 1991). Using an experimental design, educational programs were implemented to address issues of knowledge of, competence in and commitment to pain management. However, course evaluation showed no significant differences between control and experimental groups of participants in either what they knew about cancer pain or their documentation of pain assessments.

Other studies have demonstrated that while specialised pain education may improve nurses' knowledge of pain management, it may not effect any change in practice (Dickinson, 1994; Franke et al., 1997). Nurses who completed a self-learning package in pain management demonstrated a significant improvement in knowledge of the subject matter (Dickinson, 1994). However, an audit of patient charts revealed no difference in documented pain assessment and intervention to that found prior to the educational intervention.

Similarly, a 6-week educational program in cancer pain management yielded no significant improvements in nurses' documentation of pain assessment and pharmacological and non-pharmacological intervention program (Dalton et al., 1996). But a 6-month follow-up of nurses' knowledge indicated that nurses had retained much of the information presented in the education program.

The interplay between education, experience and pain management is clearly inconsistent, and therefore suggests that other factors affect nursing practice in this

area. Several authors have examined how nurses' age, cultural and ethnic background, and personal experiences of pain affect pain practice behaviours (Davitz & Davitz, 1981; Dudley & Holm, 1984; Holm et al., 1989; Mason, 1981).

### *Age and ethnicity*

Generally, *age* of the nurse has not been an influential factor in relation to pain assessment and intervention (Choiniere et al., 1990; Dudley & Holm, 1984; Mason, 1981). Although Dalton (1989) found some evidence that age was an influencing factor in pain assessment, she concluded that as age was highly correlated with experience, experience was probably the main effect in this case.

Similarly, nurses' age was an important factor with respect to knowledge about non-pharmacological pain management and general knowledge in paediatric pain management (Salantera et al., 1999). However, specialised pain education also had a significant effect on nurses' knowledge. Although not tested, it is likely that nurses with more specialised education were also older, thus education, and not age, may have been the significant factor in these findings.

Few studies have focused on the influence of nurses' *cultural* and *ethnic backgrounds* in relation to pain management. While investigating many factors that may influence nurses' perceptions of pain, Davitz and Pendleton (1969) found striking differences among American, African American, Puerto Rican, Korean and Thai nurses, with the Puerto Rican nurses being most sensitive to patient suffering. These results support the hypothesis that inferences of suffering are related to the learned behavioural response of a given culture or subculture.

This conclusion was refuted by Martin and Belcher (1986), who found that pain perceptions and attitudes among American, South African English, and African Zulu oncology nurses were similar. But according to Davitz and Davitz (1981), American nurses of North European descent inferred less patient suffering than did American nurses of African, South European, and East European descent. However, when researchers compared the pain assessments of nurses from one metropolitan hospital in the U.S., using a sample of which half were African Americans and the other half

Caucasians, no significant differences were found between the groups in terms of pain assessments (Davitz, Sameshima, & Davitz, 1976).

Again, cultural differences were found to have no effect on nurses' knowledge of pain assessment (McCaffery & Ferrell, 1994b). Responses of Australian nurses ( $N = 517$ ) to a knowledge survey were remarkably similar to those obtained in a study of 456 nurses in the U.S. who completed the same survey (McCaffery & Ferrell, 1991a).

### ***Personal pain experience***

Evidence suggests that *personal pain experiences* may shape nurses' attitudes toward pain (Cohen, 1980), but few studies have examined whether personal experiences affect pain assessment and management. A link between nurses' own pain experiences and their inferences of pain in others was found in one study, in which nurses who experienced greater pain themselves tended to infer greater pain in others (Davitz & Davitz, 1981). The authors in this case argue that "knowledge" of another person's pain and suffering is always a matter of inference, and that inference depends upon an individual's own experiences and beliefs.

This interpretation was supported by the responses of nurses in another study (Holm et al., 1989), which showed that the intensity of pain experienced by the nurse was the only variable of significance that predicted perceptions of patients' pain and suffering. Furthermore, findings support the notion that nurses who have experienced intense pain are more sympathetic to the patient in pain.

However, an earlier study reported that nurses who had *not* experienced wound pain estimated the intensity of wound pain *higher* than both the patients and nurses who had experienced wound pain (Ketovuori, 1987). In other words, these findings suggest that nurses who have no personal experience of intense pain infer greater pain in their assessments.

Finally, the suggestion that nurses' personal pain experiences influence their pain practice was refuted in a recent study of registered nurses working in medical-

surgical units (Clarke et al., 1996). Analysis of nurses' responses to a questionnaire failed to find any correlation between the intensity of personal pain experienced and either knowledge of pain management or practice of pain assessment.

The literature reviewed concerning nurse characteristics as factors influencing pain management is clearly indecisive. In as much as education, experience, age, cultural and ethnic background, and personal pain experience may influence nurses' decisions regarding pain assessment and intervention, other authors have suggested through their research that patient factors might impact significantly on nursing practice in pain management (Hamers et al., 1994; McCaffery & Ferrell, 1991b).

### **Patient Characteristics**

There is limited evidence in the literature that nurses' pain management practices are influenced by patient characteristics including age, gender and ethnicity.

#### ***Age***

*Age* of the patient affects nurses' expectation of pain and their decisions concerning pain relief (Burke & Jerrett, 1989; McCaffery & Ferrell, 1991b). The expectation that adult and elderly patients experience less pain than children has been reported in several studies (Hamers et al., 1994; Mason, 1981). On average, children received higher pain scores than adults when nurses were asked to rate the pain of sixty hypothetical patients (Mason, 1981).

Hamers et al. (1994) found nurses to be less clear when indicating the influence of age on their pain assessment. The authors conclude that it remains unclear whether nurses believe young children (up to 4 years) have more or less pain than older children (5 years and older) in the same situation and whether nurses relieve this pain differently in each age group. However, the majority of nurses thought that children experience more pain than adults in the same situation. These findings confirm the earlier work of Davitz and Pendleton (1969), who found that nurses attributed greater pain to the young.

Paradoxically, nurses often choose lower doses of opioids and non-opioids for younger children (Gadish, Gonzalez, & Hayes, 1988). McCaffery and Ferrell (1991b) confirmed the findings of Faherty and Grier (1984) that age within adulthood affects pain treatment, in that older adults are more likely to receive less potent and fewer doses of analgesia. On the other hand, in a later study, patient age was not a factor in nurses' estimations of pain nor in the reported efficacy of analgesics (Choiniere et al., 1990).

### ***Gender***

Research has yet to confirm any influence of *gender* on nurse assessment and treatment of acute pain in children (Hester, Foster, & Beyer, 1992; Holm et al., 1989). In adult studies, however, findings regarding gender have been inconsistent. In some studies, nurses attributed greater suffering to females (Davitz & Davitz, 1981; Oberst, 1978), but in other studies, to males (Martin & Belcher, 1986; Taylor et al., 1984).

Studies have also identified a difference in analgesic administration in relation to gender. Bond (1981) found that nurses in a radiotherapy unit initiated more analgesic injections in women than in men, and refused more analgesic requests from the male patients. Results of another study indicated that gender had the reverse influence on drug intervention (Cohen, 1980). Using two sets of vignettes, where the only difference was the patient's gender, it was found that nurses selected *less* pain medication for female patients than for male patients.

### ***Ethnicity***

Patient *ethnicity* also influences the way nurses perceive and manage pain (Davitz, Davitz, & Higuchi, 1977). To examine the effect of ethnic variation on nurses' inferences of pain, three studies were carried out using vignette surveys that described patients of different ethnic backgrounds and with illnesses of differing severity (Davitz & Davitz, 1981). The studies display consistent findings suggesting that ethnic background is an important determinant of nurses' inferences of pain and suffering. Nurses generally saw Jewish and Spanish patients as suffering most and Oriental, Anglo-Saxon and Germanic patients as suffering least.



These findings are in contrast to later results reported by Holm et al.(1989), who found that race had little influence on pain assessment and management decisions. However, confirming earlier reports, a more recent study found that nurses tended to attribute more postoperative pain to white, middle class patients than they did to less educated, ethnic minority patients (Todd, 1996).

As shown, the exiguous literature that examines patient characteristics as factors influencing nurses' practice is as equally inconclusive as that which investigates nurse characteristics. To elucidate further factors that may mediate nurses' clinical decisions in pain assessment and intervention, studies have sought to identify other potential barriers to effective pain management (Bookbinder et al., 1996; Brockopp et al., 1998; Drayer et al., 1999).

### **Barriers to Effective Pain Management**

Among nurses' perceived barriers to optimal pain management are patients' reluctance to report pain and to take narcotics, delays in obtaining analgesic orders/prescriptions, lack of agreement between the hospital team about treatment goals, and understaffing (Bookbinder et al., 1996; Clarke et al., 1996; O'Brien, Dalton, Konsler, & Carlson, 1996; Vortherms et al., 1992).

#### ***Patient barriers***

Patients' socialisation to pain and knowledge and attitudes about pain can create several challenges to effective pain management. Ferrell et al. (1991) asked nurses ( $N = 53$ ) to identify problems they encounter in providing patients with optimum pain relief. The most frequent (35%) response from this sample was patient and family lack of knowledge concerning pain and pain management. The nurses also cited lack of patient cooperation as a problem, particularly with patients denying pain or refusing analgesic medication.

Similarly, "patient reluctance to report pain" and "patient reluctance to take opiates" were the two top-ranked barriers to effective pain management identified by medical-

surgical nurses in one recent study (Clarke et al., 1996), and oncology nurses in another study (Vortherms et al., 1992).

For a variety of reasons, patients may fail to give complete, pertinent, or accurate pain information to nurses. A survey of 270 patients with cancer revealed a reluctance to report pain and to use analgesics, resulting in poor pain relief (Ward et al., 1993). Unrelieved pain was associated with concerns about addiction, side effects, tolerance, and believing that pain is inevitable. Respondents tended to agree with statements such as “Pain medicine should be ‘saved’ in case the pain gets worse”, “Pain medicine can not really control pain”, and “People get addicted to pain medicine easily”.

Riddell and Fitch (1997) assessed knowledge and attitudes of cancer pain management in 42 cancer patients in Canada. Patients completed a questionnaire that assessed patient attitudes, knowledge, and experiences related to the management of cancer pain. Patients were able to identify a number of pharmacological and non-pharmacological treatments used for cancer pain management, thus demonstrating some knowledge of appropriate interventions for effective treatment.

Patients also identified several barriers to effective pain management, including progression of disease and fears regarding drug addiction, and overuse of medications. Nearly 25% of patients believed that pain medications were “bad” for their bodies, and, as a result, were reluctant to take pain medications regularly or in doses sufficient for adequate pain relief.

Patients’ complaints of pain may be deterred by factors that specifically concern the nurse-patient interaction. Arguably, the ability to cope with adversity, including pain, is culturally valued. Consistent with this assumption, there is a long-standing view that patients who complain of pain or discomfort are seen as “bad” patients (Raps, Peterson, Jones, & Seligman, 1982; Taylor, 1979). Furthermore, there is some evidence that nurses view negatively patients who complain of pain, at least where such complaint is not clearly explained by physical pathology (Taylor et al., 1984). Being liked by nurses is an important concern for hospitalised patients (Johnston,

1982); therefore, patients may restrain their complaints so as to avoid unpopularity with nurses.

Findings of a study by Salmon and Manyande (1996) confirm this as a realistic scenario for patients in pain. In this study, patients who experienced the worst pain, or whom the nurses perceived as coping least well with their pain, were evaluated by the nurses as unpopular and demanding. Similarly, Clements and Cummings (1991) demonstrated that patients who did not conform to staff expectations were perceived by nurses as manipulative and demanding in relation to pain management.

Hofland (1992) postulates that elderly patients minimise or even deny their pain because of fear of recrimination in the form of labelling by staff and subsequent loss of care. Further, many elderly are fearful of drugs because of social connotations surrounding narcotic use (Closs, 1994). Still others are reluctant to use opioids because of likely side effects, including changes to behaviour or personality and loss of mental and physiological control, which may eventuate in loss of independence. Some also believe that having to take more medication means that their condition has worsened, and thus heralds “the beginning of the end” (Yates, Dewar, & Fentiman, 1995).

Similar barriers to pain management were identified by cancer patients (Thomason et al., 1998). These included the belief that pain should be tolerated; concerns about side-effects; and fear and disdain of dependence, addiction, and tolerance. Almost 20% of respondents seemed resigned to the inevitability of pain as a consequence of their disease.

Some postsurgical patients simply lack the desire for personal control over pain (Gatchel, 1997). The postsurgical state of weakness and vulnerability elicits a need for nurturance and dependence rather than self-sufficiency in some patients. These patients do not take the initiative to voice their need for pain relief, waiting instead to be asked by a nurse or physician. Further, elderly patients, used to a health system that encouraged the relatively passive “sick” role of hospitalised patients, may not

want to take part in their pain management, and frequently voice their frustration with pain assessment processes.

Evaluation of the outcomes of an attempt to implement procedural guidelines for improved pain management revealed that some patients complain about being asked to rate their pain so frequently, and others that the numeric scoring system is too burdensome a method (Bach, 1995). Responses to pain assessment on one occasion included “I’m just having pain. I can’t tell you all the details. Just get me something.” The older adult population did not always appreciate the assessment tools, especially if they had had a prior surgical experience. A familiar comment was, “They didn’t do this last time and I got along just fine.”

Most obviously, patients who cannot communicate their pain adequately are at risk of inadequate pain management. This group includes patients who are verbally compromised, such as pre-verbal infants and patients restricted as a consequence of therapeutic equipment and surgical procedures; cognitively impaired patients, such as those with Alzheimer’s disease and dementia; and patients who do not clearly understand nor speak English as a first language. Still others do not use the *word* pain to represent the *experience* of pain, and may instead speak in terms of hurt, discomfort, aches, soreness or pressure (McCaffery & Beebe, 1989; Watt-Watson & Donovan, 1992). These patients are likely to deny the presence of *pain* if asked.

It is clearly discernible from this literature how the effectiveness of nurses’ decisions for pain management could be compromised by patients who cannot or will not admit to pain or their need for pain relief. Further literature suggests that the obstacles to effective pain management that are imposed by patient-related factors may be compounded by organisational constraints.

### ***Organisational barriers***

Although not extensively researched, the literature gives some indication that organisational practices, policies and procedures may limit the extent to which nurses can intervene for effective pain management (Ferrell et al., 1991). Most significantly, these barriers relate to insufficient provision of analgesia, lack of unified support for

pain management, and excessive workloads that constrain opportunities for effective pain assessment and intervention (Bookbinder et al., 1996; Brockopp et al., 1998; Pargen & Hailey, 1999; Wallace et al., 1995).

Nurses perceive physicians' reluctance to prescribe sufficient analgesia as a major barrier to effective pain management (Bookbinder et al., 1996; Furstenberg et al., 1998; Vortherms et al., 1992; Wallace et al., 1995). In one study nurses reported a feeling of conflict and powerlessness when they observed a patient suffering and were unable to secure sufficient analgesia from a physician (Wallace et al., 1995). These perceptions are reinforced by a body of literature that exposes physicians' prescription patterns as subtherapeutic and inappropriate for optimum pain relief (Donovan & Dillon, 1987; Elliott & Elliott, 1992; Levin, Berry, & Leiter, 1998; Marks & Sachar, 1973; Peglow, 1992; Portenoy & Hagen, 1985; Schechter, Allen, & Hanson, 1986; Sjogren et al., 1996).

Exacerbating the problem of insufficient dosages of analgesics, physicians use inappropriate prescription patterns that resist best practice recommendations for "around the clock" analgesia (American Pain Society Quality of Care Committee, 1995; American Society of Anesthesiologists, 1995; NHMRC, 1999). Instead, the more conventional and unsatisfactory "as needed" approach to pain therapy continues to prevail among physicians' prescriptions for pain medication (Carr, 1993; MacLellan, 1997). This form of prescription establishes a time lag between when the medication is needed and when it is administered.

For example, a typical patient with postoperative pain waits until pain is moderate to severe before pushing the nurse call button, then waits for the nurse to respond. The nurse assesses the pain, confirms the prescribed analgesia and dose, locates the keys to the drug cupboard for controlled substances, finds a witness for the process of drawing up and administering the medication, prepares the injection, locks the cabinet, walks back to the patient's bedside, and gives the intramuscular injection. Then the patient must wait for the medication to take effect before the pain subsides. This entire process can take up to thirty minutes (Graves, Foster, Batenhorst, Bennett, & Baumann, 1983), during which time the patient's serum levels of any

previous analgesia have further reduced, and consequently pain levels have increased. Thus any benefits of analgesia tend to be short-lived, and the patient requests more analgesia within a short period of time.

Furthermore, “as needed” prescriptions are not as flexible as might be expected, and legal constraints prevent nurses from administering medications of such prescriptions any more frequently than 4-hourly, unless stated otherwise in the prescription. Therefore, when the patient requests more analgesia sooner than the required 4 hours, nurses are unable to act immediately. This problem was identified during focus group interviews with 19 acute care nurses, who expressed their frustration with perceived barriers to effective collaboration with medical staff regarding analgesic administration (Nash et al., 1999):

*Well, unfortunately the decision-making is not ours. We are restricted to what's ordered...I mean, if the doctor's ordered it, you can't very well make a decision.*

Seeking further analgesia in these circumstances is made more difficult when nurses are not confident in their ability to collaborate effectively with physicians. In one study, most nurses stated that pain relief was not always prompt due to poor communication between the doctor and the nurse (Hunt, 1995).

Attempts to improve collaboration between physicians and nurses are unlikely to proceed if the institution does not value pain management as a primary goal of care. Seemingly, there continues to be a consistent lack of emphasis on pain control and little accountability for pain management in the acute care setting (Brockopp et al., 1998; Fagerhaugh & Strauss, 1977). Quality assurance programs generally do not include a review of pain management, possibly because pain has low visibility in most health care organisations (NINR Priority Expert Panel on Symptom Management: Acute Pain, 1994).

The visibility of pain is minimised when units or institutions provide no written information on either assessing pain or the roles and responsibilities of health care

providers in managing pain. As concluded by Brockopp et al. (1998), within health care organisations “what isn’t measured frequently doesn’t exist” (p.229).

Participants in their study reported that lack of routine objective assessment that might have contributed to a failure to recognise pain management as an important facet of care in acute settings.

None of the five units represented in a study of pain management practices at a large teaching hospital had written policies for the assessment of management of pain (Foster, 1990). Hester, Foster, Vojir and Miller (1992) concluded:

Because policies are usually applied to those situations deemed the most complex or most important (Bolman & Deal, 1988; Crow, Chapman & Roe, 1988) and because policies translate core values and beliefs (Bell, 1988; del Bueno & Freund, 1986; Denison, 1990), an absence of policies related to...pain reflects a lack of emphasis on pain assessment and management. (p.40)

This means that pain management may not be considered the highest, or even as an important, priority of care (Brockopp et al., 1998). For patients recovering from surgery, priorities of care are generally those that effect the most immediate and least complicated recovery from illness, and allow the patient to return home within the shortest period. Such priorities centre on the urgency of sustaining an airway, minimising bleeding, promoting circulation and wound healing, and mobilising the patient as quickly as possible (Brockopp et al., 1998).

In the absence of clear organisational goals for pain management, nurses are unlikely to have a commitment to anything but minimal practice in pain management, particularly when faced with staff shortages and excessive workloads. These circumstances interfere with effective pain management by limiting the amount of time a nurse can spend with each patient to assess and document pain adequately (Camp, 1988). Moreover, these factors were found to influence nurses’ decisions to medicate patients in pain appropriately (Hamers et al., 1994):

*When you are caring for 13 children all by yourself, or with another colleague, then you do not have enough time...you naturally just give a paracetamol.*

Nielsen, Svantesson-Martinsson, and Enberg (1994) concluded that nurses may be prepared to change their beliefs about pain relief to resolve frustration when conflict exists between what nurses would like to do and what is practicable. The authors interviewed nurses about their clinical practice management of postoperative patients. Analysis revealed that hospital policy was an important element in pain assessment and management. Responding to economically driven hospital management policies that stretched nursing resources to the limit, nurses choose to have the attitude that patients should be prepared to accept a little pain, in spite of their desire to relieve the patients' pain. In this way nurses in this study justified their inability to meet the extent of clinical demands, including pain assessment and intervention.

It is apparent from this literature that the problem of ineffective pain management by nurses may reflect organisational priorities of pain management and the consequences of these priorities for the milieu of interdisciplinary collaboration, standards of practice and policy development and resource allocation.

## **Conclusion**

The collective literature reviewed in this chapter outlines the factors that are thought to influence nursing practice in postoperative pain management independently and/or interactively (see Figure 3.1). In pursuit of possible explanations for what was established in the previous chapter as unacceptable performance in nursing practice, an extensive literature has developed that investigates the role of nurse, patient and organisational-related factors as moderators of nurses' clinical decisions in pain management.





To some extent it has been established that poor practice is a product of nurses' knowledge deficits in pain management, as well as their inappropriate attitudes and beliefs toward pain, pain assessment and pain relief. Further research has explored variations in knowledge, attitudes and beliefs of pain management with respect to nurse characteristics of education, experience, age, culture and ethnicity, and personal pain experience.

Unfortunately, the results of these studies have been contradictory and inconclusive. Similarly mixed findings have been reported from studies that have examined the manner and extent of variation in nurses' decisions for pain management as a function of patient characteristics, such as age, gender and ethnicity.

Finally, the literature suggests that some of the responsibility for poor pain management rests with factors external to the nurse, including patients' reluctance to report pain and accept analgesia, and organisational – workplace policies that minimise the importance of pain management and reduce the capacity of nurses to practice effectively.

It is clear from this expansive body of research that pain management is a major concern of health professionals. Certainly, this literature has successfully raised professional awareness of the extent of the problem of poor pain management, and many of its recommendations have motivated further research endeavours and intervention programs. However, in spite of these enthusiastic intentions, little progress appears to have been made, and patients continue to suffer unnecessary pain. Indeed, many studies footnote this state of affairs yet often fail to acknowledge or ameliorate the methodological limitations of previous research.

### ***Critique of the Research***

Field-based research is often prone to the methodological flaws associated with convenience samples, small numbers and quasi-experimental or descriptive designs, yet this does not diminish the significance of findings as a basis for further research. However, one of the most significant and consistent omissions of the body of literature that studies nursing practice in pain management is the limited attention it

gives to the clinical reality of nursing practice. In other words, the literature does not provide sufficient information about what nurses actually do in practice.

Instead, many studies have used written descriptions of patients to elicit pain estimates and management techniques from nurses. These have included various types of information about the patient, including diagnosis, prognosis, severity of condition, signs and symptoms, age, sex, social status, observed reactions and verbal comments. Such vignettes enable researchers to alter the pain cues and other information presented, and so assess their impacts under strictly controlled conditions. Studies such as these have been influential in demonstrating that marginal factors influence the manner in which nurses assess and manage pain. The power of this approach is that it is possible to control the information presented, something which is very difficult to achieve under normal clinical conditions. The drawback is that the task is somewhat artificial.

Under normal clinical conditions, nurses determine which cues they attend to, whereas vignettes provide them with a preselection. In these situations, nurses interact with patients and so have an opportunity to engage in further questioning and observation to resolve any ambiguities they may have concerning the patient's pain. The nurse has access to subtle cues from the patient's tone of voice, facial expression, body tone and posture when assessing pain, things which are impossible to do justice to in a written description; and yet such factors are known to affect how nurses assess and deal with patients' pain.

While methods utilising hypothetical descriptions of patient situations have some merit, their limitations should be acknowledged. Certainly, the expediency of vignette-based methods is an attractive advantage over other more traditional research approaches. However, the responses that vignettes elicit should be interpreted in the knowledge that what we say we would do, and what we actually do, are products of different sets of circumstances.

Examination of nurses' documented accounts of practice reinforces the wisdom of cautious interpretation of responses to survey vignettes. As illustrated by the studies

reviewed in this chapter, comparisons between survey responses and documentations of practice suggest frequently that what nurses *proclaim* they would do is incongruent with what they *document* as having done in similar clinical circumstances. Such differences are often evident because the continuous, sequential and contemporaneous nature of nursing documentation allows a discriminative level of descriptive analysis of clinical practice that is not possible from the one-off responses elicited by survey vignettes (Mitchell & Jolley, 1996).

However, documentation has been criticised as an inaccurate reflection of practice (Brooks, 1998; Mosher, Rademacher, Day, & Fanelli, 1996). Sceptics have been quick to point out that nursing documentation is characteristically inconsistent and incomplete, and somewhat nebulous with respect to the specifics of patient condition and nursing intervention. Moreover, workload demands, cumbersome charting formats and unit documentation protocols determine the circumscribed nature and extent of information that nurses perceive as relevant for charting (Brooks, 1998).

Nonetheless, nursing documentation remains an important source of information for research that focuses on clinical practice because it provides “evidence of care and patients’ responses to that care and is the essential link between the care the patient receives and the evaluation of that care” (Martin et al., 1999, p.345). It forms a critical aspect of the patient’s record and is written evidence of nursing practice (Tapp, 1990). Clearly, from these perspectives, analysis of nursing documentation raises new questions of relevance for professional nursing practice, questions that might otherwise remain undisclosed in the artificial contexts created by survey vignettes.

Documentation of nursing care has pragmatic value as the foremost source of reference and communication between nurses and other health care providers, which facilitates continuity of high quality care by keeping all providers aware of patients’ current health status (Martin et al., 1999; Moloney & Maggs, 1999).

A nursing documentation system is essential for promoting quality patient care, complying with practice standards and maintaining adequate records for audit

retrieval (Gryfinski & Lampe, 1990). Thus nursing documentation provides the written evidence of the quality of care received by patients during their hospitalisation with respect to standards of care. The value of this source of evidence in pain management has been recognised by relatively few researchers, who have demonstrated that the quality of pain management is influenced directly by the clarity, completeness and accessibility of nursing records of pain assessment and intervention (Scott, 1994).

Documentation is a legal and professional obligation of nurses that “ensures a permanent and legal record of nursing actions and professional judgement and is one process by which nurses can demonstrate their professional accountability in nursing practice” (Nurses' Board of Western Australia [NBWA], 1998).

Nursing documentation also represents a construction of the practice of nursing that reflects the contextual realities of nurses' decision-making. Documentation reveals the professional language of nurses and the contextual dialects of practice specialties (Mohr, 1999). Recently, nurse academics, researchers and practitioners have recognised the significance of the knowledge embedded in the language of nursing documentation for the development of the discipline and the preservation of nursing's professional identity (Allen, 1998).

Exposing the knowledge and practice embedded in nursing documentation is crucial to critical, professional self-reflection and growth, particularly in the area of pain management, in which nursing practice has been consistently acknowledged as ineffective.

### **Rationale for the Study**

The body of literature that examines nursing practice in postoperative pain management has demonstrated consistently that nurses are poor managers of their patients' pain. It has done so, however, from a perspective that is largely fragmented, artificial and protected from the contextual realities that influence clinical decision-

making. There is an urgent need, therefore, for further research that explores this area of practice from a perspective that is more ecologically valid (Hamers et al., 1997).

Documentation of nursing care is a principal source of evidence of nurses' decisions regarding patient care. Therefore, examination of nursing documentation allows determination of instances of outstanding practice, as well as significant omissions in care that may jeopardise the quality of both patient care and patient outcomes.

Responding to this opportunity, Stage One of this thesis seeks to advance research in postoperative pain management by examination and detailed analysis of nurses' documented accounts of their management of patients' pain following surgery, including their assessments of pain, their delivery of pain interventions, and any explanations they might provide for both commissions and omissions of treatment.

## **CHAPTER FOUR**

### **Stage One**

#### **Research Method**

This stage of the research is a retrospective study of patients' hospital records that document nursing assessment and intervention in postoperative pain. The data obtained from these records was supplemented with additional demographic information regarding the nurses who were identified from their signatures as having administered some aspect of the documented care related to pain management. The analysis of pain management was linked to the nurses' demographic data to enable determination of what was done and by whom.

Chapter Four describes the research method that underpins this stage of the thesis. Methods of identifying the primary data sources, who are postoperative patients and the nurses who managed their pain, are described. The methodology of data collection and analysis is discussed, along with measures taken to strengthen reliability and validity of the data. As a study involving human subjects, ethical considerations were of prime concern and the steps taken to ensure their protection are outlined.

#### **Research Design**

Stage One used a descriptive correlative design to explore nursing practice of postoperative pain management. In part 1, the hospital records of patients discharged following surgery provided the source of data concerning patients' reports of postoperative pain and nurses' actions for pain management. In the second part of Stage One, a self-report questionnaire developed by the researcher was used to collect demographic data from registered nurses working at the research site to supplement the data already collected. Respondents were then matched where possible with the nurse signatories identified in part 1. Owing to the inherent

categorical nature of most of the data, analysis proceeded using cross-tabulations to determine the relationship between the study variables.

## **Sample**

The population of hospitalised postoperative patients and the nurses assigned to their care were sampled for Stage One. In part 1, hospital records of 120 patients who had been discharged over a six month period were selected randomly from all surgical patients who had been referred to an Acute Pain Service (APS) and who had received continuous intravenous opioid infusion as their primary postoperative pain management strategy.

These eligibility criteria were applied to the patient sample because the APS protocol for nursing management of patients receiving intravenous opioid infusion gave specific guidelines for pain assessment, opioid administration and documentation requirements. Furthermore, the APS regimen for the use of opioid analgesia is such that all patients receiving this technique have similar opportunities for pain management (Rees & Davis, 1993). Patients were excluded from the study if they remained with the APS for less than twenty-four hours. This indicated that their pain had resolved quickly, giving little opportunity for decisive nursing actions beyond maintaining the infusion at the medically prescribed rate.

The sample for part 2 of this stage was drawn from all registered nurses who had managed postoperative pain control for the patient sample in part 1. This nurse sample included registered nurses who appeared as signatories to documented pain management interventions in the hospital records of subjects in the patient sample. Signatories in the patients' hospital record were included only if they could be confirmed as those belonging to registered nurses. All other signatures were excluded if they were made by physicians or enrolled nurses, or if they could not be deciphered.

Of the 302 nurses identified by their signatures on the intravenous opioid standard order sheets and in the patient progress notes from part 1, 106 (35%), including 80



Level 1 Registered Nurses and 26 Level 2 Clinical Nurses, completed and returned the self-report questionnaire. This means that the nurse sample is described incompletely; however, there is no reason to suspect that the non-respondents do not fall within the range of values identified within the information given by the respondents.

Selection of the patient sample in part 2 was consequent of the nurse sample, and included 97 postoperative patients cared for by the nurses who returned the questionnaire.

### **Setting**

Stage One of this study was conducted in a major metropolitan adult acute care teaching hospital in Perth, Western Australia. This setting was selected primarily because of its consistently high rate of surgical admissions, the presence of an Acute Pain Service, and because it is a major employer of registered nurses in the State. Therefore, it was felt that this site would provide both adequate numbers of subjects who met the inclusion criteria and a representative sample for this stage of the study.

The research site is a 955-bed adult health facility, spreading over two campuses, that at the time of data collection, had an average surgical admission rate of 420 cases per month (Charity Hospital, 1995). The typical surgical unit in this hospital is a 21-bed ward, with a combination of 1,2 and 4-bedded rooms. Over the course of one year, slightly more females than males are admitted for surgery, and the average patient age is 43 years. The usual length of stay for a surgical patient is between 3 and 6 days.

When data were collected for part 1, the typical nursing staff profile on a general surgical unit for any 24-hour period was as follows: (i) six registered nurses and two enrolled nurses on a day shift (between 7:00 am and 4:00 pm), (ii) four registered nurses and one enrolled nurse on an evening shift (between 1:30 pm and 10:00 pm), and (iii) two registered nurses and one enrolled nurse on a night shift (between 10:00 pm and 7:00 am). Workload distribution was based on a patient allocation system

during the day and evening, with one nurse usually responsible for the care of between 5 and 6 patients, depending on the nurse's experience and the patient's acuity level. On night shifts, when most patients would be sleeping, workloads were shared more or less equally between all staff on duty (T.Hinwood [pseudonym], personal communication, January 23, 1995).

In 1990, following similar trends worldwide, an Acute Pain Service (APS) was established at the hospital to improve the delivery and quality of acute pain management throughout the hospital, particularly for patients experiencing acute postoperative pain. This specialist team of physicians and nurses provides 24-hour consultation and support to nursing and medical staff with respect to issues concerning acute pain management. Patients referred to the service are visited twice daily, when appropriate strategies for pain management are discussed with the patient and his or her attending nurse. Particular regard is given to the quality of pain relief and the presence of undesirable side effects and complications associated with analgesia.

The APS encourages nurses to take responsibility for making decisions regarding analgesic administration in accordance with their assessment of the patient's pain. This process is supported by the availability of clinical guidelines for a range of postoperative pain interventions that have been developed by the APS. In particular, these guidelines provide assessment protocols and give limits to the minimum and maximum dosages for opioid analgesics relative to the effectiveness of different modes of analgesic administration and the needs of individual postoperative patients. Within the boundaries of these guidelines, nurses make decisions about the most effective management of breakthrough pain, including when analgesia should be given and how much of the prescribed dose should be administered.

### ***Hospital policies, procedures and clinical protocols***

General information about managing postoperative pain and the role of the Acute Pain Service (APS) in this regard is published in the APS Manual for Management of Acute Pain (Charity Hospital APS, 1994) which is widely distributed throughout the institution. Included in the preamble is a general statement about the importance of

effective pain management following surgery, and the role of the ward nurse in achieving this goal. Most importantly, the authors of this manual emphasise the subjective nature of pain, and the need to both ask the patient about pain and believe what the patient says. Also stressed is that the pain score given by the patient is what should be recorded, and that comments from the nurse should be made if appropriate.

More specifically, this manual details the hospital's standing orders with respect to the role of the ward registered nurse for managing a variety of very specialised analgesic techniques, including intravenous opioid infusions, patient-controlled analgesia, epidural analgesia and interpleural /regional analgesia. For each technique, the manual describes principles of general management instructions for setting up and maintaining specialised equipment and appropriate analgesia, the nature and frequency of patient observations, and how to treat potential problems. These standing orders set a minimum level of practice competency for nurses caring for patients with any one of these techniques; that is, nurses are expected to be familiar with all hospital policies, procedures and clinical protocols for a particular analgesic technique, and to have demonstrated clinical competency in that technique.

The information in this manual is supplementary to the procedural policies of the Nursing Practice Manual (Charity Hospital Nursing Practice Committee, 1989) and specific patient documentation for each analgesic technique. While these documents do not outline the gamut of potentially appropriate nursing care for a patient experiencing postoperative pain, they are prescriptive of the pharmacological parameters of nursing actions, including analgesic dosage, general management, monitoring and documentation and treatment of problems.

### ***Intravenous opioid infusion***

The mainstay of postoperative pain management is opioid analgesic therapy (Baird, 1996; McDonald, 1993), and the most common method of postoperative pain relief used at the hospital research site is continuous intravenous opioid (Charity Hospital Nursing Practice Committee, 1989). Hospital policies, procedures and clinical protocols provide general information and specific instructions regarding the management of patients receiving this pain relief strategy. The following general

information is published in the APS Manual for Management of Acute Pain (Charity Hospital APS, 1994):

- The blood concentration level of opioid required for effective pain relief can vary markedly between patients, even those having the same surgical procedure. The aim of an opioid infusion is to maintain an effective blood concentration of opioid so that the patient remains comfortable at rest.
- The rate of infusion should be adjusted to maintain this level of comfort.
- Bolus doses of opioid analgesia should be given for incidental (breakthrough) pain, and for expected painful procedures.
- Bolus doses are effective almost immediately, and should therefore be given if the patient has pain in preference to just increasing the rate of infusion, which may take hours to take effect.
- Provided observations are stable, opioid infusion rates should not be lowered in the first 24-48 hours postoperatively if the patient is comfortable.

Legal documentation, in the form of the intravenous opioid infusion standard order chart, is maintained by nurses and kept within the patient's hospital record.

Instructions for documentation require that nurses record the patient's pain score every three hours for the duration of the opioid infusion, except when the patient is sleeping. Using a numeric rating scale (NRS), patients should be asked to produce a number between 0 and 10 to indicate pain intensity (0 = no pain, 10 = worst pain imaginable), both at rest and on movement, such as when sitting up, deep breathing or coughing.

The APS protocol allows registered nurses to administer a bolus dose of opioid analgesia, equivalent to one hour's infusion volume, at twenty-minute intervals to a maximum of three bolus doses in one hour. Pain scores are recorded at 20 minutes following a bolus dose to determine the effectiveness of the intervention. If effective analgesia is not reached after three doses, nurses are directed to contact the APS for further assistance. Nurses are also permitted to adjust the hourly rate of the opioid infusion by lowering the rate, or conversely increasing the rate up to the maximum hourly rate prescribed by the doctor. Any of these actions must also be documented and signed for appropriately on the standard order sheet.

## **Instrumentation**

Data for Stage One of the thesis were collected from two sources:

1. existing documentation within patient hospital records relative to the nursing management of continuous intravenous opioid infusion, and
2. a demographic questionnaire constructed by the researcher.

### **Part 1: Patient Records**

In research terms, documentation within patient records represents a source of existing data. According to Polit and Hungler (1995), the use of information from existing data is advantageous for several reasons. The most salient advantage of previously accumulated data is that they are an economical source of large amounts of information for the researcher who may have limited resources.

Working with existing data that have been recorded consistently also allows examination of longitudinal trends without having to wait years for data to be generated. In addition, the use of available data decreases problems of participant reactivity and response bias. For participants, studies based solely on existing data involve no experimental intervention and pose no possibility of physical harm (Appleton & Cowley, 1997).

On the other hand, relying on data collected by others has several disadvantages (Roberts & Taylor, 1998). The investigator may be unaware of limitations, incompleteness or biases of the records. In particular, one problem that affects the quality of available data is that the researcher has access only to those records that have survived. If the records available for use do not constitute the entire set of all possible such records, the researcher must somehow deal with the question of the representativeness of the existing records.

Methodological concerns may arise if there is a mismatch between the variable definitions of the intended research and those of the existing database. Other

problems relate to the authenticity and authorship of the data. The data themselves may not be of adequate quality: the investigator, however, is dependent on the accuracy and completeness of the original data collection and entry process.

As a source of existing data, the use of documentary evidence in a research study shares many of the advantages and disadvantages of using existing data (Krowchuk, Moore, & Richardson, 1995)(see Table 4.1). In particular, documentary evidence, because it is often presented in word form, usually requires a great deal of preparatory work before analysis can take place. This is particularly the case when documents lack a standard format (Hakim, 1993).

Table 4.1. Advantages and Disadvantages of using Documentary Evidence, adapted from Krowchuk et al (1995).

| <b>Advantages</b>   |
|---|
| <ul style="list-style-type: none"><li>• Data readily available</li><li>• Economical in terms of time and money</li><li>• Unbiased by data collection process</li><li>• Researcher does not have to be present during data collection</li><li>• Useful for hypothesis / problem formulation</li></ul>                        |
| <b>Disadvantages</b>  |
| <ul style="list-style-type: none"><li>• Limited by the availability of data</li><li>• Inaccuracies in original material</li><li>• Unrepresentative sample</li><li>• Missing / incomplete data</li><li>• Incomplete document</li><li>• Data studied out of context</li><li>• Extensive preparation before analysis</li></ul> |

The use of health records as sources of data has been an important aspect of health research since the beginning of the 20<sup>th</sup> century (Melton, 1997). Generally, health records are comprehensive in nature and are a rich source of critical information relevant to the adequacy and effectiveness of care. Documentation within health

records is assumed to be medically accurate, reliable, and, from a legal perspective, judicially acceptable (Krowchuk et al., 1995).

The use of health records in research is characterised by many of the previously discussed strengths and weaknesses of existing data and documentary evidence. Health care records can provide access to large or representative samples of data that otherwise might be difficult or expensive to gather.

However, health care record review is not without some financial costs. These are incurred through record retrievals by medical record librarians, as well as review of individual records by data collectors. This is relatively inexpensive compared to direct observation and interview of subjects (Richardson, Selby-Harrington, Krowchuk, Cross, & Williams, 1994). Furthermore, health records usually do not suffer the problems of inaccurate recall, since data, particularly physical data, are generally recorded at the time of making the assessment. Most of these data are directly observed and consequently considered objective (Aaronson & Burman, 1994).

The weaknesses associated with use of health records as a data source include problems related to the purpose of the record, missing information, selective information, information interpretation, and information verification (Krowchuk et al., 1995). The health record is a comprehensive chronicle of documented observations, treatments, and other services provided to the patient. However, these voluminous amounts of data are not collected for research purposes, and are therefore not constrained by research protocols regarding data collection. Therefore, there may be problems with the accuracy of the information, which may influence the research findings (Sirken, Bercini, & Jobe, 1990).

One of the most common problems encountered when using health record data for research is that of missing data. Information may be missing because (a) it was never recorded, or (b) part of the health record, or the entire record, is either missing or unavailable. Because data are gathered retrospectively, it is impossible to determine whether the absence of certain data reflects a lack of documentation or an omission

of care. Information from health records is also limited to that which is required by hospital and/or regulatory authorities, which does not reflect necessarily the range of care considered professionally appropriate by the particular discipline of the provider.

Interpretation of available information may be difficult due to illegibility of handwritten entries or the ways in which terms, and acronyms associated with those terms, may vary between provider groups or units within institutions. Moreover, verification of available information is difficult, if not impossible, and the researcher must assume that the information in the record accurately reflects past events. This assumption, however, is problematic in view of the evidence that demonstrates lack of concordance between documentations and actual events (Brooks, 1998). Nevertheless, health care records remain an important source of data for research purposes. It is therefore expedient of the researcher to weigh the costs and benefits of this approach to data collection.

Patient records were considered the most appropriate source of data for this stage of the thesis for several reasons. This stage of the study focused on nurses' responses to patients' reports of postoperative pain, and it was anticipated from the literature and the clinical experience of the investigator, that the most prevalent response would be pharmacological in nature (AHCPR, 1992; Carpenter, 1997; Carr & Goudas, 1999). Documentation of pharmacological care is more constrained by practice guidelines and legal requirements than the narrative components of patients' hospital records. Thus the very standard and legal nature of the documentation used for data collection minimises some of the weaknesses outlined above. In other words, it was considered that nurses were unlikely to omit documenting occasions involving pharmacological interventions for pain management. In fact, no literature could be found to suggest that nurses do otherwise.

Patient record systems have long been criticised by nurses for the extent of duplication required within the same patient record (Brooks, 1998; Kerr, 1992). This otherwise annoying characteristic of hospital administration practice is to some extent advantageous for research purposes when verification is necessary. In the



current study, verification of the information pertaining to medication administration was possible by cross-referencing entries with medication prescriptions and patient progress notes, which generally iterate medical orders. Furthermore, interpretation was not problematic because the researcher, also a registered nurse, was familiar with the usual nomenclature characteristic of nursing documentation. Finally, the hospital supported the research by agreeing to bear the costs associated with retrieving the records of patients in the sample.

On balance with the strengths and weaknesses of other possible forms of data collection (for example, observation and vignette-based surveys), and in view of the broader professional issues raised in the previous chapter, nursing documentations within patient health records were considered the most appropriate source of relevant and accurate data for part 1 of this stage of the study.

Patients' reported pain scores and nurses' documented responses provided the units of analysis for determining nursing strategies in response to patients' reports of postoperative pain. These data were collected primarily from the documentation associated with the APS protocol for continuous intravenous opioid infusions that was included in each patient's hospital record, and formally known as the APS I.V. Opioid Infusion – Standard Order sheet (see Appendix A). Patient progress notes were also scrutinised for pertinent data.

***APS I.V. opioid infusion standard orders***

The APS I.V. Opioid Infusion – Standard Order sheet referred to in this study is a chart that was included in the hospital records of all patients who received a continuous opioid infusion for postoperative pain relief. This 4-page chart is composed of three main sections: (1) the front page, which outlines the standard orders for management of the infusion, (2) the back page, on which the medical prescription for the intravenous opioid infusion is written, and (3) the two middle pages, for documentation of special observations and record of drug administration.

***Standard orders.*** Standard orders for management of the intravenous opioid infusion are presented in 7 sub-sections on the front page of the chart. Sub-section 1 outlines details of the intravenous opioid infusion order. The prescribing medical practitioner transcribes information about the opioid drug used in the infusion from the back page of the chart. Nurses are next referred to the back page infusion orders to ascertain the infusion rate. Instructions are then given for bolus dose administration, which are standard for all patients irrespective of the opioid used: that is, registered nurses may administer a maximum of 3 bolus doses in any 1-hour period, at 20-minute intervals, provided patient observations are stable. Subsection 1 concludes with the name and signature of the doctor who commenced the infusion, and the date of commencement.

Sub-section 2 lists points of general management. Firstly, the medical practitioner provides a prescription for the rate of oxygen administration. Nurses are then instructed to maintain intravenous access for no less than 3 hours following the last dose of intravenous opioid, and to ensure that naloxone 0.4mg, an antidote for opioid overdosing, is available at all times. Finally, nurses are reminded that no intramuscular, oral or intravenous opioids may be administered except as ordered by the APS.

In sub-section 3 specific instructions are given for monitoring and documenting routine and special postoperative observations. Routine observations of blood pressure, pulse and respiratory rate need to be recorded half hourly for the first 2 hours, hourly for the next 2 hours, 2-hourly for the next 4 hours, then 4-hourly thereafter.

Special observations that have to be made hourly are sedation score, breathing pattern and cumulative volume infused. Sedation score is an indicator of the patient's rousability, and is measured on a 4-point scale, with 0 = none (sedation) and 3 = somnolent, difficult to arouse. An X should be recorded to depict that the patient is sleeping normally. Respiratory rate should be recorded in place of sedation score when the patient is sleeping. Every 3 hours the patient's pain score should be recorded unless the patient is sleeping, again denoted by an X. Pain intensity is

scored on an 11-point numeric rating scale (NRS), with 0 = no pain and 10 = worst pain imaginable. Special observations to be recorded twenty minutes following administration of a bolus dose include blood pressure, pulse, respiratory rate, pain score and sedation score.

Sub-section 4 provides details regarding when and how to contact the APS at any time of the day or week. Nurses are advised that they should refer all instances of inadequate analgesia or other problems to the APS. Sub-section 5 details how specific problems should be treated if they arise. Nurses are advised also to stop the infusion and contact the APS if any one of the following patient conditions exists: (i) sedation score is 2-3, (ii) respiratory rate is less than 10 breaths per minute, (iii) blood pressure is less than 90mm Hg, or (iv) pulse is less than 50 beats per minute. If the patient experiences nausea and vomiting, an anti-emetic should be administered as prescribed, and the APS contacted if the problem persists. The APS should also be contacted if the patient complains of severe itching or urine retention.

Sub-section 6 refers nurses to the APS Manual for Management of Acute Pain for further information regarding intravenous opioid analgesia, and sub-section 7 requires the name and signature of the person ceasing the infusion, and the cease date.

***Opioid infusion prescription.*** The medical prescription for the intravenous opioid infusion is detailed on the back page of the APS I.V. Opioid Infusion – Standard Order sheet. This provides essential information regarding the type of infusion fluid, the type and dose of additive opioid analgesic, the total volume of the infusion, the rate of the infusion and the prescribing doctor. Signatures are required from both the administering and checking nurses when each new fluid flask is commenced. It is usual here for a 24-hour fluid regime to be ordered at one time.

***Documentation of observations and drug administration.*** The two middle pages of the chart provide space for documentation of special observations and record of drug administration. Entries are made consecutively down one page and then onto the second page. Each line of each page allows the nurse to document the following

information in sequence: (i) the date and time of making the entry, (ii) the hourly measure of both the cumulative volume infused and the sedation score, (iii) temperature, pulse, respiration and blood pressure, (iv) 3-hourly numeric scores of pain at rest and when moving, (v) any comments regarding what action is taken, and (vi) the nurse's signature. A small space is provided at the top of the second page to record and describe any adverse drug reactions, and a legend gives information regarding the numeric rating scales for pain and sedation.

### ***Patient progress notes***

Evidence of nurse assessment and intervention in patients' postoperative pain was also sought from the progress notes of each patient's hospital record for the period coinciding with the time during which the patient received the continuous intravenous opioid infusion. The patient progress note is a dedicated, blank page for nurses to document and report on all aspects of patient condition and care, and usually presents as a subjective narrative.

At the time of data collection there were no strict instructions for the format of reporting, only that the nurse responsible for patient care on each work shift should make a report at some time during that shift. The legal requirements, irrespective of the institution, are that all entries need to be dated, timed and signed by the nurse making the report (Government of Western Australia, 1998).

Nursing actions for each pain score reported on the APS protocol sheet, as well as nurses' pain management strategies specific to a particular pain event and documented in patients' progress notes, were extracted and coded across a range of response categories, developed from a pilot study.

### ***Reliability and validity issues of patient records***

The use of patient records in research presents unique problems. The patient record is essentially a documentation of past events, once removed from the actual event, and the data extracted from a record are removed one step further. Consequently, measurement errors, both poor reliability and problems with validity, are possible at several points (Aaronson & Burman, 1994). These errors may occur during the

original collection of the data, during documentation, during extraction of the data, and during interpretation of the data.

The distinction of measurement errors in patient records is further blurred because the recording health provider becomes the measuring instrument, and validity and reliability of data depends on the recorder knowing “truth” and accurately and consistently recording it (Blalock, 1982). Therefore, assessing the validity and reliability of health record data from a retrospective perspective is difficult, and, in some cases, impossible (Horwitz & Yu, 1984; Romm & Putnam, 1981).

A number of factors have been identified that influence reliability and validity of patient record data. These factors include the clinical competence of the recorder, patient cooperation and competence, situational factors and type of data (Lyons & Payne, 1974; Thompson & Osborne, 1976). Furthermore, to a large extent, the same factors that affect the validity and reliability of health record data affect the validity and reliability of the extracted data. In addition, extracted data are affected by coder preparation and training, the amount of interpretation data coders must make, and the level of coding refinement (Aaronson & Burman, 1994; Garvin, Kennedy, & Cissna, 1988; Krowchuk et al., 1995).

Prior to data collection for part 1 of Stage One, patient records were reviewed as possible sources of data relative to the purpose of the research. Within the entire patient record, the documentation associated with continuous opioid infusion, that is, the APS I.V. Opioid Infusion – Standard Order sheet, appeared the most consistent and complete source of data with respect to nursing assessment of and pharmacological intervention in postoperative pain. Compared with other parts of the patient record, this documentation also appeared relatively legible and easy to interpret. Furthermore, clear instructions to nurses regarding obtaining and documenting relevant data were included on every APS I.V. Opioid Infusion – Standard Order sheet.

The type of data, which was pain scores and accounts of pharmacological intervention, was neither sensitive in nature nor narrative accounts of the recorder, and therefore, according to the literature, were likely to have reasonable reliability

and validity (Stevens, Wagner, Rossner, Craddick, & Greenlick, 1988). Moreover, the literature that is relevant to pain management supports the view that the use of standardised formats of documentation increases the likelihood that data will be reliable and valid (Allcock, 1996; American Pain Society Quality of Care Committee, 1995; Briggs & Dean, 1998; Coyne et al., 1998).

Having made an in-principle decision to use the APS I.V. Opioid Infusion – Standard Order sheet as the primary source of data, other more specific issues of reliability and validity needed to be addressed prior to commencing the study. In particular, evidence was sought to determine the reliability and validity of (a) the numeric rating scale as a measure of pain, and (b) nurse documentations of pain assessment and pain interventions.

***The numeric rating scale.*** The numeric rating scale (NRS) is a unidimensional measure of pain intensity that is used in both research and clinical contexts. The scale was described in 1978 (Downie et al., 1978) as a written line oriented either vertically or horizontally. The line is anchored by the numbers “0” and “10”: “0” on the bottom and “10” on the top of the scale, or on the left side and right side, depending respectively on whether the vertical or horizontal orientation is used. The patient is asked to rate her or his pain intensity on a scale of 0 to 10, with 0 indicating “no pain” and 10 indicating the “worst pain imaginable”. Multiple versions of the NRS currently exist as a result of attempts to improve:

1. Ease of administration and scoring
2. Rates of correct response
3. Sensitivity of the scales
4. Ability to detect treatment effects (Flaherty, 1996).

Variations of this tool include a six-point scale (0-5) and a 101-point scale (0-100) (Jensen, Karoly, & O’Riordan, 1989), and visual cues may or may not be included. However, an individual’s ability to discriminate stimuli at more than several points on an ordinal scale may be limited (Miller, 1956). Seemingly, the use of scales with more than twenty points of difference between “no pain” and “worst pain” does not increase necessarily the sensitivity of the measurement (Marvin, 1995). Downie et al.

(1978) explored the differences between the NRS and other unidimensional pain tools in a population of rheumatology patients and found the least amount of error variance when using the 11-point NRS.

The NRS appears both valid and useable, and has a strong positive correlation with other pain measuring tools (Heavner, Racz, Raj, & Shi, 1998; Kremer, Atkinson, & Ingelzi, 1981). Test-retest reliability of the NRS ( $r = .963$ ) was higher than both the visual analogue scale ( $r = .937$ ) and the verbal rating scale ( $r = .901$ ) in samples of literate and illiterate groups of patients with rheumatoid arthritis (Ferraz et al., 1990).

The NRS has been compared with other unidimensional pain scales and validated through cross-modal matching (Herr & Mobily, 1993; Jensen, Karoly, & Braver, 1986; Price, Bush, Long, & Harkins, 1994). The use of the NRS as a valid measure of cancer pain intensity was determined in a study which found a significant positive correlation ( $r = .847$ ) between the NRS and another valid measure of pain, the visual analogue scale (Paice & Cohen, 1997).

The ability to quantify pain intensity is essential when caring for postoperative patients in order to monitor patient progress and analgesic effectiveness (NHMRC, 1999; Paice & Cohen, 1997; Scott & Huskisson, 1976). The literature provides evidence that the NRS is a reliable and valid measure for this purpose. Recent comparisons of the verbally administered NRS with other pain measurement tools revealed a strong positive correlation between these scales in a population of postoperative patients (DeLoach, Higgins, Caplan, & Stiff, 1998; Murphy, McDonald, & Power, 1988).

Furthermore, as a measure of pain intensity, the NRS has several practical advantages over other pain measuring scales. The scale is simple to administer, easy to score, and readily administered in either written or verbal form (Jensen et al., 1986). Moreover, verbal administration obviates the need for specially printed paper or cards, such as required in the use of other types of scales.

The scale can be used with non-English speaking patients through the appropriate substitution of the anchor words in the patient's native language. Verbal administration also allows those individuals who are visually or physically disabled, as well as those patients communicating by telephone, to quantify their pain intensity. The majority of patients understand the scale, and it can be used to measure both the intensity of acute pain and the efficacy of analgesic therapy. Its chief disadvantage is its use at extremes of age. Impaired cognition in some elderly patients and the inability of the very young to differentiate words and numbers may prohibit use of the NRS (Price et al., 1994).

***Nurse documentation.*** The literature that examines nursing documentation provides little evidence that nurses either assess or treat pain appropriately (Briggs & Dean, 1998; Devine et al., 1999; McCaffery & Ferrell, 1997b; Meurier, 1998). Among others that arise from these findings, one question must address the reliability and validity of nurses' accounts of their pain management practice.

It has been suggested that nurses consistently underestimate or overestimate patients' pain (Allcock, 1996; Camp, 1987; Choiniere et al., 1990; Sjostrom et al., 1997; Thomas et al., 1998). However, these findings emerge from studies that ask nurses to document what they *perceive* as the intensity of pain that is experienced by the patient. Furthermore, studies that compare nurses' documented accounts of patients' pain do so from the perspective of *how much* pain-related documentation exists within patient records (Camp, 1988; Coyne et al., 1998; Ferrell et al., 1991; Tittle & McMillan, 1994; Watt-Watson, 1987).

Few studies, however, examine the accuracy of nurses' recorded accounts of patients' self-reports of pain intensity. There is evidence to indicate that in some instances nurses record a score that is lower than that given by the patient, but these accounts are too few to confirm this as a consistent trend. Therefore, it remains relatively unknown whether a nurse would deliberately record a different score to that given by the patient.

The accuracy of documented pain reports is consequent of more than the nurse's intention to correctly record a score verbatim. There is substantial evidence to



indicate that patients do not necessarily report their pain accurately, and, indeed, are often reticent to report episodes of pain at all (Clarke et al., 1996; Taylor et al., 1984; Vortherms et al., 1992; Ward et al., 1993). In addition, ambiguity and inconsistency in the instructions nurses issue for reporting pain intensity can diminish the accuracy of the patient's reported pain score (Stannard et al., 1996).

Similarly, the literature says little of the reliability and validity of nurses' recorded accounts of the interventions used to manage pain. There is some evidence that nurses do not document all that is done in the care of patients in pain, and, in particular, that nurses use more non-pharmacological pain interventions than indicated in their documentations of care (Broome et al., 1996; Salantera et al., 1999). However, while it is clear from documented accounts of nursing practice that nurses generally undermedicate patients in pain (Abbott et al., 1992; Carr, 1990; Closs, 1990; MacLellan, 1997), there is no evidence that nurses fail to appropriately record occasions when they do administer analgesia.

The accuracy of nurses' documentations on the APS I.V. Opioid Infusion – Standard Order sheet could not be determined for this study. However, this chart is a legal record of special observations and drug administration, and requires relatively simple and succinct documentation. It is also a chart with little demand for subjective narrative. Furthermore, the researcher knew that registered nurses at the hospital were required to demonstrate clinical competence in the practice requirements for continuous intravenous opioid infusion prior to caring for postoperative patients receiving this particular intervention.

It was necessary for nurses to attend relevant inservice education sessions that were delivered regularly by the APS team, and which included information and “hands-on” experience in using the NRS to assess patients' postoperative pain, operating the equipment associated with opioid infusion, adjusting the rate of the infusion and administering a bolus dose of opioid analgesia, and completing the relevant documentation. In addition, members of the APS team were available 24 hours every day to consult with nurses requiring assistance with any aspect of the patient's pain management, including documentation procedures.

It was therefore reasonable to assume that nurses would have used the chart appropriately to record any bolus administration or alteration in the rate of the intravenous opioid infusion. The additional requirement of maintaining a cumulative total for the amount of intravenous volume infused would have been an added deterrent to any nurse from administering a bolus dose of opioid analgesia or changing the infusion rate *without* recording the action. It is also improbable that nurses would have recorded administration of opioid analgesia in the patient progress notes and not on the Standard Order sheet.

As shown by the literature, patient progress notes are limited by what is *not* documented, and therefore their reliability and validity as a measure of nursing management of postoperative pain could not be assumed for this study. In this respect their use was limited to seeking comments related to pain management that had been documented by nurses in addition to their comments noted on the APS I.V. Opioid Infusion – Standard Order sheet.

Prior to data extraction for the main study, 20 patient records were randomly selected from the main sample and a pilot study was conducted to establish the reliability of the category coding system and assess the adequacy of the data collection plan. All nurse entries identified as pain management interventions were extracted from the APS I.V. Opioid Infusion – Standard Order sheet and patient progress notes. Broad categories of *nurse response* were constructed using inclusion and exclusion criteria derived from the general and hospital literature related to postoperative pain management, and the clinical experience of the researcher.

Unitising reliability of the process of data extraction, that is, consistency in assessing *what* should be coded (Garvin, Kennedy, & Cissna, 1988; Lynn, 1985), was determined by three expert judges (a surgical clinical nurse specialist, the APS clinical nurse, and a doctorally qualified nurse academic) and the researcher, who reviewed the same five patient records and obtained a high percentage of agreement in the number of *nurse responses* present in the body of data. The investigator felt

that the unit of patient's *pain report* was fairly concrete and specific and therefore required no test of unitising reliability.

Using the same patient records, interpretative reliability (assurance that common labels are consistently applied to the units (Garvin et al., 1988; Lynn, 1985)) of the coding system and of individual *nurse response* categories was confirmed by a 94% level of agreement among these three expert judges and the researcher. Furthermore, interpretive reliability was enhanced throughout the main study by the use of only one data extractor, who was the investigator. However, interpretive reliability was also assessed periodically by these same three expert judges throughout data extraction for the main study.

## **Part 2: Demographic Questionnaire**

The purpose of part 2 of Stage One was to determine differences in the pain management practice behaviours of nurses with different levels of education and experience. Data concerning these latter characteristics were collected using a survey questionnaire that was administered to all nurses employed at the research site (see Appendix C).

The use of self-report survey questionnaires is one of the most commonly employed approaches to data collection in research (Mitchell & Jolley, 1996). The popularity of questionnaires stems from their relative ease of administration, as well as their cost efficiency compared to other more labour-intensive forms of data collection, such as observation and interview. The use of a questionnaire enables the acquisition of large amounts of information from the study sample, and its adaptability to electronic mediums means that it can be distributed over a wide geographic area if desired.

Furthermore, since most questionnaires ask for anonymous replies, the respondents may be more likely to answer candidly than in interview situations, where answers may be given because they are perceived as socially and/or professionally acceptable (Burns & Grove, 1997). Finally, the development of statistical tests has made it relatively easy to test the reliability and validity of questionnaire data (Rose & Sullivan, 1996).

The decision to use a survey questionnaire to obtain the demographic details of nurses was based on several factors. Firstly, nurses' employment records would not necessarily contain all the information needed, and, in any case, it was unlikely that the hospital would grant the researcher permission to access these records. On the other hand, the demographic nature of the data that was required to address the research questions meant that it was relatively simple to construct a short questionnaire that was unambiguous and easy to complete.

Distribution of a questionnaire was also considered a more effective and efficient method of accessing subjects whose work patterns, including evenings, nights and weekends, isolated them from the normal hours of a business day. In addition, production, distribution and retrieval costs of the questionnaire were covered by a small research grant that had been acquired by the researcher.

The demographic questionnaire used for data collection was a 3-page, 10-item self-report instrument developed by the researcher in consultation with a clinical nurse specialist, nurse manager and an academic (see Appendix C). The questionnaire contains three sections: (i) a section on background information, (ii) a section pertaining to educational qualifications and (iii) a section regarding professional experience.

The first section consists of four forced-response questions. The first two questions ask subjects their age and gender respectively. The third question asks subjects to indicate their current level of employment from the following range of responses: (i) Level 1, (ii) Level 2, (iii) Level 3, or (iv) Level 4. Finally, subjects are asked to indicate their employment status as either full-time or part-time.

The second section contains four questions, two open-ended and two forced-response, related to educational background. The first question in this section requests subjects to identify their highest nursing qualification from a range of alternatives, including hospital-based diploma, tertiary diploma, undergraduate degree, postgraduate diploma, master's degree, and doctorate. Next, subjects are

asked to list all other tertiary qualifications held. The third question requires subjects to list all postbasic (non-tertiary) nursing certificate courses held. For the final question, subjects are asked to indicate whether or not they have in the last two years attended any continuing education or inservice educational courses that focused specifically on pain management.

Section three contains two open-ended questions. In the first question subjects are asked to provide details of their length of experience as a registered nurse. Subjects are then asked to provide similar details in the next question, only this time with respect to surgical nursing experience.

In addition, space was provided at the top of the first page of the questionnaire for a 3-digit identity code that would be added to the questionnaire once the identity of the respondent was matched with a nurse signatory from part 1.

***Reliability and validity issues of the demographic questionnaire***

Reliability and validity of the demographic questionnaire used in part 2 of Stage One were established during its development and from a pilot study.

The validity of demographic variables is easier to establish because they represent relatively simple and straightforward constructs (Burdess, 1994; Burns & Grove, 1997). The researcher consulted with a clinical nurse specialist, a nurse manager and two academic advisers during the development of the questionnaire to establish its face and content-related validity.

Prior to the main study, the questionnaire was piloted with 10 registered nurses to determine the clarity of the questions, precision of instructions, completeness of response sets, time required to complete the questionnaire, and the feasibility and success of this method of data collection. Subsequently, minor modifications were made to the questions and completion instructions where necessary.

To determine stability, the final questionnaire was administered twice at a 2-week interval to a different group of 10 registered nurses. Test-retest agreement between respondents' answers to both questionnaires was 98%.

## **Procedures**

This section provides an overview of the general research strategy for Stage One of the thesis. Detailed descriptions of the research procedures for part 1 and part 2 of this stage are provided in the relevant sections of Chapters Five and Six respectively.

Once permission was granted from the University's Human Research Ethics Committee and the hospital's Nursing Research and Ethical Review Committees, hospital records of randomly selected patients were retrieved and scrutinised until 120 records of eligible patients had been selected. Using 20 records that were randomly selected from the main sample of patient records, a pilot study was conducted to assess the adequacy of the data collection plan and identify and define the major categories of nurse responses.

The remaining 100 records were then reviewed and all relevant data were extracted from the APS I.V. Opioid Infusion – Standard Order sheet then coded. This included the time of each assessment, patients' reported pain scores at rest and on movement, and the nurses' notation made in the comment column. Also extracted and coded were any comments made in patients' progress notes as they pertained to the pain experience and the nurses' responses. The names of registered nurses who appeared as signatories to data extracted from the patient record were transcribed and numerically coded.

The piloted survey questionnaire was then distributed to all registered nurses working at the research site. The questionnaire, together with a covering letter, consent form and reply-paid envelope, was distributed through the hospital's internal mail system to 480 registered nurses. Returned questionnaires were matched where possible with the nurse signatories identified from the patient records, and questionnaires were coded accordingly. Unmatched questionnaires were discarded. A

second mailing was made one month after the initial distribution to all nurses who had not yet returned the questionnaire.

All data collected from patient records and returned questionnaires were coded, collated and analysed by the researcher.

### **Data Analysis**

All coded data from patient records were entered into a data spread sheet using the SPSS for Windows software release 8.0.0.(SPSS Inc., 1997), and descriptive statistics were calculated for all categories and sub-categories of documented nurse responses and reported pain scores. Mean pain scores were generated between pain scores recorded for at rest and on movement, then collapsed across the following categories of adjective pain ratings: (i) *no pain* (mean pain scores = 0), (ii) *mild pain* (mean pain scores = 1, 2 or 3), (iii) *moderate pain* (mean pain scores = 4 or 5), (iv) *severe pain* (mean pain scores = 6 or 7), and (v) *excruciating pain* (mean pain scores = 8, 9 or 10). The category of *no documented pain* represented the absence of a documented pain report, either when it should have been recorded or when a nursing response, but no pain report, was documented. Contingency tables were then generated to determine the variations in nurse responses as a function of patients' pain reports.

Data from the returned questionnaires were coded then entered into a data spread sheet using the SPSS for Windows software release 8.0.0. (SPSS Inc., 1997). Descriptive statistics for each variable were computed for the sample overall and for registered nurses of each employment level. Chi-square statistic was used to analyse the difference in the level of education between nurses of each level of employment. Differences in the length of professional experience between nurses were analysed using the Mann-Whitney U test for non-normally distributed data (Martin & Pierce, 1994). The difference in the mean ages between Level 1 RNs and Level 2 CNs was tested using the *t*-test for independent samples. The level of significance set for all statistical analyses was  $p = .05$ .

The data sets of parts 1 and 2 were then combined where the respondents of part 2 could be matched with nurse signatories of part 1. Finally, contingency tables were generated to examine variations in nurse responses between nurses of different employment levels for each category of patients' reported pain.

Use of the chi-square statistic for analysis of these data was precluded because the measures of pain and nurse response were not strictly independent measures. For example, the same nurse may have documented more than one response for the same patient or for different patients during the period of data collection. Similarly, all pain reports from the same patient were extracted from relevant records, although different nurses may have responded to each report.

More detailed descriptions of analyses of data collected from patient records and the demographic questionnaire are included in Chapters Five and Six respectively.

### **Ethical Considerations**

Prior to commencement of Stage One of this study, permission was sought from both the University's Human Research Ethics Committee and the Nursing Research and Ethical Review Committees of the selected hospital.

For part 1 of Stage One, a request was made to the hospital to access patient hospital records for data collection. Although patient consent was not sought, the researcher was sensitive to the need to maintain patient privacy. Thus anonymity of patient information was assured through a process of data extraction that identified each patient record by hospital identification number only (see Appendix B).

Confidentiality of the names of all nurse signatories identified from the patient records was maintained using a numerical coding system. An electronic codebook was used to keep account of the names of identified nurses and their code numbers. This and all electronically maintained patient data extracted from hospital records, has been kept in a secure place during data analysis and will be destroyed after five years.



For part 2 of Stage One, permission was sought to approach all registered nurses who were working at the hospital. This was to ensure inclusion of any nurses who were currently, or who had been previously, working on surgical units during the times corresponding to the admission periods of patients identified for part 1.

Questionnaires were distributed with a consent form and covering letter (see Appendix D) that explained the purpose of the study and measures taken to observe confidentiality and anonymity.

Assurance was also given to all subjects that participation in the study would in no way affect present or future standing in the hospital. Subjects were advised of the voluntary nature of the study and were given the option to withdraw from the study at any time without being subjected to any penalty. All nurses who agreed to participate in the study were asked to give the researcher permission to publish the findings of the study as aggregate data.

Questionnaires were destroyed if they were returned from nurses who were not identified as signatories in patient records from part 1. All returned data that were matched to nurse signatories identified from part 1 have been anonymously and securely stored electronically for analyses throughout the study and will be destroyed after five years.

### **Concluding Remarks**

The procedures for data collection and analysis described in this chapter were designed to strengthen the degree of measurement reliability and validity throughout Stage One of the study. Every effort was made to ensure that the approaches taken to data collection were relevant, accurate and unbiased, and consistently applied to the measurement of nursing practice in pain management. The nurse sample in this stage of the thesis, although small, was sufficiently representative of the current population of registered nurses managing pain of postoperative patients in acute care hospital settings to derive valid conclusions regarding this area of nursing practice.

Altogether, the methods described here have been applied rigorously and systematically throughout and therefore establish confidence in the findings of this stage of the thesis. The procedures and outcomes of parts 1 and 2 of Stage One of the thesis are outlined in further detail in the next two chapters, Chapters Five and Six, respectively.

## **CHAPTER FIVE**

### **Stage One:Part 1**

#### **Analysis of Nursing Documentation of Postoperative Pain Management**

This chapter describes the first part of Stage One of the thesis, which examines nursing practice in postoperative pain management from the perspective of nurses' documented accounts contained within patients' hospital records. Data were collected from the records of patients who had received one particular form of postoperative pain relief, a continuous intravenous opioid infusion. Analysis of the data determined the nature and distribution of nurse responses with respect to patients' pain reports and provided important insights into the way in which nurses manage their patients' pain postoperatively.

#### **Purpose of Part 1**

The purpose of part 1 was to examine nursing practice in postoperative pain management from the perspective of documented nurse responses to patients' reports of postoperative pain.

#### **Research Questions**

Against a background of nursing practice guidelines and clinical protocols for postoperative pain management, the following questions directed data collection and analysis for part 1 of this stage of the thesis:

1. What actions do nurses take in response to patients' reports of postoperative pain?
2. What variations in nurse responses exist in relation to variations in patients' pain reports?

## **Procedure**

After gaining consent from the hospital's Ethical Review Committee, the names of discharged patients who had been referred to the Acute Pain Service over a six month period were obtained from records kept by the APS administration. From these, names of patients were selected randomly and their hospital records retrieved through the Department of Medical Records. These were then scrutinised until 120 records of eligible patients had been selected.

### ***Pilot study***

Prior to commencing data collection from the main sample, a pilot study was conducted to (i) identify and define the major categories of nurse responses, and (ii) assess the adequacy of the data collection plan. Twenty records from the main sample were randomly selected and the APS I.V. Opioid Infusion – Standard Order sheet and progress notes were examined.

All nursing entries identified as pain management interventions were extracted from the Standard Order sheet and the patient progress notes. Also noted were all occasions at which a pain score had been recorded but no consequent action documented. In addition, it was noted when a nursing action for pain intervention was documented in the absence of a recorded pain score.

From these data, broad categories of nurse responses were constructed using inclusion and exclusion criteria derived from the APS Manual for Management of Acute Pain, literature related to postoperative pain management, and the clinical experience of the researcher. The three major response categories, which were confirmed by an expert nurse academic, the surgical clinical nurse specialist and APS clinical nurse, were as follows: (a) *no documented response*, (b) *pharmacological responses*, and (c) *non-pharmacological responses*.

***No documented response.*** A nurse response was categorised as *no documented response* when a pain score had been recorded, or should have been recorded according to protocol, but no subsequent nurse action was documented.

***Pharmacological responses.*** A documented nurse response was coded as a pharmacological response if it concerned administering a bolus dose of opioid analgesia, altering the rate of the intravenous opioid infusion, or administering supplementary analgesic medications prescribed by the APS or medical practitioner. If documented, the conditions for each response were also noted. For example, the nurse may have noted that a bolus dose was administered prior to physiotherapy or wound dressing changes. Similarly, in some instances the infusion rate may have been reduced or ceased altogether because of the occurrence of adverse reactions, evidenced on occasions by a sedation score greater than 2 or a respiratory rate less than 10 breaths per minute.

***Non-pharmacological responses.*** Responses in this category included the following: (i) changing the patient's body position, (ii) making a subjective comment about the patient's pain condition, (iii) contacting the APS, and (iv) documenting that the patient refused intervention.

A data collection survey sheet (see Appendix B) and codebook were then developed to facilitate data extraction and coding for entering data into the computer for statistical analysis. The survey sheet was designed to first collect and code patient demographic details, including (i) postoperative day, (ii) operation, (iii) age, (iv) gender, and (v) English-speaking background.

The remainder of the survey sheet was constructed to allow extraction and coding of the following data from each line of the APS I.V. Opioid Infusion – Standard Order sheet, as well as relevant data from the progress notes in each patient's hospital record: (i) time of making the entry, (ii) pain score at rest and on movement prior to intervention (including the absence of any documented pain score), and (iii) the nurse response (including the absence of any documented response). Space was also provided for a 3-digit code to identify the nurse making the response.

### ***Main study***

The APS I.V. Opioid Infusion – Standard Order sheet and progress notes in each of the remaining 100 records were then examined. Using the data collection survey

sheet, all relevant data (patient demographics, documented pain scores and nurse responses) were sequentially extracted from the Standard Order sheet and coded across the range of categories previously developed. Also noted was the absence of a pain score, when, according to the protocol, a 3-hourly pain score should have been recorded.

The progress notes of each patient's hospital record were then scrutinised and evidence of nurse assessment and intervention in patients' postoperative pain during the period coinciding with the time during which the patient received the continuous intravenous opioid infusion was extracted and coded.

The professional status of the individual who was signatory at each entry on the Standard Order sheet or in the patient progress notes was verified by the ward staffing list. If the signatory was a registered nurse, the name was transcribed into the codebook and assigned a 3-digit code. This code was then entered appropriately on the data collection survey sheet, and used to identify each subsequent entry made by the same registered nurse.

All unsigned entries on either the Standard Order sheet or in the patient progress notes were excluded from the data collection because the identity of the respondent as a registered nurse could not be verified.

Data collection for the main study continued over an 8-month period because the Department of Medical Records repeatedly recalled many of the hospital records of the patient sample for other purposes. In several instances the same patient hospital record was retrieved ten times before data collection could be completed.

### **Data Analysis**

All coded data from the main study were entered into a data spread sheet using the SPSS for Windows Release 8.0.0. (1997) computer software, and descriptive statistics were calculated for all categories and sub-categories of documented nurse responses and reported pain scores.

Mean pain scores were generated between each pain score at rest and its corresponding pain score on movement. A total of 2192 mean pain scores were computed across the data, ranging from 0 - 10 ( $M = 3.3$ ,  $SD = 2.45$ ). These data were collapsed across categories of adjective pain ratings on the basis of the distribution of patients' reported pain scores. The labels assigned to each pain-rating category are adjective descriptors described in the literature and commonly used in verbal descriptor scales to denote increasing pain intensity (Choiniere & Amsel, 1996; Fernandez & Towery, 1996; Flaherty, 1996; Turk & Okifuji, 1999). The resultant categories of documented pain reports used for subsequent data analysis were as follows: (i) *no pain* (mean pain scores = 0), (ii) *mild pain* (mean pain scores = 1, 2 or 3), (iii) *moderate pain* (mean pain scores = 4 or 5), (iv) *severe pain* (mean pain scores = 6 or 7), and (v) *excruciating pain* (mean pain scores = 8, 9 or 10).

The category of *no documented pain* represented the absence of a documented pain report, either when it should have been recorded or when a nursing response, but no pain report, was documented.

Contingency tables were then generated to determine the variations in nurse responses as a function of patients' pain reports.

## **Outcomes**

### **Characteristics of the Patient Sample**

Demographic data for this sample are displayed in Table 5.1. There were 100 patients in this sample: 47 men and 53 women. Their ages ranged from 16 to 89 years ( $M = 55.9$ ,  $SD = 19.4$ ). Seventy five percent of patients were 40 years of age or older and 38% were between 40 and 65 years of age.

Fourteen patients were non-English speaking, and one patient was unable to speak due to facial sutures. Six categories of surgery were identified in the total sample. In descending order of occurrence they were gastrointestinal (61%), orthopaedic (16%),

genito-urinary (9%), diagnostic (6%), neurovascular (4%), and reconstructive surgeries (3%).

Table 5.1. Demographic Details of the Men and Women in the Patient Sample (N=100).

|                                    | Males ( <i>n</i> = 47) | Females ( <i>n</i> = 53) |
|------------------------------------|------------------------|--------------------------|
|                                    | <i>n</i>               | <i>n</i>                 |
| <b>Age (in years)</b>              |                        |                          |
| Range                              | 16 – 89                | 17 – 88                  |
| Mean                               | 54.72                  | 57.04                    |
| Standard Deviation                 | 19.41                  | 19.58                    |
| <b>Days with APS</b>               |                        |                          |
| Range                              | 1 – 9                  | 1 – 9                    |
| Mean                               | 2.34                   | 2.03                     |
| Standard Deviation                 | 1.64                   | 1.20                     |
| <b>Language</b>                    |                        |                          |
| ESB <sup>a</sup>                   | 40                     | 45                       |
| Non-ESB                            | 6                      | 8                        |
| Unable to speak                    | 1                      |                          |
| <b>Type of Surgery<sup>b</sup></b> |                        |                          |
| Gastrointestinal                   | 27                     | 33                       |
| Orthopaedic                        | 8                      | 8                        |
| Genito-urinary                     | 4                      | 6                        |
| Diagnostic                         | 3                      | 3                        |
| Neurovascular                      | 3                      | 1                        |
| Reconstructive                     | 2                      | 1                        |

Note. <sup>a</sup>ESB = English speaking background. <sup>b</sup>One missing case.

The average number of days patients remained referred to the care of the Acute Pain Service (APS) was 2.17 (*SD* = 1.42). During this time all patients had received a continuous intravenous opioid infusion that was made up of normal saline 500ml plus morphine 50mg and infused at a rate up to 40 ml per hour. Medication orders for all patients in this sample also included a prescription for oral paracetamol, a non-



opioid analgesic, and/or indomethacin, a non-steroidal anti-inflammatory medication, to be administered as required.

### **Documented Reports of Pain**

The distributions of pain reports indicate that no *pain* was reported on 14% of occasions, while the remaining 86% of events reflect pain of increasing severity, as displayed in Figure 5.1.

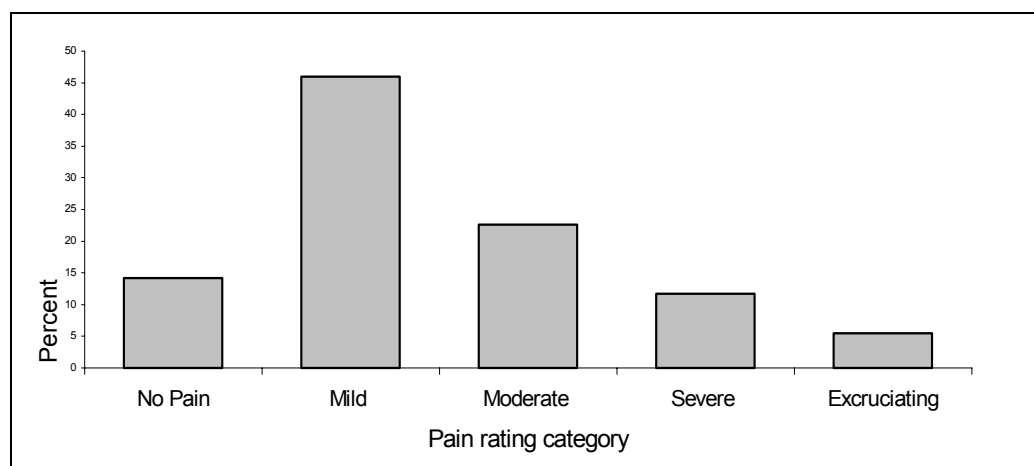
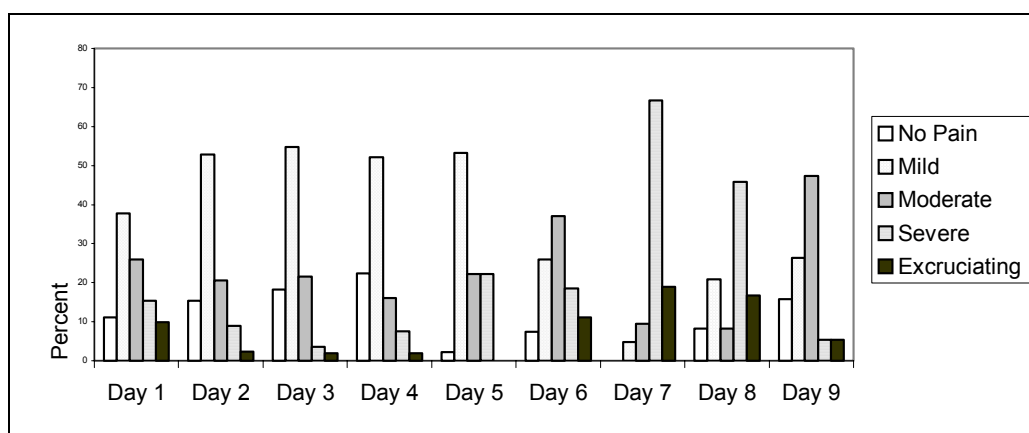


Figure 5.1. Total distributions of pain reports per pain rating category.

### ***Documented pain reports on each postoperative day***

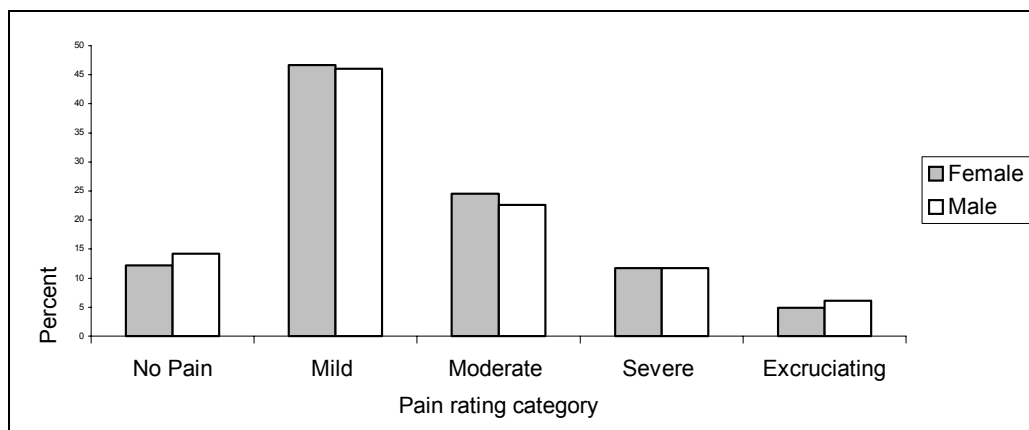
As illustrated in Figure 5.2, reports of *mild* pain predominated for the first 5 days postoperatively, whereas reports of *severe* and *excruciating* pain decreased dramatically on day 2 by 50% and 80% respectively, and then remained steady over the next 48 hours. *Moderate* and *severe* pain was reported most often after day 5. *Severe* and *excruciating* pain accounted for most pain reports on days 7 (86%) and 8 (63%).



**Figure 5.2.** Distribution of pain reports per pain rating category for each postoperative day.

### ***Documented pain reports according to patient gender***

The distributions of pain reports in each pain-rating category for male and female patients are shown in Figure 5.3. The percentage distribution of reported pain was fairly similar among each gender group, except that female patients reported having *mild* and *moderate* pain more often and *no pain* and *excruciating* pain less often than male patients.



**Figure 5.3.** Distribution of pain reports per pain rating category for females and males in the patient sample.

### Documented pain reports for each type of surgery

Figure 5.4 illustrates the distributions of pain reports per pain rating category for each type of surgery identified in the patient sample. *Mild* then *moderate* pain were the two most frequently reported pain ratings for most types of surgery, except by patients having exploratory surgery, for which *no pain* was the second most frequently reported pain rating. *Excruciating* pain was reported least often for all types of surgery except reconstructive.

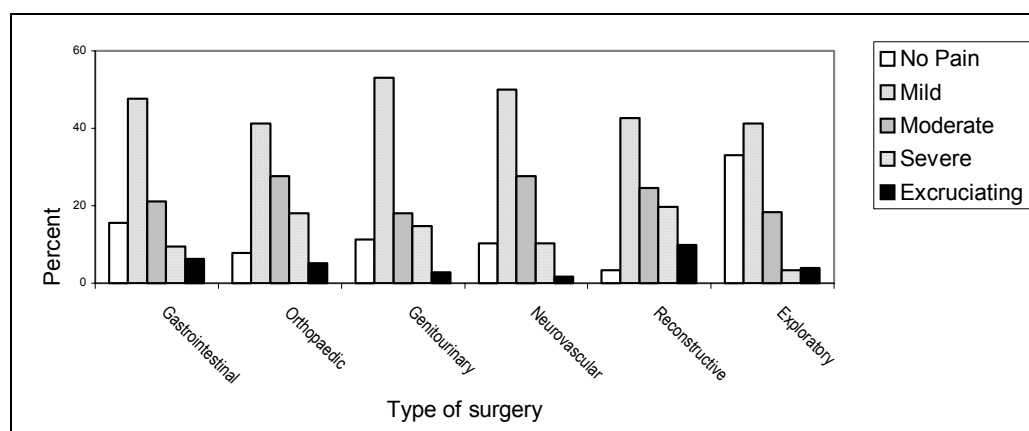


Figure 5.4. Distribution of pain reports per pain rating category for each type of surgery.

### Nurse Responses

The total distributions of responses from 302 registered nurses across the entire data set were as follows: (i) 2148 (65%) occasions of *no documented response*, (ii) 919 (28%) *pharmacological responses*, and (iii) 249 (7%) *non-pharmacological responses*.

The total *pharmacological responses* included (i) alteration in the rate of the intravenous opioid infusion (61%), (ii) administration of a bolus dose of opioid analgesia (38%), and (iii) administration of a supplementary non-opioid analgesic (1%).

Documented *non-pharmacological responses* comprised notations of (i) supplementary pain assessment (89%), (ii) contacting the APS (7%), (iii) repositioning the patient (2%), and (iv) patient requests for no intervention (2%).

On no occasion did documented responses indicate that nurses combined any of these activities.

***Variations in nurse responses as a function of 3-hourly pain ratings***

Table 5.2 provides information about the distributions of documented nurse responses for each pain-rating category. The information contained in this table was used to answer question 2 and to examine the variations that existed in nurse responses in relation to variations in patients' reports of postoperative pain.

The table gives details of the percentage distributions of nurse responses within each pain-rating category across the range of nurse response categories. To better understand this complex array of data, each category of pain report is discussed systematically in the following text.

***Patient reports no pain.*** Not unexpectedly, nurses in this sample most frequently made *no documented response* (78%) when patients reported having no pain. As shown in Table 5.2, the remaining responses are relatively evenly divided between *pharmacological responses* (13%) and *non-pharmacological responses* (9%).

Documented *pharmacological responses* indicated that nurses most often altered the rate of the intravenous opioid infusion (98%): more than half the time (58%) to reduce the rate, and on 37% of occasions to stop the infusion. Administration of a bolus dose of opioid analgesic was documented twice; on both occasions prior to patient activity.

Slightly more than half of the documented *non-pharmacological responses* were nurses' notations that the patient had pain, but apparently not enough to warrant any pharmacological response. The remaining responses in this category (43%) consisted



of nurses' notations that the patient was sleeping. On these occasions nurses documented a pain report of *no pain* in lieu of the patient's verbal report.

***Patient reports mild pain.*** *No documented response* (82%) was the most frequent finding for this pain-rating category also. *Pharmacological responses* accounted for 14% of nurse responses: almost three times more than *non-pharmacological responses* (5%).

Once again, alteration in the intravenous opioid infusion rate (79%) was documented most often; 66% of the time this was to decrease the infusion rate, and 23% of the time to stop the infusion altogether. Bolus administration accounted for 24 (18%) of all *pharmacological responses*: most often (79%) this was less than the maximum prescribed dose, and on 25% of occasions bolus administration preceded planned patient activity. Administration of a non-opioid analgesic accounted for 3% of all *pharmacological responses*.

*Non-pharmacological responses* included making supplementary comments of pain assessment (75%); contacting the APS (11%), repositioning the patient (6%), and noting that the patient was sleeping (8%).

***Patient reports moderate pain.*** As depicted in Table 5.2, there was *no documented response* in 77% of cases where patients reported *moderate* pain.

For this pain rating, all *pharmacological responses* (19%) were evenly distributed between altering the infusion rate (49%) and bolus administration (48%). Infusion rates were increased as often as they were decreased, 46% and 44% respectively, and when nurses administered a bolus dose of opioid analgesia, most of the time (60%) this was the maximum amount prescribed. A non-opioid analgesic was administered on three occasions.

Supplementary notations of pain assessment (68%) accounted for the majority of the total *non-pharmacological responses* (4%), and, interestingly, twice it was noted that

the patient was sleeping. For two reports of *moderate* pain the patient refused pharmacological intervention.

***Patient reports severe pain.*** *No documented response* (58%) was the most frequent nurse response to patient reports of *severe* pain.

*Pharmacological responses* accounted for 38% of all nurse responses and most of the time this was to administer a bolus dose of opioid analgesia (58%). Most often nurses administered the maximum amount prescribed (63%). Nurses altered the rate of the intravenous opioid infusion less often (40%) than bolus administration, and this was mostly to increase the rate (82%). On one occasion the infusion was stopped, but no explanation was given. Supplementary analgesia was given instead of a bolus dose of opioid analgesia on two occasions.

Of the nine (4%) *non-pharmacological responses*, notations of supplementary pain assessment were identified most frequently (66%); one such notation documented that the patient had ‘good pain relief’. On two occasions the patient refused pharmacological intervention.

***Patient reports excruciating pain.*** Nurses in this sample did not document a response to almost half (43%) of all patient reports of *excruciating* pain.

The most frequent of the total *pharmacological responses* (57%) was administration of a bolus dose of opioid analgesia (65%); usually the maximum amount prescribed (77%). Alterations to the infusion rate accounted for 34% of all pharmacological responses and 98% of the time this was to increase the rate. On one occasion a non-opioid analgesia was administered for pain relief.

The *only non-pharmacological response* documented for this pain-rating category was a single notation of supplementary pain assessment.

In summary, the total distributions of nurse responses to documented reports of pain outlined in Table 5.2 show that 75% of the time the type of nurse response to the

entire range of patients' reports of pain, including *no pain*, was *no documented response*. Recall from Figure 5.1, however, that only 14% of assessments reported *no pain*. The percentage distributions of *no documented response* decreased as pain severity increased; however, for 53% of occasions when patients reported *severe* or *excruciating* pain, no explanation could be found in patient hospital records for the absence of a documented nurse response.

The trends in *pharmacological responses* indicated that for reports of *no pain* and *mild* pain, nurses reduced the amount of medication patients received, by slowing the rate of the intravenous opioid infusion and restricting the administration of bolus doses of opioid analgesia. *Pharmacological responses* were distributed equally when patients reported *moderate* pain; nurses increased or reduced medication amounts with similar rates of frequency. When patients reported *severe* and *excruciating* pain, nurses who made a *pharmacological response* increased the amount of medication given to the patient, and in particular, administered the maximum prescribed dose of opioid analgesia. Overall, however, it should be remembered that *pharmacological responses* accounted for only 20% of all documented nurse responses across the entire range of patient pain reports.

*Non-pharmacological responses* were identified with decreasing frequency as reports of pain severity increased. Most often these were notations of pain assessment that replaced the required numeric pain score. No explanations were provided as to why a numeric pain score was not obtained from the patient.

#### ***Variations in nurse responses in the absence of 3-hourly documented pain reports***

Table 5.3 depicts the distributions of documented nurse actions in the absence of any recorded pain report. It contains specific information about the number and percentage frequencies of responses in each of the major response categories and their sub-categories where appropriate.

Firstly, it should be realised that 34% of all nurse responses across the entire data set were made in the absence of a pain report that was documented in accordance with the APS protocol for this pain management strategy.



Table 5.3. Distribution of Nurse Responses per Response Category in the Absence of 3-Hourly Reported Pain (N = 1124).

| Type of Nurse Response                     | <i>n</i> | (%)      | <i>n</i> | (%)    |
|--|----------|----------|----------|--------|
| <b>No documented response</b>              | 499      | (44.4)   |          |        |
| <b>Pharmacological responses</b>           | 479      | (42.6)   |          |        |
| Bolus administration                       |          |          | 173      | (36.1) |
| Altered intravenous infusion rate          |          |          | 303      | (63.3) |
| Gave supplementary analgesic               |          |          | 3        | (0.6)  |
| Sub-total                                  |          |          | 479      |        |
| <b>Non-pharmacological responses</b>       | 146      | (13.0)   |          |        |
| Made alternative remark of pain assessment |          |          | 136      | (93.2) |
| Contacted APS                              |          |          | 10       | (6.8)  |
| Sub-total                                  |          |          | 146      |        |
| Total                                      | 1124     | (100.00) |          |        |

There was neither a pain report nor a nursing action recorded on 44% of occasions when, according to hospital protocol, a 3-hourly pain report should have been recorded. In these instances nurses were identified from their signatures to patient observations of sedation and respiration recorded on the APS I.V. Opioid Infusion – Standard Order sheet.

In the absence of a recorded pain report, a nursing action was documented on 56% of occasions. Strictly speaking it is not appropriate to describe the documented nurse actions as nurse responses, since there is no recorded patient pain report to precede or “trigger” the response. However, within the nurse “response” categories, *pharmacological responses* account for 43% of documented nurse responses (recall from Table 5.2 that only 20% of all nurse responses on occasions when pain reports were documented were *pharmacological responses*).

Alterations to the infusion rate (63%) comprised the majority of *pharmacological responses*, and most often to reduce the infusion rate (46%). One third of all pharmacological interventions were administration of a bolus dose of opioid analgesia (36%), and the maximum prescribed amount was given 60% of the time.

Twenty - five percent of all bolus doses were administered prior to a medical procedure or patient activity.

Other actions identified in the absence of a pain report were *non-pharmacological*. Instead of recording a pain report in accordance with the protocol, nurses frequently documented an alternative pain assessment on the intravenous opioid infusion chart or in the progress notes of the patient's hospital record. It is not known whether this was a description given by the patient, who may have been unable to understand the numeric scoring system, or if these comments represent the nurse's judgment of the patient's pain condition. On only 29 occasions did nurses document that the patient was sleeping, thus explaining the absence of any documented pain report.

## **Discussion**

Analysis of the nursing documentation of 100 patients' hospital records has revealed that less than one-third of all nurse actions were appropriate responses to patients' reports of pain. Instead, there was overwhelming evidence that most of the time, without explanation, nurses took no action at all, even on occasions when a patient reported having excruciating pain. Documented accounts indicated that nurses inadequately assessed pain, sometimes even neglecting to ascertain the required 3-hourly pain report from the patient.

In this study, the only non-pharmacological pain relieving intervention documented by nurses was re-positioning. The most frequently documented pharmacological response to patients' pain reports was the least effective pain relief strategy, that is, altering the rate of the intravenous opioid infusion. By choosing to reduce the rate of the infusion more often than increasing, or at least maintaining the rate, nurses minimised the potential effectiveness of this form of pharmacological intervention, and deprived the patients of the best possible outcome.

These findings represent an unfortunate indictment of nursing practice in postoperative pain management. Recall that the APS guidelines and practice policies

clearly emphasised the importance of (i) obtaining the patient's verbal pain report whenever possible, (ii) maintaining the prescribed opioid infusion rate for the first 24 – 48 hours postoperatively to avoid lowered blood concentration levels of opioid and maximise patient pain relief, and (iii) administering a bolus dose of opioid analgesia as the first choice for treating breakthrough pain. Furthermore, legal documentation specifically required that observations of patient pain scores be recorded every three hours, unless the patient was sleeping. There was also facility within the documentation to explain or qualify any commission or omission of appropriate action with respect to the standard orders.

By their actions, the nurses in this study frequently demonstrated overwhelming disregard for the APS procedural guidelines and nursing practice policies that were developed by multidisciplinary groups and based on an extensive review of the literature in pain management practice. They were also in direct contravention of the legal requirements of the clinical protocols and standing orders for nursing management of this pain relief strategy.

More generally, and most importantly, this reflects a disparaging level of professional behaviour among these nurses. These findings, however, confirm other research that indicates an inadequate level of nurse response to patient reports of postoperative pain (Atchison et al., 1986; Bostrom et al., 1997; Briggs & Dean, 1998; Brockopp, Brockopp et al., 1998; Brockopp, Warden et al., 1993; Burokas, 1985; Camp, 1988; Choiniere et al., 1990; Closs, 1990, 1996; Cohen, 1980; Dalton, 1989; Devine et al., 1999; Dudley & Holm, 1984; Everett et al., 1994; Ferrell et al., 1991; Filos & Lehmann, 1999; Hamers et al., 1998; Hamilton & Edgar, 1992; Holm et al., 1989; Hunt, 1995; Lavies, Hart, Rounsefell, & Runciman, 1992; Mason, 1981; McCaffery et al., 1990; McCaffery & Ferrell, 1992, 1994b; McKinley & Botti, 1991; Nash et al., 1993; Olden et al., 1995; Pritchard, 1988; Puntillo & Weitz, 1998; Saxey, 1986; Scott, 1994; Stannard et al., 1996; Taylor et al., 1984; Teske et al., 1983; Vortherms et al., 1992; Watt-Watson, 1987; Weis et al., 1983).

What, then, are the possible explanations for this observed inadequacy in nurse practice behaviour?

One of the most appealing explanations for these observed behaviours is that the data themselves are inaccurate, and that the nurses responded to patients' reports of pain but neglected to document this care. This possibility is plausible for several reasons.

Firstly, the administrative burden of repetitive reporting and recording competes with what many nurses see as their primary concern, that is, patient care (Brooks, 1998; Kerr, 1992). The nature of postoperative patient care is very intense, with many demands placed on the nurse's time. Patients require frequent and regular monitoring to evaluate recovery and forewarn of any possible postoperative complications. Different types of surgery require specific postoperative regimens of wound management, exercise and mobilisation, and medication, which must be accomplished prior to discharge. Add to this workload the burden of prolific recording, and an institution's documentation policies and procedures can become "frustrating instruments of torture rather than helpful resources for the nurses who must use them" (Simmons & Meadors, 1995, p.79).

Traditional models of nursing documentation have included an endless array of forms, charts and narrative notes where nurses record patient assessments and plans of care, and report patient progress. More innovative strategies, such as charting by exception, critical pathways and computerized documentation formats, have been developed in an effort to ease the nurse's workload, but these are relatively new and not widely used in clinical practice as yet (Miller, 1998; Ritch-Brant, 1998; Short, 1997). Incomplete charting by nurses is not a new problem (Howse & Bailey, 1992; Parker & Gardner, 1992); it may simply highlight where nurses place their priorities. The choice between delivering patient care and documenting patient care is not a difficult one for a nurse faced with the consequences of nursing staff shortages and increased workloads.

Secondly, much of what nurses document has been shown as relatively mechanistic and irrelevant, and having little to do with the holistic nature of their practice and work. A common complaint amongst the nurse informants of Brooks' (1998) study was that charting formats failed to adequately represent their interpretations of a situation and care strategies. To this extent it is very likely that nurses only document

the absolute minimum required, because they see it as having little relevance beyond the legal and financial outcomes imposed by others. Nurses have also been shown to be stilted in their comments in patient records because they fear the legal and ethical consequences of “wrong” documentation (Parker & Gardner, 1992).

On the other hand, it is just as likely that nurses provide care that remains uncharted because institutions do not explicitly require documentation beyond the legal aspects of medication administration. Nurses in this study may well have employed alternative pain therapies, such as relaxation, distraction and therapeutic touch, as complementary to the continuous intravenous opioid infusion and bolus administration.

Finding minimal documentation of the utilisation of non-pharmacological treatments for pain is consistent with the findings of other relevant research regarding nurses’ knowledge and clinical practice in pain management (Bostrom et al., 1997; Briggs & Dean, 1998; Brunier et al., 1995; Dalton, 1989; Devine et al., 1999; Ferrell et al., 1993). However, they may have considered documentation of these non-pharmacological interventions unnecessary because (i) the clinical protocol for the primary pain management strategy did not require this, and (ii) hospital guidelines and nursing practice policies did not encourage it.

Ultimately, however, administration of opioid analgesia remains the cornerstone of postoperative pain control (Afilalo et al., 1996; Carpenter, 1997; Hamers et al., 1998), whereas the use of non-pharmacological strategies is a relatively recent trend in nursing practice that State nursing regulatory authorities are only now considering (Taylor, 1996). The use of such therapies has been recommended within practice guidelines for postoperative pain management (AHCPR, 1992; NHMRC, 1999).

However, few nurses include these strategies in their repertoire of pain management strategies (Carr et al., 1998; Clarke et al., 1996), partly because specific content of non-pharmacological interventions for pain control is not yet highly visible in the curricula of many nurse education programs (Coyne et al., 1999; Francke, Garrsen, & Abu-Saad, 1996; Zalon, 1995). On balance, therefore, the absence of documented

non-pharmacological activities in the patient's progress notes probably represented the frequency of their use in the overall management of patients' postoperative pain.

These explanations aside, documentation is an "institution" of professional nursing practice, which provides a "concrete display of professional competence" (Briggs & Dean, 1998; Hammersley & Atkinson, 1991). Communication in the form of written reporting and recording is a vital skill that is introduced at the beginning of almost every nursing program, and reinforced at all levels of nursing practice. Accurate documentation is a fundamental nursing responsibility that promotes effective communication among nurses and other health team members, thereby enhancing consistency in patient care.

Documentation is also the foundation of the patient's legal record of care. All registered nurses should be aware of the legal requirements for documentation imposed by State and Federal legislation (Government of Western Australia, 1998). In particular, registered nurses should know that administration of Schedule 8 drugs of dependence, such as opioid analgesics, requires rigorous and detailed recording. Any identified discrepancies between prescription and record of administration of this class of drug require investigation that may result in possible criminal charges.

The major source of nursing documentation scrutinised for this study was a legal record of special observations and drug administration used specifically for continuous intravenous opioid infusions. It is a relatively simple chart with little demand for subjective narrative. Hence it is reasonable to expect that nurses would have used the chart appropriately to record any bolus administration or alteration in the rate of the intravenous opioid infusion.

The additional requirement of maintaining a cumulative total for the amount of intravenous volume infused would have been an added deterrent to any nurse from administering a bolus dose of opioid analgesia or changing the infusion rate *without* recording the action. It is also improbable that nurses would have recorded administration of opioid analgesia in the patient progress notes and not on the Standard Order sheet. It could also be expected that omissions of response would

have been qualified by substantive explanations, such as the presence of physical cues that prohibited further opioid administration.

In these circumstances it is reasonable therefore to surmise that the documentation records reviewed for this study provide a relatively valid account of the actions nurses made in response to patients' reports of postoperative pain. If this is the case, what other explanations exist for the diminution of nursing care quality observed in this part of Stage One?

In the context of this investigation, patient factors are largely irrelevant. The literature indicates the patient factors that most commonly interfere with adequate pain management are a reluctance to report pain or request painkillers (Clarke et al., 1996; Gatchel, 1997; Harrison, 1991). However, procedural guidelines placed the onus on the nurse to regularly solicit a pain report from the patient, then act on that report appropriately. This means that nurses should have approached the patients every 3 hours, obtained a pain report, and documented both the pain report and the subsequent nursing action. If patients *declined* to reveal their pain or accept pain relief, this category of response should have been recorded substantively. Absence of documented pain report or nurse response, therefore, signifies absence of nursing action, not reluctance or refusal on the part of the patient to acknowledge pain or accept intervention.

Is it possible, then, that the explanation reflects broad organisational and environmental issues, or does it reside in the qualities of the nurse?

Organisational structures can create situations that often mitigate competent and quality nursing care (Ferrell, Wisdon, Rhiner, & Alletto, 1991). Institutional mission statements may be too broad and general and therefore exposed to multiple interpretations, while philosophy statements developed by surgical specialty areas might lack commitment to identified patient care priorities. Goals of care may be more globally focused on facilitating patient recovery and promoting early discharge, especially if linked to financial incentives (Brockopp et al., 1998). Traditionally this focus places greater priority on attending to physical processes considered essential

to successful and speedy postoperative recovery, including respiration, circulation, elimination, hydration and wound care. Pain management may not be considered the highest, or even as an important, priority (Brockopp et al., 1998), and any problems in pain resolution may be shifted to the community where they remain hidden from nurses.

As stated earlier in the discussion of relevant literature, if the organisation is not committed to pain management in any meaningful or visible way, then it is very likely that nurses caring for patients recovering from surgery also will lack a clear commitment to quality postoperative pain management, particularly if they have no other professional experience against which to benchmark their practice standards (Brockopp et al., 1998).

Organisational structures most likely to improve postoperative pain management should include processes for multidisciplinary collaboration as well as quality management initiatives (AHCPR, 1992; American Pain Society Quality of Care Committee, 1995; Dietrick-Gallagher, Polomano, & Carrick, 1994; NHMRC, 1999).

An organisation committed to multidisciplinary collaboration in postoperative pain management, such as the one in this study, will usually dedicate specific resources to this end. This is most often in the form of a formalised multidisciplinary team of experts, more commonly known as the acute pain team. Through this facility the organisation can channel physical, technical, human and educational resources into achieving optimal patient outcomes in postoperative pain management. Several studies espouse the benefits of such services (Filos & Lehmann, 1999; Macintyre, Runciman, & Webb, 1990; Miaskowski et al., 1999; Rees & Davis, 1993) and their capacity to improve patient outcomes through the development and institutionalisation of standardised protocols and systematic records for postoperative pain management (American Society of Anesthesiologists, 1995; Gordon, 1996; Harmer & Davies, 1998; White, 1999).

However, these mechanisms, designed to improve patient outcomes, may in fact undermine such efforts through staff complacency, role confusion and procedural



ambiguity. In a study of 108 nurses from 24 randomly selected U.S. hospitals, Wallace et al (1995) found that those who worked in institutions with pain - service departments reported significantly higher perceptions of their practice adequacy in pain management than nurses who worked without the support of such services. Although the authors suggest that these findings may be attributable to the more frequent exposure to expert practice and education experienced by some nurses, they acknowledge that the extent to which nurses' perceptions are supported by actual practice behaviours remains unknown.

Therefore, it is feasible that these nurses over-rated their pain management skills, and believed themselves competent by association with the overall improvements in pain management that could be attributed to the presence of a pain service per se. Nurses may believe themselves competent practitioners because of the overall successful outcomes in pain management, yet, in fact, not demonstrate best practice in this area.

Other authors have reported findings that indicate nurses are often confused about their role and responsibility for pain management in areas where pain services have been established (Carr & Thomas, 1997; Drayer et al., 1999; MacKintosh & Bowles, 2000; Nagy, 1998; Wallace et al., 1995) and that standard protocols for pain management may challenge the image nurses have of themselves as professional practitioners responsible for decisions of patient care.

In this case nurses may relinquish their responsibility for postoperative pain management to staff of the Acute Pain Service, and assume a more supportive role, or subordinate role in the case where power imbalances or poor communications exist between the APS members and ward staff (Raatikainen, 1994), or more commonly, when workloads are high and time limited (Francke, Lemmens, Abu-Saad, & Grypdonck, 1997).

Procedural ambiguity can arise if the guidelines developed for improving practice are non-specific with respect to the most appropriate responses for specific patient situations. At the risk of diluting the nurse's decision-making role, practice guidelines often present as general exposés of principles and practices, on the basis

of which nurses are expected to make appropriate decisions regarding patient care. This format recognises both the validity of nurses' professional responsibility for autonomous clinical decision making and the individuality of the patient situation in which decisions are made regarding postoperative pain management (AHCPR, 1992; Bucknall & Thomas, 1997).

However, this level of generality assumes that registered nurses possess the appropriate knowledge and understanding to make such decisions, yet this assumption is not supported in even the most recent literature (Clarke et al., 1996; Heath, 1998; Lebovits et al., 1997; McCaffery & Ferrell, 1997b). In fact, Gordon (1984) suggests that nurses often need formal models in the form of relatively prescriptive practice guidelines as substitutes for what they lack in personal knowledge, experience, and confidence.

Institutionalised pain services and practice protocols may provoke negative outcomes in nursing management of postoperative pain management. These outcomes may be compounded by organisational policies of quality management that neither identify specific patient outcomes in postoperative pain management nor hold nurses accountable for inappropriate care.

There is a professional consensus on the need for quality improvement processes that emphasise patient outcomes in postoperative pain management (AHCPR, 1992; American Pain Society Quality of Care Committee, 1995; NHMRC, 1999; NINR Priority Expert Panel on Symptom Management: Acute Pain, 1994). Several authors claim that negotiating realistic and desirable pain outcomes with patients is critical to ensuring quality practices in postoperative pain management (Donabedian, 1992; Woodyard & Sheetz, 1993; Zander, 1992).

However, few agencies have ventured beyond implementing procedural processes assumed to improve outcomes of care (Devine et al., 1999; Dietrick-Gallagher et al., 1994), because identifying patient outcomes in postoperative pain management is fraught with difficulties associated with trying to identify the most relevant set of

clinically important indicators of optimal pain management (Ward et al., 1998; Ward & Gordon, 1996).

As a next best option, quality improvement programs generally include patient satisfaction as a global indicator of “good pain care”. Patient satisfaction with postoperative pain management, however, has very little to do with how much pain the patient actually experiences (Donovan, 1983; Lavies et al., 1992; Miaskowski, Nichols, Brody, & Synold, 1994). If patients’ expectations of postoperative pain match their experience of the same, then their degree of satisfaction is likely to be high, irrespective of whether or not nursing care was appropriate (Afilalo & Tselios, 1996; Bostrom et al., 1997; Ward & Gordon, 1996).

Inappropriate or incompetent nursing care in postoperative pain management remains unchecked in the absence of organisational policies that demand performance review specific to this aspect of nursing care. In their well-known study of nurses working in acute care wards, Strauss et al. (1974) found that few organisational policies existed that held nurses accountable for their pain management practice.

Unfortunately, this remains the case today in many health care settings. Nurses are usually evaluated only in terms of the generalities of their practice from a broad competency-based perspective (Australian Nursing Council Incorporated [ANCI], 1998), because the alternative, that is, identifying and assessing every specific aspect of patient care, would be impracticable. Therefore, a nurse need only demonstrate several examples of competent practice within a competency category to be deemed competent with respect to all practice relevant to that competency category – a truly broad-brush approach. Obviously, there is ample opportunity then for incompetence in certain specific areas to persist. However, its persistence in pain management compromises patient outcomes and therefore contributes to the deleterious consequences and costs of inadequately managed postoperative pain.

In summary, the existence of quality management initiatives and processes fostering multidisciplinary collaboration has been demonstrated to be no guarantee of a high standard of postoperative pain management. In this study, the proclivity of nurses

toward inaction, or inappropriate action, when patients reported having postoperative pain, may have been attributable to previously discussed consequences of the following organisational circumstances: (i) the existence of an Acute Pain Service; (ii) the regular presence of its team members on surgical wards; (iii) possible negative inter-personal and professional relations between APS and ward nursing staff; (iv) the use of general principle-based practice guidelines; (v) heavy workloads; (vi) non-specified patient outcomes for postoperative pain management, and (vii) broad-based processes for reviewing competency of nursing care.

Beyond the policies and demand characteristics of the organisational environment, the professional qualities of the nurses themselves may also contribute to their standards of care in postoperative pain management. Yet this does not diminish each nurse's professional accountability for outcomes of patient care (Kruger, 1993).

In Australia, registered nurses are acknowledged as autonomous and accountable professionals who practice in accordance with professional practice standards in the following integrated activities: clinical practice, care coordination, counseling, health teaching, client advocacy, facilitating change, clinical teaching, supervising, working in a team, mentoring and researching. In the performance of their role, registered nurses are reflective practitioners who examine their practice critically and incorporate research findings appropriately (ANCI, 1998).

This model of professional nursing practice has been derived from the wider interpretations of professionalism described and debated in the literature over the past eighty years (Hancock, 1997). There is little consensus as to what a 'proper profession' constitutes, and some authors continue to argue that nursing has not yet achieved professional status (Cohen, 1981; McCloskey & McCain, 1987; Shuttleworth, 1994; Speedy, 1987). However, there is general agreement that professionalisation is a desirable if not essential occupational goal, and one which underpins the structure of the practice discipline (Storch & Stinson, 1988).

Although precise definition of the concept “profession” remains elusive, much has been written about the attributes and values that elevate an occupation to professional status. Simply stated, these characteristics are:

- a body of specialised knowledge,
- altruistic service,
- a code of ethics regulating practice,
- lengthy socialisation, and
- autonomy of practice

(Bixler & Bixler, 1959; Cohen, 1981; Flexner, 1915; Greenwood, 1966; Leddy & Pepper, 1998; Maloney, 1986; Monnig, 1978).

Autonomous practice has been defined in the literature as authority for “both independent and interdependent practice-related decision making based on a complex body of specialized knowledge and skill” (McKay, 1983) and “the use of critical conscience to select a course of action consistent with the client’s needs.” (Holden, 1991). Within the context of postoperative pain management, this means that accepting autonomy as a right of professional nursing practice is dependent on accepting accountability for outcomes of patient care based on established practice standards (Kruger, 1993).

Society grants nurses ... the right to provide autonomous health care in the expectation that nurses will honour society’s trust and *be accountable* [italics added] for the quality of the nursing services provided

(Royal Australian Nursing Federation, 1984, p.2)

To be accountable in the postoperative setting means accepting responsibility for making decisions about nursing care that optimise the patient’s opportunities for a speedy and uncomplicated recovery from surgery. This involves detecting and acting on clinical indicators relevant to postoperative recovery; administering prescribed medications; performing activities associated with specific postoperative regimens of wound management, exercise and mobilisation; assisting with patient needs of

personal hygiene, eating and drinking; patient education; promoting interpersonal relationships and protecting patient privacy; and advocating on behalf of patients (Idvall & Rooke, 1998; Katz & Schroeder, 1994). Pain relief is an integral part of this care, yet, as several studies have shown, not necessarily the most important one (Brockopp et al., 1998; Cohen, 1980; Saxey, 1986; Weis et al., 1983).

As their primary strategy for postoperative pain control, all patients sampled in this study received a continuous background of pain relief in the form of an intravenous opioid infusion. In the myriad demands of postoperative nursing care, nurses may well have perceived that their patient's pain control was adequately attended to under these circumstances, and that nursing intervention was only required when patients reported episodes of breakthrough pain.

This is a reasonable explanation for nurses' lack of response to reports of pain, particularly when, as shown earlier, these episodes were most often reports of *no pain* or *mild* pain. It does not, however, explain why, contrary to all clinical guidelines and protocols, nurses considered that reducing the rate of the opioid infusion was an appropriate intervention when pain was being adequately controlled, nor why they failed to respond to 53% of patients' reports of severe and excruciating pain.

The professionalism of the nurse should ensure that postoperative pain is managed in accordance with best practice standards. Perhaps, then, the findings of this study conceal individual differences between nurses with different degrees of the professional qualities that determine their clinical decision-making.

It is acknowledged that competence in clinical decision-making is reflected in qualities of professional autonomy and accountability, which improve as a consequence of the depth and quality of clinical experience and ongoing specialised education (Benner, 1984). It is presumed that nurses with greater educational qualifications and more extensive practical experience become better at discretionary decision making and critical thinking, which consequently increases the likelihood of improved patient outcomes.

This presumption underpins current clinical promotion systems and career pathways, which are designed to provide “career advancement and remuneration for demonstrated competence, experience and educational preparation in different roles and at different levels within the discipline of nursing” (Silver, 1989). Based on this model, it could be expected that nurses holding more senior levels of employment in a health care facility will have a higher level of education, greater depth of clinical experience and consequently be more professionally competent than nurses at less senior employment levels.

This study was conducted at a hospital where registered nurses were employed within a career structure that had been developed from the principles and assumptions described above. One logical explanation, then, for the observed behaviours of nurses in this study, rests with the expectation that variations in the nurses’ level of employment will directly reflect differences in professional education and experience, and consequently demonstrated standards of practice in postoperative pain management. This hypothesis provides the basis for further investigation in Part 2 of Stage One of this thesis, which is described in detail in the following chapter.

## **CHAPTER SIX**

### **Stage One: Part 2**

#### **Beginning and Advanced Nurse Clinician Responses to Patients' Reports of Postoperative Pain**

The characteristics of nurses contribute significantly to their practice in postoperative pain management. The current study linked pain management practices to nurse demographics. However, in order to understand the significance of the emergent features of the data, it is important to understand the structure of nursing practice and the distinction among the different classifications of nurses in the Australian and Western Australian nursing context.

#### **Professional Nursing Practice in Western Australia**

Nursing practice in Western Australia is modelled on the National Competency Standards for the Registered Nurse (ANCI, 1998) and implemented within a structure that supports professional career advancement, known as the Western Australian (WA) Nursing Career Structure.

#### ***The ANCI National Competency Standards***

The National Competency Standards for the Registered Nurse (hereafter referred to as the Standards) were developed by the Australian Nursing Council Inc. (ANCI) in 1988 following a period of national consultation. These Standards establish minimum levels of practice in a number of core competency areas of professional nursing practice and communicate to professional colleagues and consumers the expected practice standards that will be demonstrated and upheld by all registered nurses in Australia. A summary of these Standards is provided in Figure 6.1.



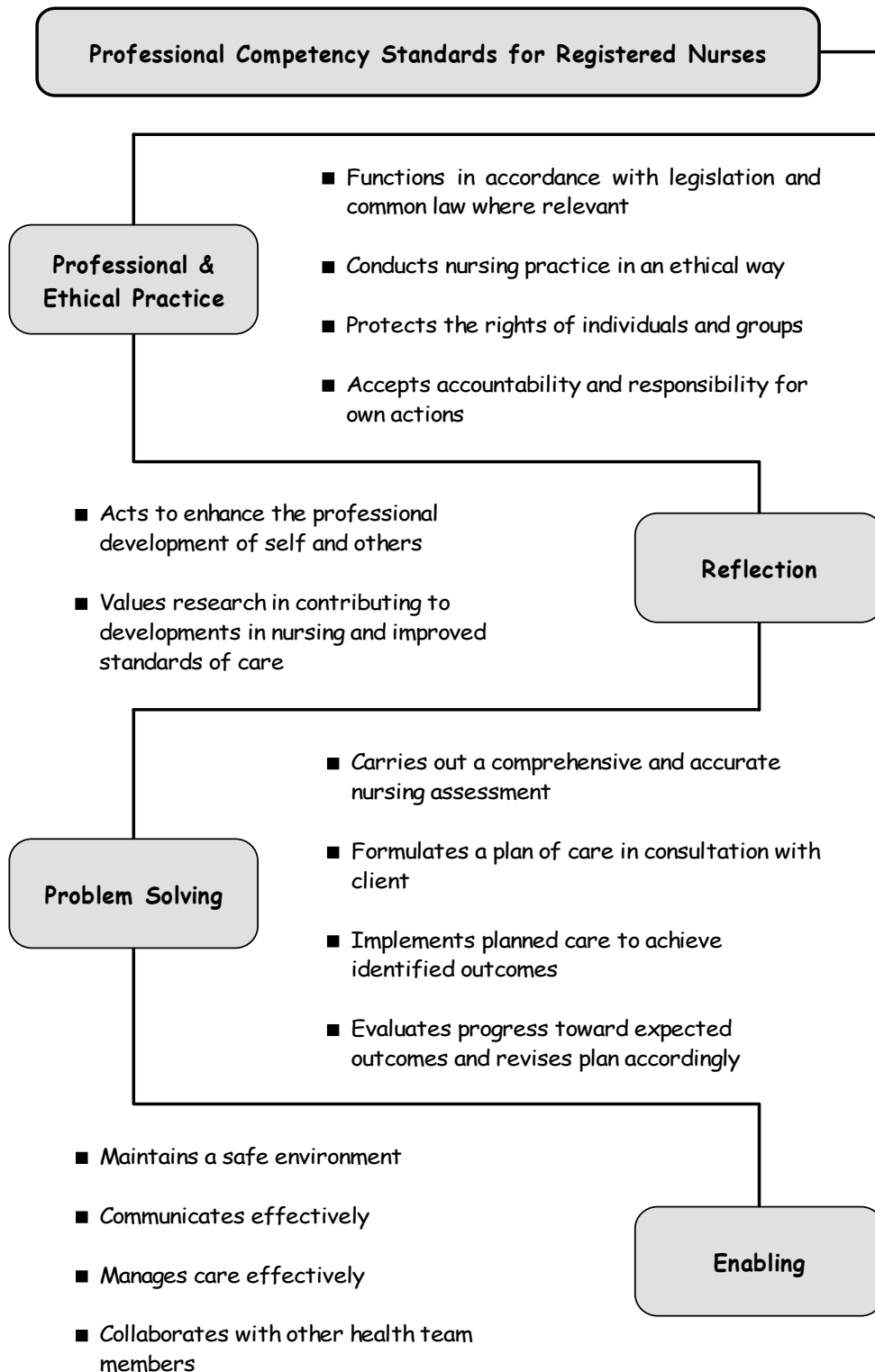


Figure 6.1. Professional competency standards summarised from the ANCI National Competency Standards for the Registered Nurse (1998).

### ***The WA Nursing Career Structure***

The WA Nursing Career Structure was established in 1988 to provide a framework of career advancement for registered nurses through four levels of practice, with increasing autonomy, authority and accountability associated with higher levels of practice competency (Cruickshank et al., 1994). However, the practice behaviours associated with higher levels of competency have yet to be clearly articulated. In their absence, inferences of levels of clinical competency are generally contingent upon corresponding characteristics of professional education and experience.

Ultimately this communicates to the profession and public the expectation that nurses employed at higher levels of the WA Nursing Career Structure will have higher professional qualifications, greater professional experience and will thus demonstrate a higher level of practice competency. Therefore, it could be expected that there would exist some variation in nursing practice competency in postoperative pain management to reflect differences in the professional qualities of nurses employed at different levels of the career structure.

### ***Variations in practice competencies in postoperative pain management***

Based on the competency standards summarised in Figure 6.1, Figure 6.2 outlines the general behaviours associated with a minimum level of practice competency in postoperative pain management that could reasonably be expected from nurses employed at the first level of the WA Nursing Career Structure. However, the specific behaviours that differentiate more advanced levels of nursing practice competency in postoperative pain management remain undefined in the literature, and it is therefore unclear exactly what practice behaviours should be demonstrated by nurses employed at higher levels of the career structure. It could be expected, though, that because “advanced nurse practitioners concentrate and focus their efforts on the client and situations which enhance positive outcomes for the client” (Sutton & Smith, 1995, p.143), their clinical decisions will reflect optimal choices in postoperative pain management.

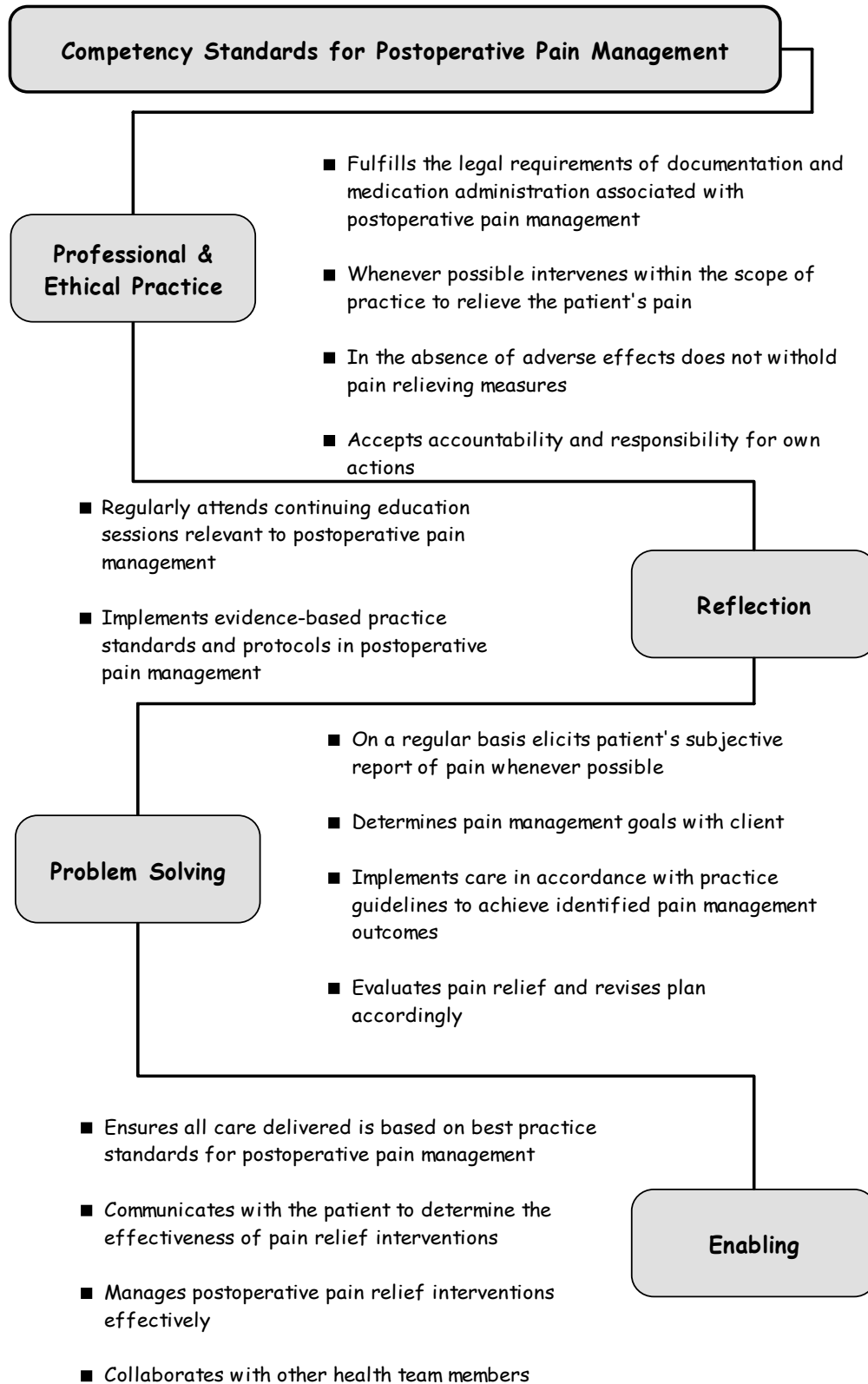


Figure 6.2: Minimum competency standards for postoperative pain management.

In the broader sense, advanced practice nurses should demonstrate practice that is consistent with best practice guidelines and clinical protocols in postoperative pain management. According to the clinical practice guidelines and protocols at the hospital research site, when the patient's primary postoperative pain relief strategy is continuous intravenous opioid infusion, this should *at least* include:

- Assessing pain every 3 hours by obtaining the patient's verbal report of pain whenever possible using a numeric rating scale
- Maintaining the prescribed infusion rate for at least the first 24 - 48 hours postoperatively unless there is evidence of medication adverse effects
- Administering the maximum amount of bolus dose of opioid analgesia in the event of breakthrough pain, or when pain is an anticipated consequence of some activity of planned procedure
- Explaining any deviation to the standard practice protocol for the intravenous opioid infusion by written documentation

From the perspective of these strategies, then, it is possible to examine whether nurses at various levels of employment, and therefore with associated expectations of practice competency, differ in their practice of postoperative pain management.

## **Purpose of Part 2**

The purpose of this part of Stage One was to determine whether nurses differed in their documented responses to patients' reports of postoperative pain with respect to nurses' expected level of practice competency.

## **Research Questions**

The structure of professional nursing practice in Western Australia raises the expectation that variations in nurses' level of employment will directly reflect differences in professional education and experience, and consequently demonstrated standards of practice competency. In this context the following questions were therefore relevant to part 2:

1. What are the differences in the educational qualifications of nurses employed at different levels of the WA Nursing Career Structure?
2. What difference exists in the length of professional experience of nurses employed at different levels of the WA Nursing Career Structure?
3. What variations exist in the documented nurse responses to patients' reports of postoperative pain as a function of nurses' different level of employment in the WA Nursing Career Structure?

## **Procedure**

### ***Pilot study***

Prior to the main data collection, a pilot study was conducted to (i) determine the reliability and validity of the self-report questionnaire, (ii) refine the questionnaire, and (iii) assess the feasibility of the data collection and analysis plan.

While waiting for study approval from the hospital's Human Ethics Committee, the questionnaire was piloted with registered nurses enrolled in either undergraduate or postgraduate studies at a large university in Western Australia. With the permission of the Head of the School of Nursing, nurses were approached as a group at the end of a lecture and invited to take part in the pilot study. The researcher explained the purpose of the pilot study, and the questionnaire was distributed to 10 registered nurses who agreed to participate. An extra page was added to the questionnaire and subjects were asked to write here any comment they wished to make regarding the questionnaire and the instructions given for its completion. They were also asked to make note of how long they took to complete the questionnaire.

Data from the returned questionnaires were inspected and coding schemes developed for responses to open-ended questions. All coded data were then entered into a data spread sheet using the SPSS for Windows software release 8.0.0. (SPSS Inc., 1997). Descriptive statistics were generated to examine the distribution of all variables, and possible appropriate statistical tests were identified for the main study.

All comments included with the returned questionnaires were then examined, and where necessary minor modifications were made to the questions and completion instructions. To determine consistency over time, the final questionnaire was administered twice at a 2-week interval to a different group of student registered nurses prior to data collection for the main study.

### ***Main study***

Once consent was gained from the hospital's Human Ethics Committee, the Nursing Directors of all Clinical Divisions and the Nurse Managers of each unit were contacted and given detailed information about the study. With their assistance, information sessions were organised for all registered nurses working in the hospital. The researcher provided these over a 3-week period, including weekends and evenings, to ensure that as many nursing staff as possible had an opportunity to attend.

At each session the researcher gave a complete description of the study, and explained its importance. Nurses were given an explanation of exactly what they would have to do if they participated and how much time would be involved for each participant. Information fliers were posted in prominent positions throughout the hospital and on each surgical unit to notify all staff that the study was being undertaken, and where further information could be obtained. Information packages were left on all units for the benefit of those who could not attend an information session, and for those who wanted to review some aspect of the study about which they were unclear. Nurses were encouraged to seek clarification on any aspect of the study from the researcher, whose contact details were clearly stated in the information package.

One week after the last information session, the human resource department provided the researcher with a list of registered nurses employed at the hospital. The questionnaire, together with a covering letter, consent form and reply-paid envelope, was distributed through the hospital's internal mail system to 480 registered nurses. All nurses working at the hospital were sampled to make sure that nurses who may have previously worked on surgical units and cared for patients sampled in part 1,

but had since changed practice areas, were included in study. Respondents were asked to use the reply-paid envelope to return the completed questionnaire and the signed consent form within two weeks of their receipt.

As each questionnaire was returned, the respondent was matched where possible with a nurse signatory from part 1, and the questionnaire coded accordingly. One month following the initial mailing, a second mailing was made to registered nurses who had not yet returned the questionnaire (see Appendix D). The entire data collection process for the main study extended over a period of 14 weeks. The overall response rate for the two mailings was 68%. From these returns, 106 were eventually matched with nurse signatories from part 1.

### **Statistical Analysis**

All data were coded and entered into a data spread sheet using the SPSS for Windows software release 8.0.0. (SPSS Inc., 1997). Descriptive statistics were then computed for the sample overall and for registered nurses of each employment level.

Differences between nurses of each level of employment were analysed as follows: Categorical variables in sections one (employment status) and two (highest nursing qualification, other tertiary qualifications, postbasic certificates, continuing education in pain management) were analysed using the chi-square statistic. Before testing the relationship between highest nursing qualification and level of employment, two major categories of nursing education were established within the range of responses for highest nursing qualification. These categories were *non-tertiary qualification* and *tertiary qualification*. *Non-tertiary qualification* included hospital-based diploma and *tertiary qualification* included all other responses. Similarly, all responses concerning postbasic non-tertiary qualifications were recoded into dichotomous categories that reflected whether the respondent did or did not possess this qualification. The continuous variables in section three (length of experience, length of surgical experience) were analysed using the Mann-Whitney U test for non-normally distributed data. The difference in the mean ages between Level 1 RNs and

Level 2 CNs was tested using the *t*-test for independent samples. The level of significance set for all statistical analyses was  $p = .05$ .

The data sets of parts 1 and 2 were then combined where the respondents of part 2 could be matched with nurse signatories of part 1. Finally, contingency tables were generated to examine variations in nurse responses between nurses of different employment levels for each category of patients' reported pain.

## **Outcomes**

### **Characteristics of the Nurse Sample**

The respondents in this part of Stage One were all registered nurses whose ages ranged from 21 to 52 years ( $M = 31.16$ ,  $SD = 7.60$ ). In this sample, Level 2 CNs were significantly older ( $M = 37$  years) than Level 1 RNs ( $M = 29.3$  years),  $t(104) = 5.0$ ,  $p < .05$ .

The majority of these nurses were female (92%), had registration with the State's Nurse's Board in the General Division only (91%), and were employed by the hospital as Level 1 Registered Nurses (76%) on a full-time basis (81%). Seven nurses had state registration in both the General and Midwifery Divisions and three nurses had registration in both the General and Mental Health Divisions.

On average, the nurses who responded to the questionnaire had 4.8 years of professional clinical experience caring for surgical patients ( $SD = 4.15$ ). The highest nursing qualification obtained by most of these nurses was a hospital-based diploma (54%); 19% had completed a postbasic certificate in a practice specialty course following registration; and 7% had a tertiary qualification in another discipline, such as Biology, Business or Health Promotion. Just over half of the respondents (58%) had attended an in-service or continuing education course on pain management within the last two years.



## **Educational Qualifications**

The first question addressed in this study was: What are the differences in the educational qualifications of nurses employed at different levels of the WA Nursing Career Structure?

Table 6.1 outlines specific details of the educational qualifications of the respondents with respect to their employment level. Data analysis revealed that nurses employed as Level 1 Registered Nurses (RN) had significantly higher educational qualifications in nursing (58%) than their more senior Level 2 Clinical Nurse (CN) colleagues (12%),  $\chi^2(1, N = 106) = 16.68, p < .05$ .

The most frequent tertiary qualification among both groups was the undergraduate degree, and only two of those with tertiary qualifications, 1 Level 2 CN (33%) and 1 Level 1 RN (2%), had Masters degrees. Only Level 1 RNs (7%) indicated having a tertiary qualification in a discipline other than nursing. On the other hand, a significantly higher percentage of Level 2 CNs (35%) than Level 1 RNs (14%) had obtained a postbasic certificate in a practice specialty course,  $\chi^2(1, N = 106) = 5.58, p < .05$ .

The difference between Level 1 RNs (54%) and Level 2 CNs (69%) in their attendance at a continuing education course on pain management within the last two years was not significant,  $\chi^2(1, N = 106) = 1.93, p > .05$ .

Table 6.1. Educational Qualifications of Nurses in each Employment Level.

| Educational Qualifications           | Employment Level     |        |    |        |                      |        |   |        |
|--------------------------------------|----------------------|--------|----|--------|----------------------|--------|---|--------|
|                                      | Level 1 RNs (n = 80) |        |    |        | Level 2 CNs (n = 26) |        |   |        |
|                                      | n                    | %      | n  | %      | n                    | %      | n | %      |
| <b>Highest Nursing Qualification</b> |                      |        |    |        |                      |        |   |        |
| Non-tertiary diploma                 | 34                   | (42.5) |    |        | 23                   | (88.5) |   |        |
| Tertiary qualification               | 46                   | (57.0) |    |        | 3                    | (11.5) |   |        |
| Tertiary diploma                     |                      |        | 15 | (32.6) |                      |        |   |        |
| UG degree                            |                      |        | 28 | (60.8) |                      |        | 2 | (66.7) |
| PG diploma                           |                      |        | 2  | (4.3)  |                      |        |   |        |
| Masters degree                       |                      |        | 1  | (2.2)  |                      |        | 1 | (33.3) |
| <b>Other Tertiary Qualifications</b> | 8                    | (7.0)  |    |        |                      |        |   |        |
| <b>Postbasic Certificate Course</b>  | 11                   | (13.0) |    |        | 9                    | (34.6) |   |        |
| Orthopaedics                         |                      |        | 4  | (36.4) |                      |        | 4 | (44.4) |
| Cardiothoracics                      |                      |        | 4  | (36.4) |                      |        | 4 | (44.4) |
| Gerontology                          |                      |        | 1  | (9.1)  |                      |        |   |        |
| Burns & Plastics                     |                      |        | 1  | (9.1)  |                      |        |   |        |
| Urology <sup>a</sup>                 |                      |        | 1  | (9.1)  |                      |        |   |        |
| Paediatrics                          |                      |        |    |        |                      |        | 1 | (11.1) |
| <b>CE Course in Pain Management</b>  | 43                   | (53.0) |    |        | 18                   | (69.2) |   |        |

Note. RN = Registered Nurse. CN = Clinical Nurse. UG = undergraduate. PG = postgraduate. CE = continuing education.

<sup>a</sup>This nurse also had a practice certificate in Burns & Plastics Nursing.

**Professional Experience**

In order to determine whether any difference existed in the length of professional experience between Level 1 RNs and Level 2 CNs, the data were analysed using the Mann-Whitney U test for non-normally distributed data. Table 6.2 illustrates the findings of this analysis. Specifically, this table outlines the range, mean and standard deviation of the total years of practice and years of surgical practice for registered nurses of each employment level, as well as the computed values for the Mann-Whitney U test.

Table 6.2. Length of Professional Experience of Level 1 RNs and Level 2 CNs.

| Professional Experience      | Range        | Mean  | SD   | <i>U</i> <sup>a</sup> |
|------------------------------|--------------|-------|------|-----------------------|
| Total years of practice      |              |       |      |                       |
| Level 1 RNs ( <i>n</i> = 80) | 0.17 – 25.00 | 4.31  | 4.40 | 238.5*                |
| Level 2 CNs ( <i>n</i> = 26) | 1.08 – 24.00 | 13.10 | 6.27 |                       |
| Years of surgical practice   |              |       |      |                       |
| Level 1 RNs ( <i>n</i> = 80) | 0.17 – 16.08 | 3.00  | 2.93 | 344*                  |
| Level 2 CNs ( <i>n</i> = 26) | 0.50 – 24.00 | 10.16 | 6.65 |                       |

Note. RN = registered nurse. CN = clinical nurse.

<sup>a</sup>Mann-Whitney U test

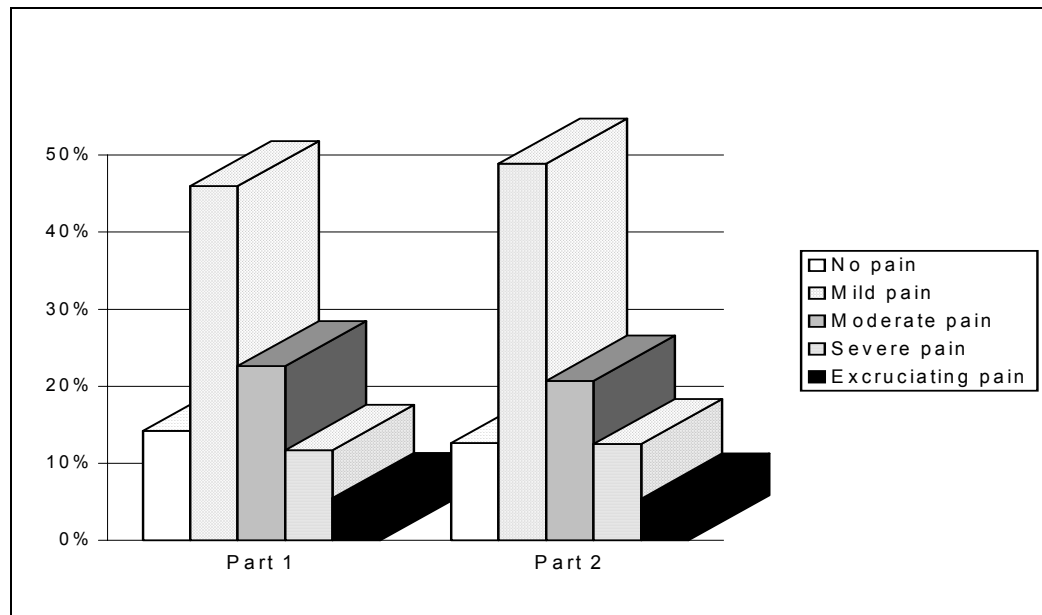
\**p* < .05

In response to research question 2, analyses revealed a significant difference in both categories of professional experience. Level 2 CNs had significantly more professional experience, both overall (*M* = 13 years) and in surgical practice (*M* = 10 years) than Level 1 RNs, who had on average 4 years experience in total and 3 years in surgical practice.

In this sample there was no significant difference in the pattern of employment, full-time or part-time, between nurses of each employment level,  $\chi^2(1, N = 106) = 3.19$ ,  $p > .05$ .

### **Documented Reports of Pain**

For the 97 patients cared for by nurses in this study, the total distributions of pain reports indicate that *no pain* was reported 13% of the time, while the remaining 87% of reports reflect pain of increasing severity. As illustrated in Figure 6.3, the total distributions of pain reports in part 2 of Stage One are very similar to those of part 1.



**Figure 6.3.** A comparison of the total distributions of pain reports between Part 1 and Part 2 of Stage One.

### **Nurse Responses**

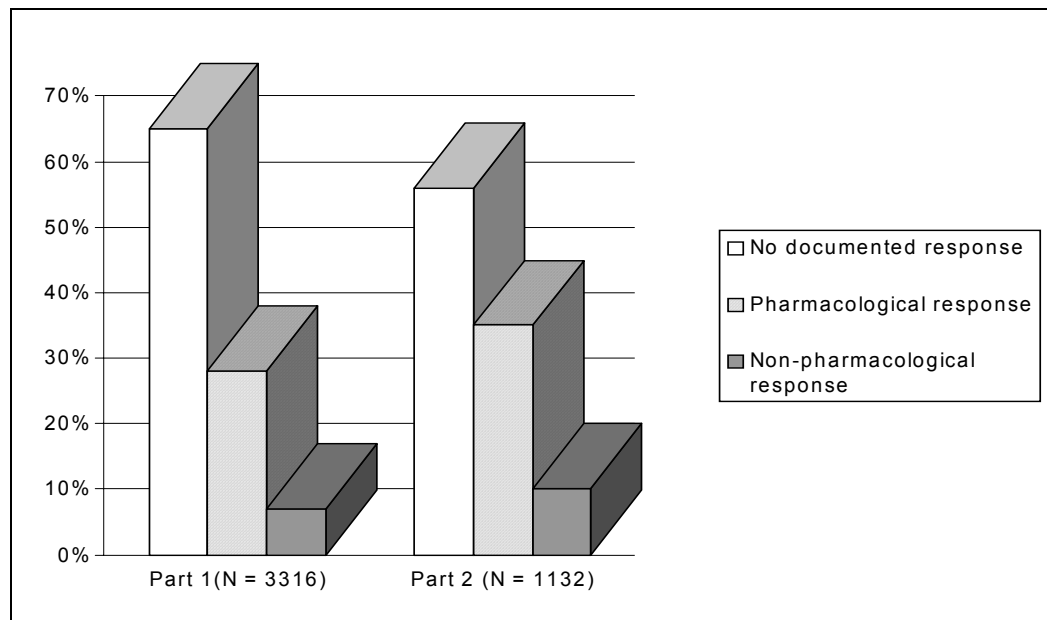
These results are presented both for the whole nurse sample and as comparisons between sub-groups based on level of employment. Table 6.3 depicts the distributions of nurse responses with respect to nurses' level of employment. As



shown, the total distributions of responses across the entire data set for the 106 registered nurses in this study were as follows: (i) 632 (56%) occasions of *no documented response*, (ii) 390 (35%) *pharmacological responses*, and (iii) 110 (10%) *non-pharmacological responses*.

The distributions of nurses' *pharmacological responses* demonstrated (i) alterations to the intravenous opioid infusion rate (61%), (ii) administration of a bolus dose of opioid analgesia (39%), and (iii) giving supplementary analgesics (1%). Documented *non-pharmacological responses* included notations of (i) supplementary pain assessment (91%), (ii) contacting the APS, and (iii) repositioning the patient (1%).

Overall, when the total distributions of the main categories of nurse responses are compared with corresponding data from Part 1, as Figure 6.4 illustrates, the shapes of the distributions reveal similarities between the data sets. This confirms that the data in part 2 provide a representative sub-set of the corresponding data of part 1.



**Figure 6.4.** Comparison of the total distributions of documented nurse responses in Part 1 and Part 2 of Stage One.

Table 6.3 also illustrates that there is very little difference in the total distributions of nurse responses within each employment level across the main response categories.

*No documented response* accounted for slightly more than half (56%) of all responses made by nurses in each group.

The frequency of *pharmacological responses* was also similar between Level 1 RNs (35%) and Level 2 CNs (32%). However, Level 1 RNs administered bolus doses of opioid analgesia (40%) more often than Level 2 CNs (36%), whereas Level 2 CNs altered the rate of the opioid infusion more often (64%) than Level 1 RNs (59%). Level 2 CNs in this sample administered no supplementary analgesics.

*Non-pharmacological responses* were made slightly more often by Level 2 CNs (12%) than Level 1 RNs (9%), with both groups making additional notations of pain assessment most often.

The percentage distributions of the total number of responses of Level 1 RNs (75%) and Level 2 CNs (25%) also confirms the staffing and workload distribution patterns of surgical units at the research site.

***Variations in nurse responses between Level 1 RNs and Level 2 CNs as a function of patients' pain reports***

Tables 6.4 – 6.8 provide information about the distributions of responses made by Level 1 RNs and Level 2 CNs for each category of patient pain report.

For each pain rating category, *no pain* to *excruciating* pain, each table details the percentage distributions of nurses' responses (a) within each response category across both levels of employment, and (b) within each employment category across the entire range of nurse response categories.

***Patient reports no pain.*** Understandably, the most frequent response by nurses in this study when patients reported no pain was no documented response (72%). Table 6.4 shows that the distributions of *pharmacological responses* (17%) and *non-pharmacological responses* (11%) were relatively similar.





Of the total *pharmacological responses*, nurses most frequently altered the rate of the intravenous infusion (89%); 75 percent of the time to reduce the rate, and on the remaining occasions to stop the infusion altogether. Bolus doses of opioid analgesia were administered twice, and on both occasions prior to patient activity.

Of all documented *non-pharmacological responses*, equally distributed were notations of complaints of pain (42%) and that the patient was sleeping (42%). The remaining responses in this response category were occasions when the APS was contacted because patients experienced adverse reactions to the opioid analgesia.

*No documented response* accounted for most of the responses of nurses within each employment level: slightly more by Level 2 CNs' (79%) than Level 1 RNs (69%).

*Pharmacological responses* were also made with relatively similar frequencies by Level 1 RNs (19%) and Level 2 CNs (12%). For the latter, all responses in this response category were to reduce or cease the rate of the opioid infusion. Level 1 RNs also decreased the infusion rate or ceased the infusion (86%) most of the time, and the two bolus doses administered in response to this pain report were done so by Level 1 RNs.

The frequency of documented *non-pharmacological responses* by Level 1 RNs (12%) was similar to Level 2 CNs (9%). Within this response category, Level 1 RNs most often reported that the patient was sleeping (56%) (and therefore, assuming that the patient had no pain, documented a pain score of zero), whereas Level 2 CNs made additional comments of the patient's pain state (67%). Clearly, these findings reveal that Level 1 RNs and Level 2 CNs responded similarly to patients' reports of *no pain*.

***Patient reports mild pain.*** Table 6.5 confirms that *no documented response* (80%) was also the most frequent response to patient reports of *mild pain*. *Pharmacological responses* accounted for 15% of the remaining nurse responses; three times greater than *non-pharmacological responses* (5%).



The most frequent *pharmacological response* was to alter the rate of the opioid infusion (84%), and 90% of the time this was to either slow down or stop the infusion. Fifteen percent of all *pharmacological responses* were to administer a bolus dose of opioid analgesia, 89% of which were less than the maximum amounts prescribed. On 2 occasions these were administered prior to planned patient activity. Supplementary *non-opioid analgesia* was administered only once.

*Non-pharmacological responses* in response to mild pain included notations of (i) supplementary pain assessment (82%), (ii) contacting the APS (9%), (iii) the patient was sleeping (4.5%), and (iv) repositioning the patient (4.5%).

The frequency of *no documented response* to patient reports of *mild* pain was relatively equivalent among Level 2 CNs (82%) and Level 1 RNs (79%).

On the other hand, Level 1 RNs responded with *pharmacological responses* twice as often (17%) as Level 2 CNs (8%). For both groups, however, this was primarily to alter the rate of the intravenous infusion: 85% of the time by Level 1 RNs and 75% by Level 2 CNs. Most often this was to reduce or cease the rate of the intravenous opioid infusion, a response that was used more frequently by Level 1 RNs (94%) than Level 2 CNs (67%). Level 2 CNs administered a bolus dose of opioid analgesia for the remaining 25% of their *pharmacological responses*, distributed equally between giving the maximum dose and less than the maximum prescribed amount. The remaining *pharmacological responses* of Level 1 RNs were distributed between bolus administration (13%) and giving supplementary non-opioid analgesia (2%). All bolus doses of opioid analgesia administered by nurses in this particular employment group were less than the maximum prescribed dose.

*Non-pharmacological responses* were made at least twice as often by Level 2 CNs (10%) than Level 1 RNs (4%). For Level 2 CNs these included making supplementary remarks of pain assessment (90%) and contacting the APS (10%). Level 1 RNs responded similarly by making supplementary remarks of pain assessment (75%) and contacting the APS (8%), as well as changing the patient's

body position (8%). On one occasion it was noted by a nurse of this employment level that the patient was sleeping.

To summarise, in this pain category the most notable difference in nurse response as a function of employment level occurs in the *pharmacological response* category. Level 1 RNs made this type of response more often than Level 2 CNs, but they did so by reducing the administration of pain relief. Level 2 CNs, on the other hand, for the most part, maintained the opioid infusion at the prescribed rate. However, nurses in this employment group frequently made *non-pharmacological responses* of additional notations of pain assessment in the patient's record.

***Patient reports moderate pain.*** As shown in Table 6.6, the most frequent response to patients' reports of *moderate* pain was *no documented response* (72%). The remaining responses were distributed between *pharmacological responses* 24 % of the time and *non-pharmacological responses* on 4% of occasions.

Altering the rate of the intravenous opioid infusion (52%) accounted for most of the *pharmacological responses*, including increasing the infusion rate (50%) as often as decreasing or stopping the infusion (50%). Administering a bolus dose of opioid analgesia (48%) comprised the remainder of all *pharmacological responses*, and this was most often the maximum amount prescribed (70%).

*Non-pharmacological responses* were comprised entirely of supplementary notations of pain assessment, including one occasion on which the patient requested no increase in analgesia.

Nurses of both employment levels made *no documented response* to reports of moderate pain with equal frequency (72%).

The distributions of *pharmacological responses* among each employment level were also relatively equivalent: Level 1 RNs (25%) slightly more often than Level 2 CNs (21%). The latter, however, administered bolus doses of opioid analgesia most often (56%), whereas Level 1 RNs more often than not altered the rate of the opioid



infusion (55%). Irrespective of employment level, all nurses usually administered the maximum bolus dose prescribed, Level 1 RNs 70% and Level 2 CNs 80% of the time, but alternated equally between increasing the infusion rate and slowing or stopping the infusion.

In supplementary notations of pain assessment, Level 2 CNs made twice as many *non-pharmacological responses* (7%), as Level 1 RNs (3%) to reports of *moderate* pain.

In this pain-rating category, then, attention again should be drawn to the differences between Level 1 RNs' and Level 2 CNs' *pharmacological responses*. That is, Level 2 CNs made more appropriate choices in pain management by selecting to administer maximum bolus doses of opioid analgesia more often than Level 1 RNs, who most often chose a cautious option of altering the intravenous opioid infusion rate.

***Patient reports severe pain.*** *No documented response* was made to 52% of all reports of *severe* pain. *Pharmacological responses* (44%) accounted for the greater proportion of remaining responses, and *non-pharmacological responses* (4%) were made with a frequency similar to that for *moderate* pain.

The most frequent *pharmacological response* was administration of a bolus dose of opioid analgesia (60%); most often the maximum dose allowed (68%). When the infusion rate was altered (40%) it was mostly to increase the rate (84%). No supplementary analgesic medications were administered for this pain category.

*Non-pharmacological responses* were all notations of supplementary pain assessment, including one occasion when the patient refused further analgesia, and, remarkably, one occasion when it was noted that the patient had good pain relief.

Table 6.7 illustrates that when patients in this study reported *severe pain*, Level 2 CNs documented a response 52% of the time, and then only a *pharmacological response*. Level 1 RNs, on the other hand, responded to 47% of these reports with either a *pharmacological response* (42%) or a *non-pharmacological response* (5%).



The *pharmacological responses* of both groups were mainly bolus administrations; on 63% of occasions for Level 2 CNs and 58% of the time for Level 1 RNs. Similarly, both groups administered the maximum prescribed amount for a bolus dose, although Level 2 CNs did this with greater frequency (90%) than Level 1 RNs (56%). When altering the rate of the intravenous opioid infusion, both Level 1 RNs and Level 2 CNs opted most often to increase the rate: 85% and 83% respectively.

All *non-pharmacological responses* to patient reports of severe pain are described above and were made by Level 1 RNs.

While it is clear that both groups responded appropriately by making *pharmacological responses*, Level 2 CNs did so slightly more often and generally more confidently than Level 1 RNs, by selecting on most occasions to give the maximum prescribed bolus dose.

***Patient reports excruciating pain.*** On 35% of all occasions when patients in this study reported *excruciating* pain, it can be seen from Table 6.8 that there was no evidence of nurses responding in any way.

When 65% of the time nurses did respond, it was with a *pharmacological response*. Of these responses, 67% were bolus administrations, 80% of the time the maximum prescribed dose. The remaining *pharmacological responses* were to alter the opioid infusion (33%) by increasing the rate (100%).

There were no documented *non-pharmacological responses* for the pain-rating category.

The frequency of *no documented response* to *excruciating* pain among Level 2 CNs (27%) was 10% less than among Level 1 RNs (37%).

*Pharmacological responses*, however, were made 10% more often by Level 2 CNs (73%) than they were by Level 1 RNs' (63%). Nurses of both employment levels chose to administer a bolus dose of opioid analgesia most often, Level 1 RNs (68%)





slightly more often than Level 2 CNs (63%). Level 1 RNs also chose to administer the maximum amount prescribed 87% of the time, whereas Level 2 CNs did so on only 60% of occasions. When an alteration to the infusion rate was made, all nurses in this sample increased the rate.

The most interesting finding revealed by the data pertaining to this pain-rating category is that although most nurse responses could be considered therapeutic, Level 2 CNs responded less aggressively than Level 1 RNs.

In summary, Figure 6.5 illustrates the overall distributions of documented nurse responses and variations in nurse responses between Level 1 RNs and Level 2 CNs for each pain-rating category.

Not unexpectedly, the most frequent response to the entire range of patients' pain reports was *no documented response*, even though patients reported having *no pain* only 13% of the time. As the severity of patients' pain reports increased, the incidence of *no documented response* by nurses decreased. However, nurses in this study failed to respond to 47% of all occasions when patients reported *severe* or *excruciating* pain.

Results revealed that nurses' use of *pharmacological responses* increased as pain severity increased yet demonstrated that more therapeutic responses were only used when patients reported having *severe* or *excruciating* pain. Overall, however, *pharmacological responses* accounted for less than one quarter of all nurse responses.

*Non-pharmacological responses* in this study also followed a similar pattern to their distribution in part 1: that is, as the severity of the patients' pain reports increased, the use of *non-pharmacological responses* decreased.

Overall then, the general trend in the variation in documented nurse responses as a function of pain report illustrated by the top graph of Figure 6.5 is similar to that observed in part 1.



Depicted in the lower graphs of Figure 6.5 are variations in nurse responses for each pain category as a function of employment level. Although the distributions of responses by nurses of each employment level appear very similar to the trends indicated by the top graph, these graphs also disclose interesting differences in response patterns between Level 1 RNs and Level 2 CNs.

Although Level 1 RNs appeared eager to respond with a pharmacological strategy to less severe pain reports, unfortunately they did so most often by slowing or stopping the continuous opioid infusion. As the severity of pain reports increased, however, their use of more appropriate *pharmacological responses* increased, but conservatively, mostly to the extent of increasing the rate of the opioid infusion or administering less than the maximum prescribed bolus dose of opioid analgesia. Encouragingly, Level 1 RNs made sure that when patients reported *excruciating* pain, most of the time they received the maximum amount of bolus opioid possible. Throughout all categories of pain reports, evidence of Level 1 RNs making supplementary assessments of postoperative pain was limited.

Level 2 CNs, on the other hand, seemed reticent in their responses to anything less than *moderate* pain. Yet closer examination revealed that for the most part, nurses at this level of employment did not act hastily to slow or stop the opioid infusion just because the patient may have been relatively comfortable. Instead, they chose to maintain the infusion at the prescribed rate and seek further clarification of the patient's pain condition, evidenced by their supplementary notations of pain assessment. For the most part, as the severity of patients' reports of pain increased, so too did the appropriateness of the responses made by Level 2 CNs, and maximum bolus administration became the most frequent response. Surprisingly, however, this trend was not as apparent when patients' reported *excruciating* pain, for which these nurses administered maximum doses of bolus analgesia less often than they did for reports of *severe* pain.

In response to question 3, it is therefore evident that variations exist in the documented nurse responses to patients' reports of postoperative pain as a function of the nurse's level of employment in the WA Nursing Career Structure.

***Variations in nurse responses between Level 1 RNs and Level 2 CNs in the absence of 3-hourly documented pain reports***

Table 6.9 details the distributions of documented responses made by Level 1 RNs and Level 2 CNs in the absence of any recorded pain report. It is worth noting that overall, 25% of all documented nurse responses in this study occurred in the absence of any documentary evidence of the patient's pain status.

Interestingly, the absence of both a pain report and documented response, indicating the omission of a 3-hourly assessment of pain, occurred on only 9% of occasions in this part of Stage One, compared to 44% of occasions in part 1.

Sixty eight percent of all actions in the absence of a documented pain report were identified as *pharmacological responses*. Recall from Table 6.3, however, that these types of responses accounted for only 35% of all nurse responses to documented pain reports. Alterations to the infusion rate (61%) comprised the majority of responses in this category, more often with Level 2 CNs (77%) than Level 1 RNs (56%). For both groups, however, on more than 70% of occasions this was to slow or stop the opioid infusion. Level 1 RNs administered bolus doses of opioid analgesia (42%) almost twice as often as Level 2 CNs (23%), but for both groups this was generally the maximum dose prescribed. Level 2 CNs identified that 64% of the time a bolus dose was administered prior to some planned patient activity or procedure, whereas this reason was given for only 25% of all bolus doses administered by Level 1 RNs.

*Non-pharmacological responses* (23%) identified in the absence of a pain report were distributed relatively equally between Level 1 RNs (22%) and Level 2 CNs (27%). In both groups more than 90% of these events were alternative notations of pain assessment. As in the first part of Stage One, it is not clear whether these comments reflected a description of pain given by the patient, or were statements representing the nurse's judgment of the patient's pain condition. On five occasions it was noted that the patient was asleep, therefore explaining the absence of an appropriate pain report.



These patterns of response further illustrate differences in the actions of Level 1 RNs and Level 2 CNs. The trend is that Level 2 CNs appear to adopt more appropriate actions than Level 1 RNs, such as administering bolus doses of opioid analgesia prior to painful procedures, and documenting reasons for their actions. However, the responses made in the absence of documented pain reports or explanatory comments still raise concern regarding the competency of both Level 1 RNs and Level 2 CNs.

## **Discussion**

Part 2 of Stage One of this study was premised on the expectation that variations in nurses' level of employment associated with differences in professional education and experience would contribute to variations in standards of practice in postoperative pain management. The findings confirmed that nurses in more senior levels of employment managed their patients' postoperative pain more appropriately than their junior colleagues. Specifically, senior nurses assessed pain more thoroughly, made more therapeutic adjustments in their pharmacological responses, and documented their accounts of pain and pain intervention more frequently than junior nurses.

The results also revealed significant differences in the professional attributes of registered nurses employed at different levels of employment. As expected, nurses in senior positions had more clinical experience caring for postoperative patients than nurses in less senior positions. However, higher levels of professional educational qualifications were held by more junior nurses in this sample.

The differences in demonstrated levels of practice and professional attributes of education and experience between nurses at different levels of employment raise two important questions: firstly, what explanation exists for the observed difference in educational qualifications between nurses at different levels of employment, and secondly, what professional quality of the nurse, education or experience, best accounts for the observed differences in pain management practice?

In this country, where tertiary education for nurses is in its infancy, or at best its adolescence, in comparison with other academic disciplines, opportunities for higher education for nurses have been limited. Consequently, while all new graduates of preregistration nursing programs in Australia are now equipped with a tertiary degree, there remains a substantial number of registered nurses in clinical practice currently whose highest professional educational qualification is a hospital-based diploma (Burr, 1992; Cruickshank et al., 1994). Indeed, many senior nursing positions are still held by nurses with fewer educational qualifications than most junior nurses.

When the WA Nursing Career Structure was implemented in 1988, a “grandfather” clause was included to mediate the necessity for higher educational qualifications for nurses seeking promotion to higher levels of employment. This action recognised that at the time, access to tertiary education was limited in this State. Therefore, initially, the appointment of nurses to senior positions was based primarily on their professional experience.

While this situation is being reconciled over time, and more nurses with higher educational qualifications are gaining senior positions, it is still the case that nurses in higher employment levels in Western Australia are generally less educationally qualified than their junior colleagues (R. Hitchins, personal communication, August 12, 1999). It is this situation that is reflected in the findings of this part of the study, which indicated that Level 1 RNs possess higher levels of educational qualifications than Level 2 CNs.

Recall, however, that the findings also demonstrated that Level 2 CNs managed their patients’ postoperative pain more effectively than Level 1 RNs. Clearly, then, the presumption that clinical decision-making improves necessarily with greater educational preparation is not supported by this study. This finding is not new, but is underscored by previous work that highlights inadequacies in nursing practice in pain management irrespective of practitioners’ professional educational characteristics (Coyne et al., 1999; Mason, 1981; Watt-Watson, 1987).



A probable explanation for this observation derives from broader educational issues concerning the quality and quantity of pain-related content in nursing curricula. In theory, educational programs for nurses offered at the tertiary level should provide more in-depth exposure to a greater scope and depth of theory and practice of pain management than nursing programs offered at non-tertiary levels. If this were the case, then one might reasonably expect that nurses with a tertiary degree qualification would demonstrate a higher level of professional competency in pain management than nurses with a hospital-based diploma qualification.

However, pain-related content in nursing curricula at any educational level is notoriously inadequate, and certainly insufficient to occasion any perceptible practice differences between nurses with different levels of educational qualifications (Ferrell, McCaffery, & Rhiner, 1992; Ferrell et al., 1993; Hamers et al., 1997; Zalon, 1995). This is substantiated by the findings reported in this chapter, which demonstrate that the level of educational preparation is not a reliable predictor of variations in nursing care quality in postoperative pain management.

By implication, therefore, it is likely that significant differences in observed practice behaviours between nurses in this sample are a function of variations in the extent of experience. However, this is not confined to the effects of professional experience. As seen by the reported results, Level 2 CNs were also significantly older than Level 1 RNs. Therefore, the different practice behaviours of Level 2 CNs may be the consequence of their collective professional and life experiences that have provided increased opportunities for more experience of pain and pain management, both in themselves and vicariously through others for whom they have cared.

The differences in practice behaviour were most evident in nurses' pharmacological responses to patients' pain reports. In particular, nurses with greater professional experience implemented more appropriate pharmacological strategies for postoperative pain management. It seems, then, that the role of clinical experience is to improve confidence and familiarity with the pharmacodynamics of analgesic medications. This is confirmed by the absence of any real difference between nurses in their use of non-pharmacological pain interventions. In other words, if clinical

experience accounted for pain management responses generally, it could be expected that as well as more appropriate pharmacological interventions, nurses with more experience would also implement more appropriate non-pharmacological strategies.

The relationship between experience and pharmacological pain management has been discussed previously in this thesis. Although experience has not been found to be a significant factor in determining nurses' knowledge of opioid pharmacology (Hamilton & Edgar, 1992; Watt-Watson, 1987), there is some indication that it may alter value systems and attitudes to drug use. The literature gives support to the suggestion that the lessons of professional experience assuage unrealistic and exaggerated fears of addiction and overdose, thereby minimising undermedication events (Cohen, 1980; Marks & Sachar, 1973; McCaffery et al., 1990; McCaffery & Ferrell, 1992; Watt-Watson, 1987; Weis et al., 1983). Certainly, the majority of findings of this part of the study vindicate this conclusion.

However, it remains insufficient to explain why some nurses at both levels of experience failed to respond appropriately to patients who reported excruciating levels of postoperative pain. In these circumstances, it is not unreasonable to suspect that the inappropriate responses of less experienced nurses are reflections of their attempts to avoid situations that they believed were beyond their control.

Inexperienced nurses are often overwhelmed with feelings typified by fear of failure, fear of total responsibility, and fear of making mistakes (Brighid, 1996).

Furthermore, these fears are amplified in graduates of university nursing programs who feel they must work doubly hard to convince older staff that their higher education is not an impediment to being "a good practical nurse" (p.1065).

Vachon (1987) found that health care providers who believe they have a mandate to control patients' symptoms experience high stress levels when they are feel unable to do so. Caregivers in this situation may form behaviours that minimise their exposure to such events. For example, nurses who are feeling helpless due to their inability to provide comfort to clients in pain often manifest helplessness by avoidance of patients, frustration and apathy (Clements & Cummings, 1991; Davidson & Jackson, 1985; Steinhauser et al., 2000).

A reluctance to confront negative stimuli is characteristic of the behavioural responses defined by theories of avoidance learning (Mowrer, cited in Levis, 1989; Seligman & Johnson, 1973). Within a stimulus-response-reinforcement paradigm, it is argued that behaviour is directed toward minimising exposure to aversive stimuli. Subsequently, an avoidance response is reinforced by a reduction in the fear that accompanies the removal of the fear-eliciting stimulus. This behaviour may be unusually difficult to extinguish because it is predicated in part on the reflexive fear-flight-flight response elicited by stimulation of the autonomic nervous system (Buchel & Dolan, 2000).

Over time, however, avoidance behaviour may be weakened by replacement of the aversive stimulus with one that is not fear eliciting, which subsequently eliminates negative reinforcement of the behaviour (Moore, 1998; Overskeid, 1995; Pittenger & Gooding, 1971). For example, knowledge of pain management, which is intentionally or serendipitously assimilated through experience, would mitigate nurses' fear of inadequacy and subsequent fear-avoidance behaviours. As nurses become more experienced and confident in managing postoperative pain, it could be expected that rational decision-making would replace fears of inadequacy to reduce avoidance responses characterised by inappropriate pain management actions.

Data from this part of Stage One are only partially supportive of this interpretation, however, since it is clear that experienced nurses, presumably more familiar with postoperative pain management, also made some inappropriate responses to patients in excruciating pain. One explanation for these behaviours resides in the protective mechanisms that are triggered by constant exposure to patients in severe and obvious pain. In these circumstances, there is a possibility that nurses may deny the existence of pain, or become so habituated to it that they "tune out" to become less sensitive to pain and also to their patient's need for pain relief (Baer, 1970; Fagerhaugh, 1974; Grootenhuys, vander Wel, de Graaf-Nijkerk, & Last, 1996; Sjostrom et al., 1997). Nagy (1999) found that the most commonly employed avoidance strategy among nurses in such situations was emotional distancing. This strategy has been observed previously in a variety of situations to make nurses become "technique-oriented

rather than people-oriented” to reduce their sensitivity to patient pain and suffering (Kreidler, 1984). Nurses may retreat to a position of emotional and physical distance from actual patients in pain by using “illness scripts” of prototypic patients to guide their decision-making (Hamers et al., 1997; Schmidt, Norman, & Boshuizen, 1990). Although protective for nurses, these strategies may encourage inadequate pain assessment and incomplete pain management for individual patients (Everett et al., 1994; Judkins, 1998).

The inappropriate pain management practices of experienced nurses who are exposed constantly to patients with pain that is chronic, severe or difficult to resolve, such as in oncology nursing, may be accounted for by their use of various coping behaviours. This is particularly relevant in burns nursing when nurses see themselves as partly responsible for the pain induced by procedures (Perry & Heidrich, 1982).

In the postoperative care environment, however, nurses do not as a rule associate themselves as the cause of patients’ pain. Furthermore, the pain that postoperative patients’ experience, although sometimes excruciating, is potentially reducible and generally short-term in nature, and nurses are more likely to see a positive response to the pain-relieving actions they take. Consequently, nurses tend to express feelings of confidence, control, and trust in themselves and their decisions regarding postoperative pain management (Nash et al., 1999). It is unlikely, then, that experienced nurses’ omissions of appropriate pain relief observed in this part of the thesis were entirely the result of self-protective avoidance strategies, and their behaviour remains inexplicable.

In sum, this chapter presents a good deal of convergent data to support the conclusion that experienced nurses manage their patients’ postoperative pain more appropriately than less experienced nurses. However, difficulties remain in understanding the nature of the influence of experience on pain management practice, particularly the seemingly lack of influence that experience exerts on the responses of some nurses to patients’ reports of excruciating levels of postoperative pain.

Overall, the findings reported in Stage One of this thesis have revealed significant commissions and omissions of pain management practice that cannot be explained empirically or theoretically. It seems appropriate, therefore, to seek further explanation for the practice behaviours revealed by these data. Nurses' documentations of their pain management practice have provided one view of this practice. The next stage of this study provides a complementary view that seeks to enrich and elucidate the findings presented here. Stage Two, detailed in the following two chapters, uses an interpretive framework to explore nurses' perceptions of their practice in postoperative pain management and the factors they believe impact on this practice.

## **CHAPTER SEVEN**

### **Stage Two**

#### **Exploring Nurses' Perceptions of Postoperative Pain Management: Justification and Method**

Stage One of the thesis examined in detail nurses' documented accounts of their actions in relation to patients' pain reports, and revealed significant commissions and omissions of care that were difficult to explain either empirically or theoretically. In a further attempt to interpret and explain these findings, it was decided to interview nurses and examine postoperative pain management from their perspective.

Stage Two of the research was designed to explore nurses' perceptions of key issues in managing postoperative pain and describe their implementation of pain management strategies. Chapter Seven outlines how this was accomplished. Chapter Eight presents the major themes and categories that emerged from analysis of interviews with nurses concerning how they perceived their practice of postoperative pain management.

#### **Study Purpose and Research Objectives**

The purpose of Stage Two of this thesis was to gather information that would both enrich and elaborate the findings of the first stage of the study. In this context the objectives of this stage were to:

- Explore and describe nurses' perceptions of what they do to manage postoperative pain; and
- Identify factors perceived by nurses that assist or hinder their management of patients' postoperative pain.

Specifically, nurses were asked to give their account of:

1. how they determined their patients' postoperative pain condition,
2. what actions they implemented to relieve patients' postoperative pain,
3. how they determined what action was taken in relation to patient's pain condition, and
4. what factors moderated their efforts at postoperative pain management.

## **Methods**

### **Research Design**

Nurses' documented accounts of postoperative pain management that were examined in the first stage of the thesis revealed several significant practice characteristics that could not be explained. To arrive at some cogent explanation for observed practice behaviours, it was decided to examine postoperative pain management from the perspective of nurses actively involved in managing postoperative pain. In other words, where the patient's pain report had been the unit of analysis in Stage One of the study, in the second stage this became the nurses' perceptions of practice.

According to Minichiello, Fulton and Sullivan (1999), the significance of people's actions lies in their individual perspectives and the meanings they attach to different situations. From this position it can be argued that nurses' perceptions of their practice of postoperative pain management are linked inextricably to the context of their practice. As such the research design for Stage Two of the thesis needed to account for and facilitate this relationship. Consequently, nurses' perceptions of their practice of postoperative pain management were examined from an interpretive perspective using qualitative methods of data collection and analysis.

The interpretive paradigm is characterised by the ontological assumptions that reality is complex, holistic, and context-dependent (Boyd, 1993a). Investigation is focused on subjective human experience, and multiple ways of knowing are valued as portals to the knowledge embedded in that experience. Tacit or intuitive knowledge is recognised in addition to that which is expressed in language or can be observed

(Lincoln & Guba, 1985). Therefore, the methodology uses techniques that strengthen contact between researcher and participant in mutual interaction in a natural setting. A natural setting is chosen because “wholes cannot be understood in isolation from their contexts” (p. 39), nor can they be separated into parts for independent study. Inductive reasoning supports and guides the analytic process of identifying patterns of meaning in the data.

Broadly grouped together as qualitative methods, these techniques feature “a holistic approach to questioning, a focus on human experience, purposive sampling, sustained contact with participants, the involvement of the researcher in the process, emergent design, negotiated outcomes, and special criteria for trustworthiness” (Monti & Tingen, 1999, p.71). Qualitative methods are appropriate in research that seeks to “understand the complex world of lived experience from the point of view of those who live it” (Schwandt, 1994, p.118). Using these methods, the researcher can gain access to motives, meanings, actions and reactions of people in the context of their daily lives.

The strength of qualitative methods is their capacity for generating rich, detailed, valid process data that preserve the study participants’ perspective (Steckler et al., 1992). When integrated with quantitative methods, qualitative methods are especially useful for examining different dimensions of the same phenomenon (Monti & Tingen, 1999).

Issues of methodological integration are not entirely straightforward nor without contention (Rossman & Wilson, 1985). Researchers characterised as *purists*, for example, point out that qualitative and quantitative methods are derived from mutually exclusive epistemological and ontological assumptions. As such, they maintain that attempts at integration risk violating each method’s respective paradigmatic philosophy, goal and purpose. Not quite the traditionalists, *situationalists* appreciate the value and appropriateness of both methods, but only for use in a parallel manner, with little integration of procedures or findings. On the other hand, *pragmatists* argue for the use of both approaches in the same study to



answer questions of substantive importance and as a means to gaining richer, more insightful analysis of complex phenomena.

An increase in the number of published reports of integrated studies suggests that the purist stance is diminishing and that more scholars see using both approaches as pragmatic (Connelly, Bott, Hoffart, & Taunton, 1997). Steckler et al. (1992) support this viewpoint and suggest four possible ways that qualitative and quantitative methods might be integrated to produce more effective research outcomes. Firstly, qualitative methods may be useful initially to help develop quantitative measures. For example, the use of focus groups is a relatively common strategy used to develop structured questionnaires (Kitzinger, 1995).

In the second approach, a quantitative study may benefit from qualitative results that are used to help interpret and explain the quantitative findings. The third approach is the reverse of the second approach, and uses quantitative methods to interpret predominantly qualitative findings. The final possible approach is the use of both methods equally and parallel, often to cross-validate the study findings. This procedure is sometimes termed methodological triangulation (Patton, 1990).

The purpose of Stage Two of the thesis was to gain insight into the practice world of postoperative pain management from the nurses' perspectives, and to use this knowledge to help interpret and explain significant practice behaviours revealed by examination of nurses' documented accounts of pain management in Stage One of the study. With respect to the various viewpoints and range of strategies for combining quantitative and qualitative methods, taking a pragmatic stance and using qualitative findings to supplement and elucidate the findings of Stage One was considered the most appropriate strategy for Stage Two of the thesis.

### **Setting and Sample**

To ensure comparability and contextual relevance, Stage Two of the thesis was conducted in the same metropolitan adult acute care teaching hospital used in Stage One. Recall from Chapter Four that this setting has a consistently high rate of

surgical admissions, the presence of an Acute Pain Service (APS), and is a major employer of registered nurses in the State.

*Purposeful sampling* was used to recruit participants for this stage of the study. According to Patton (1980), “the logic and power of this sampling [strategy] lies in selecting *information-rich cases* from which one can learn a great deal about issues of central importance to the purpose of the research (p.169, emphasis in original). This sampling technique requires selecting informants who are knowledgeable about the topic and are willing and able to share detailed experiential information about the phenomenon being studied (Hutchinson & Webb, 1989; Morse, 1991). Initially for this stage of the study, it was important to seek appropriate informants from the population of registered nurses who worked with postoperative patients in surgical care areas of the hospital and who reflected levels of professional education and experience characteristic of the nurse sample from Stage One.

As the system of major themes and categories was developed during analysis of the first few interviews, *theoretical sampling*, a variation of purposeful sampling (Coyne, 1997), informed the process of engaging and interviewing subsequent participants. This involves sampling “according to the concepts which emerge, as they are identified and developed from data” (Llewellyn, Sullivan, & Minichiello, 1999, p.178). The purpose of theoretical sampling is to seek additional data that are relevant for the development of the emerging themes, categories, and, when appropriate, theory. This could involve changing the interview questions as the study progresses, sampling in different locations, or sampling on the basis of some variability in informant characteristics relevant to emergent findings (Glaser, 1978; Strauss & Corbin, 1990).

As varying perspectives of nurses' pain management practice became evident through the analysis of initial interviews, more focused and probing questions were included in the interview guide to gain more elaborate descriptions of the broad themes and categories emerging from the data (questions which directed the initial and subsequent interviews are set forth in Appendix E). Similarly, when the data revealed variations in pain determination and intervention based on the type of

surgery a patient had undergone, nurses working in different areas of surgical specialty within the hospital were approached and invited to participate as informants.

Another issue that emerged concerned the differences in medical support for postoperative pain management at different times of the day. Consequently, nurses who worked on evening and night shifts in postoperative care units were sought and asked to take part in the study. Sampling continued in this way until ongoing analysis established that no new major themes and categories relative to the study objectives were emerging from the interview data.

### ***Sample description***

In total, 8 registered nurses were formally interviewed for Stage Two of this study, and follow-up interviews were conducted with 3 of the informants. Demographic data obtained from this sample indicated that the ages of the informants ranged from 22 to 47 years ( $M = 34$ ,  $SD = 9.6$ ). The majority of these nurses were female ( $n = 7$ ); were employed by the hospital as Level 1 Registered Nurses ( $n = 5$ ); and worked full-time ( $n = 6$ ).

The highest nursing qualification obtained by most of the informants was an undergraduate degree ( $n = 5$ ). The same number had also completed a postbasic practice specialty course following registration. All informants had recently attended an inservice or continuing education program that focused on pain management. The total length of professional clinical practice experience of these informants ranged from 2 to 21 years ( $M = 11$ ,  $SD = 7$ ); the length of practice caring for surgical patients ranged from 2 to 15 years in this sample ( $M = 7$ ,  $SD = 5$ ).

Table 7.1 demonstrates the demographic similarities and differences between this sample and the sample of part 2 of Stage One. Additional data collected by the researcher at the time of interview included each informant's usual work pattern and area of surgical specialty practice. Six of the informants worked day shift (between

Table 7.1. A Comparison of the Demographic Characteristics of the Nurse Samples for Part 2 of Stage One and Stage Two.

|                                    | <b>Stage One – Part 2</b> | <b>Stage Two</b> |
|------------------------------------|---------------------------|------------------|
|                                    | <b>(N = 106)</b>          | <b>(N = 8)</b>   |
| <b>Age (years)</b>                 |                           |                  |
| Range                              | 21 – 52                   | 22 – 47          |
| Mean                               | 31.16                     | 34.00            |
| Standard Deviation                 | 7.60                      | 9.60             |
| <b>Gender</b>                      |                           |                  |
| Female                             | 92%                       | 88%              |
| Male                               | 8%                        | 12%              |
| <b>Employment Level</b>            |                           |                  |
| Level 1                            | 76%                       | 63%              |
| Level 2                            | 24%                       | 37%              |
| <b>Highest Qualification</b>       |                           |                  |
| Non-tertiary                       | 54%                       | 37%              |
| Tertiary                           | 46%                       | 63%              |
| <b>Surgical Experience (years)</b> |                           |                  |
| Range                              | 0.17 – 24                 | 2 – 15           |
| Mean                               | 4.80                      | 7.00             |
| Standard Deviation                 | 4.15                      | 5.00             |

the hours of 7:00 a.m. and 4:00 p.m.); one informant worked evening shift (between 1:00 p.m. and 12 midnight) and one informant worked night shift (between 10:00 p.m. and 8:00 a.m.). Four of the informants worked in what were considered general surgical care areas; two worked in the orthopaedic surgical care unit; one worked in the cardiothoracic surgical care unit and one worked with burns patients recovering from surgery.

### **Approach to Data Collection**

Nurses' perceptions of their practice of postoperative pain management were explored using semi-structured in-depth interviewing. The theoretical precursors of

in-depth interviewing coalesce within the interpretive tradition, which focuses on understanding the ways in which humans apprehend the world in which they live (Crotty, 1998). This is explained by Minichiello et al. (1995):

If we [qualitative researchers] believe that social reality exists as meaningful interaction between individuals then it can only be known through understanding others' points of view, interpretations and meanings. If meaningful human interaction depends on language, then the words people use and the interpretations they make are of central interest to the researcher. In-depth interviewing is an appropriate method to gain access to the individual's words and interpretations.  
(p.73)

In-depth interviewing is used commonly in qualitative research as a means of gaining access to the world according to the informant's point of view (Kvale, 1996). This technique involves prolonged face-to-face encounters between the researcher and informants, which are directed toward retrieving "informants' perspectives on their lives, experiences or situations as expressed in their own words" (Taylor & Bogdan, 1984, p.77), perspectives that cannot be observed directly by the researcher and would otherwise remain hidden.

Semi-structured interviewing involves using broadly stated questions to guide an in-depth examination of the topic of research interest (Merriam, 1998). Although an interview guide of relevant questions is developed to focus the content of the interview on the issues central to the research question or objective, the type of questioning and discussion style encourages flexibility in the wording and ordering of questions. This may reduce the comparability of interviews within the study but provides a more valid explication of the informant's perception of reality (Minichiello, Madison, Hays, Courtney, & St John, 1999).

Although the topic area guides the questions asked, the dynamics of a semi-structured in-depth interview are similar to a guided conversation. The interviewer becomes an attentive listener who shapes the process into a familiar and comfortable

form of social engagement - a conversation - oriented toward the interviewer's research interests (Patton, 1990). Using a recursive method of questioning, the interviewer can make mental links between the guiding questions, the informant's answers and the logically following questions, in order to keep the informant "relating experiences and attitudes that are relevant to the problem" (Burgess, 1982, p.107).

Mahoney (1997) provides a summary of the major advantages and disadvantages associated with using qualitative interviewing as a tool for data collection (see Table 7.2).

Table 7.2. Summary of the Advantages and Disadvantages of In-Depth Interviewing adapted from Mahoney (1997).

| <b>Advantages</b>   |
|---|
| <ul style="list-style-type: none"><li>• Usually yields richest data, details, new insights</li><li>• Permits face-to-face contact with respondents</li><li>• Provides opportunity to explore topics in-depth</li><li>• Affords ability to experience the affective as well as cognitive aspects of responses</li><li>• Allows interviewer to explain or help clarify questions, increasing the likelihood of useful responses</li><li>• Allows interviewer to be flexible in administering interview to particular individuals or circumstances</li></ul> |
| <b>Disadvantages</b>  |
| <ul style="list-style-type: none"><li>• Expensive and time-consuming</li><li>• Needs well-qualified, trained interviewers</li><li>• Informant may distort information through recall error, selective perceptions, desire to please interviewer</li><li>• Flexibility can result in inconsistencies across interviews</li><li>• Volume of information too large; may be difficult to transcribe and reduce data</li></ul>   |

Several of the more pragmatic disadvantages of interviewing can be minimised with careful planning and preparation prior to entering the field (Sewell, 1997). Kvale (1996) reminds us that the interviewer *is* the research instrument, and emphasises the

need for skilled interviewing techniques. He asserts that “mastering the craft” (p.147) requires adequate theoretical preparation and hands-on practice.

Minichiello et al. (1995) point out that concerns regarding possible distortions and inconsistencies in the information provided by informants is more an issue of interpretation of what is said and not the interview technique per se. This, they claim, arises because the researcher is not usually in the situation of being able to directly observe informants in their day-to-day lives. Their recommendation is that the interviewer should make provision for the ethnographic context in which the informants are operating, by seeking to realise the everyday activities of the informant and the cultural milieu in which these are undertaken.

In this stage of the study, in-depth interviews were conducted with registered nurses working with postoperative patients. The first few interviews were conducted using an interview guide that was loosely structured to explore areas relevant to the research objectives (see Appendix E). This was a list of broadly stated questions that helped to focus each informant and maintain continuity between interviews. The guide included several questions germane to the research objectives, but there was no intention for fixed wording or fixed ordering of each question.

A recursive model of questioning was used to explore themes and concepts raised by informants, and probing questions were included during the interview to elicit more detailed explanations and clarification of the meanings informants attached to the primary questions. As analysis of initial interview data proceeded, more probing questions were added to the interview guide for subsequent interviews to help elaborate on the developing themes and categories.

In preparation for data collection, the researcher conducted three practice interviews with volunteer academic colleagues within the researcher's place of work. These were undertaken to refine the technical aspects of tape-recording and transcribing interview data and to improve the researcher's interviewing techniques of (a) structuring an interview session and establishing rapport with an informant; (b) recursive questioning and probing; and (c) analysing and interpreting interview data.

In addition, a critique of these skills was sought from other doctoral students during fortnightly qualitative seminars attended by the researcher.

The researcher's extensive experience as both a clinician in adult surgical patient care and as a clinical supervisor for undergraduate nursing students at the research site, heightened her sensitivity to and familiarity with the ethnographic context of the informants. Furthermore, prior to interviewing nurses, the investigator observed events such as the physical environment, organisational structure, daily ward routines, nurse staffing profiles and ward rounds of the APS, in surgical care areas throughout the hospital.

The demographic profile of this sample was collected using a questionnaire structured similarly to the demographic questionnaire used in Part 2 of the first stage of this thesis (see Appendix F).

### **Procedures**

Stage Two of the study commenced after approval had been granted by the University's Human Research Ethics Committee and the hospital's Nursing Research and Ethical Review Committees. Once again, the Nursing Directors of Surgical Clinical Divisions and the Nurse Managers of each surgical unit were contacted and apprised of the direction the study would take for this stage. A thorough explanation was given of the purpose of this stage and how the methods proposed for data collection and analysis differed from those of Stage One.

With the knowledge and approval of unit managers, the investigator commenced by gathering contextual data about the practice settings of registered nurses working on surgical units in the hospital. This was accomplished over a 6-week period while the investigator was working with undergraduate nursing students during their rotations of supervised clinical practice on surgical wards in the hospital.



Using an established professional network, the researcher then approached and invited registered nurses working in surgical care areas of the hospital to participate as informants in this stage of the study. Potential informants were provided with information that gave a clear explanation of the purpose and importance of the study, as well as what their participation would entail (see Appendix G). All registered nurses approached by the researcher were encouraged to seek clarification on any aspect of the study, and reminded that participation was entirely voluntary. It was also emphasised that segments of any interview would be omitted on request. This process of purposeful sampling secured agreement from five registered nurses who were willing to participate as informants for Stage Two of the thesis.

After obtaining formal consent, semi-structured in-depth interviews were conducted with each of the informants at a mutually agreed time and place. At the request of the informants, all interviews were conducted at the completion of each informant's shift of duty. All interviews were held in a meeting room in a carefully selected part of the hospital, taking into consideration the need for privacy and quiet.

Before commencing the interview session and while the researcher was setting up the tape-recording equipment, informants were asked to complete the demographic questionnaire (see Appendix F). At the end of each interview, informants were thanked and reminded that they might be contacted again for a follow-up interview to clarify aspects of the information they had provided or confirm the researcher's initial interpretations of the data.

Each interview lasted between 40 and 60 minutes and was tape-recorded in full. After each interview, the researcher made summary notes that included reflective comments regarding the interview process as well as preliminary impressions of the content and findings of the interview. Each interview was transcribed verbatim in preparation for analysis. Data analysis commenced immediately after the first interview and continued in tandem with ongoing data collection activities.

Based on the unfolding analysis and theoretical sampling procedures, informants needed to be sought from areas of the hospital that although familiar to the

researcher, were areas where she had not worked extensively, and therefore had not established a professional network. In these instances, nurse managers and current participants were asked to suggest the names of other potentially suitable informants. Subsequently, a further three interviews with registered nurses were conducted using the same procedures as those described previously.

Data collection and data analysis continued simultaneously until it was evident that no new major themes and categories relative to the study objectives were emerging from the interview data, at which point data collection was discontinued. The pragmatic problems of negotiating interview times that were mutually convenient for both the investigator and the informants extended data collection over a period of six months.

### **Analysis of Interview Data**

The in-depth interviews with nurse informants were analysed to establish the major themes that emerged from the data concerning how nurses perceived their practice of postoperative pain management. Procedures for data analysis were based on the method outlined by Burnard (1991) (see Figure 7.1). Using this method, analysis of interview data was achieved through thematic content analysis of transcripts for common themes expressed by informants.

In this process, themes are defined as units derived from patterns such as “conversation topics, vocabulary, recurring activities, meanings, feelings, or folk sayings and proverbs” (Taylor & Bogdan, 1984, p. 131). Themes are identified by compiling expressed ideas and experiences, which may appear meaningless when viewed alone. Themes that emerge from informants’ accounts are then pieced together to form a picture of their collective experience (Aronson, 1994; Leininger, 1985).

Analytic criteria for this method necessitated having data that were collected from semi-structured, open-ended interviews that have been recorded and transcribed in full. All these criteria were met in this case. The aim of this method of analysis was

to systematically describe the common themes and issues reflected in the interviews and to link these together through the codes and categories emerging from the transcribed data.

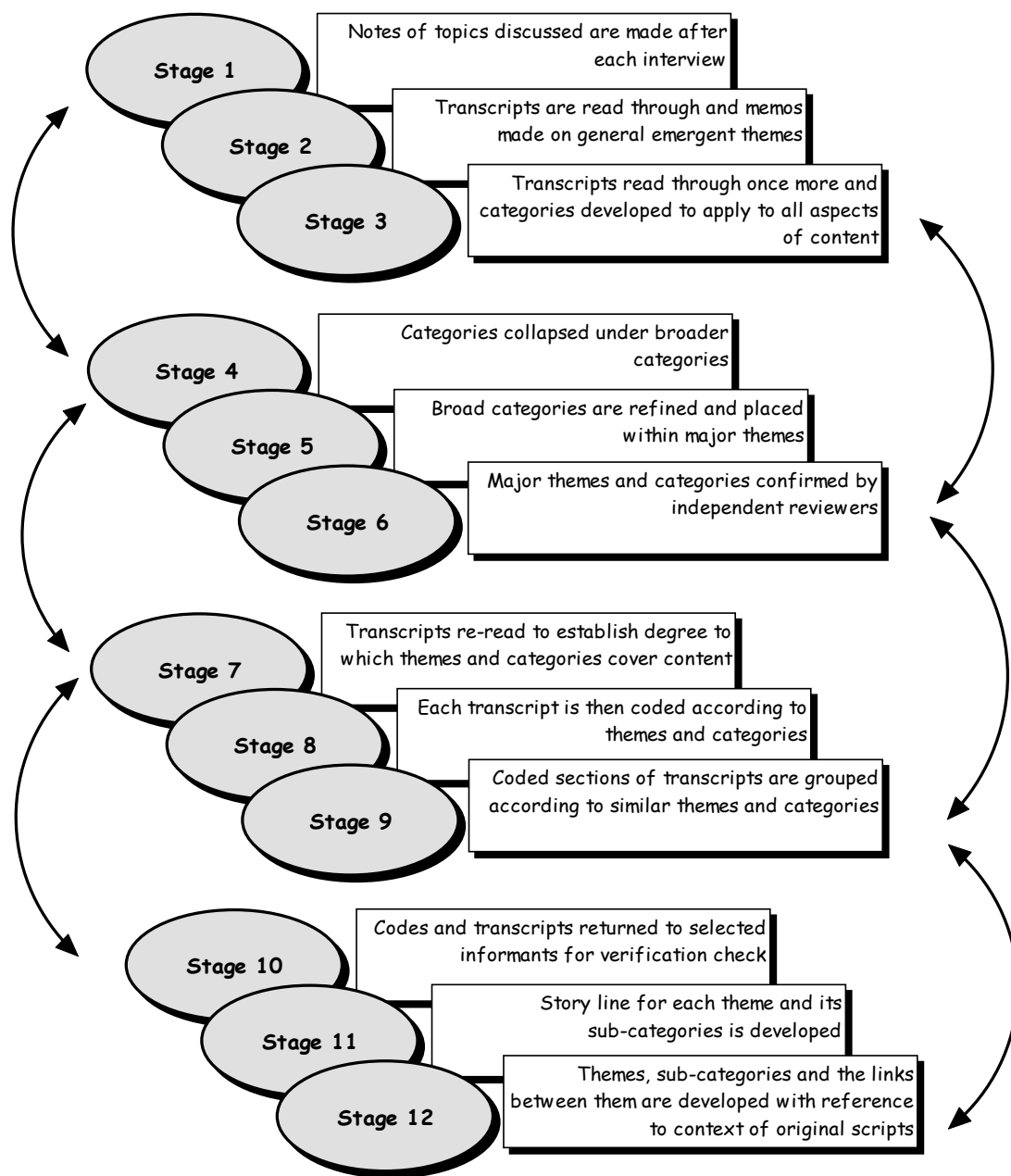


Figure 7.1. Schematic representation of procedures for interview data analysis adapted from Burnard (1991).

As shown in Figure 7.1, analysis of interview data progressed through several stages. Firstly, notes were made at the end of each interview to summarise the topics discussed during the interview between the informant and researcher. Notations were then made throughout the first reading of each interview transcript to record the general themes emerging from the data. This facilitated immersion in the data and an in-depth awareness of each informant's "frame of reference" (Burnard, 1991, p.462).

Further reading of the transcripts resulted in the development of numerous categories to encompass all aspects of interview content. Maintaining written notes, or "memos", throughout the period of data analysis further assisted close association with both the data and the unfolding category system, and facilitated theoretical sampling strategies (Grbich, 1999).

The categories were reviewed and collapsed under broader category headings. This list of categories was reviewed and refined to establish the final themes and their related sub-categories. All transcripts were then reviewed and coded utilising the established themes and sub-categories. In this way a comprehensive analysis of the relevant interview data was achieved, providing a clear articulation of the issues and concerns of nurses managing patients' postoperative pain.

In order to strengthen the credibility of the categorising process, two colleagues not involved in the study but familiar with the process of thematic content analysis were asked to read through the transcripts and identify what they believed were the common themes and categories emerging from the data. Themes and categories generated from this process were compared with the researcher's own interpretations to identify patterns that may have been missed during the initial analysis. Differences were reconciled by the researcher providing an explanation of the thinking behind the choices made and the reasons for one particular line of inquiry and not another. The appropriateness of the category system was reinforced further with verification and confirmation of the developing themes and categories by four informants who agreed to review the investigator's findings.

Finally, descriptive narratives were developed for each theme and its related subcategories, which were linked and supported with examples from the interview data. Throughout this entire process, as depicted by Figure 7.1, earlier stages of the analysis were revisited as often as necessary in order to remain as close as possible to the original meanings and contexts of the interview data.

### ***Data management***

It has been argued that a systematic process of data collection, storage and retrieval is essential to the quality of qualitative data analysis (Huberman & Miles, 1994; Tesch, 1990). Without this, data are at risk of being “mis-coded, mis-labeled, mis-linked, and mis-laid” (O'Connell, 1997, p.39). In this study, textual data of interview transcripts were managed using the Non-numerical Unstructured Data Indexing Searching and Theorising (NUD•IST) software program (Richards & Richards, 1994).

According to the developers, this system provides several functions that assist data analysis. It allows textual data to be stored in a way that supports coding at several levels of analysis (eg. word, line, and paragraph), with flexibility to change and recode data at any stage of analysis. As analysis proceeds, it facilitates the consolidation of data that are similarly coded within emergent categories and themes. This program is also able to retrieve the researcher's notations made on emerging codes, categories and themes, as well as generate reports that include information on all aspects of text document analysis (Qualitative Solutions and Research Pty Ltd, 1997).

Complete transcriptions of interviews were made as soon as possible after speaking with each informant. These were entered into the NUD•IST program, then reviewed paragraph by paragraph to establish the general themes emerging from the interview data. Paragraphs were then coded line by line to identify relevant categories within the data content. Print outs were made of all categories and associated text to enable determination of areas of overlap and consolidation of category lists and emergent themes. These processes were assisted by the use of conceptual diagrams and memos.

Demographic data were analysed descriptively, using the SPSS for Windows Release 8.0.0. (1997) computer software.

### **Measures of Trustworthiness**

The most certain statement that can be made about measures of rigour in qualitative research is that there are no certainties. Over the last 15 years there has been a striking trend to move away from a reliance on quantitative criteria as a means to determine the trustworthiness of qualitative research, as the traditional measures of reliability and validity have been found to be increasingly problematic to uphold within a qualitative context (Cutcliffe & McKenna, 1999; Emden & Sandelowski, 1998). While alternative criteria more appropriate to qualitative approaches have been developed, there is no final answer or agreement as to what constitutes “good” qualitative research, nor to how such goodness might be gauged. Rather, a plethora of views and practices is evident in the literature.

Despite this apparent lack of consensus regarding the idea of rigour in qualitative research, the legitimacy of knowledge claims are dependent upon demonstrating that the research study is trustworthy and believable (Koch, 1996). However, criteria for trustworthiness, like their quantitative counterparts, are measured not as absolutes, but more as matters of degree (Sajiwandani, 1996). The responsibility for selecting the most appropriate criteria for trustworthiness then showing to what degree a study attempts to meet these criteria, lies with the investigator (Koch, 1996).

In this stage of the study, trustworthiness was measured against three criteria of rigour: credibility, fittingness and auditability. These criteria are based on Guba and Lincoln's (1981) factors of truth value, applicability, consistency and neutrality, and have been adopted and applied by numerous qualitative researchers since (Appleton, 1995; Beck, 1993; Cutcliffe & McKenna, 1999; Koch, 1994, 1996; Minichiello et al., 1995; Sandelowski, 1993).

According to Guba and Lincoln (1981), *credibility* is the proposed criterion against which truth value of a qualitative study should be judged. Credibility is established to

the degree that respondents recognise the findings as representing their own lived experience (Lincoln & Guba, 1985; Sandelowski, 1993). As stated previously in the explanation of how interview data were analysed, the investigator presented the emerging thematic perspective to four assenting informants, who verified that the findings portrayed their experience.

Another strategy to enhance credibility of qualitative research findings is to share data interpretations with colleagues for the express intention of challenging the robustness of the emerging categories and themes (Cutcliffe & McKenna, 1999). As mentioned earlier, the researcher asked two colleagues not involved in the study but familiar with the process of thematic content analysis to read through the transcripts and make their own interpretations of the emergent categories and themes. Differences between these and the researcher's own interpretations were then reconciled by the researcher providing an explanation of the thinking behind the choices made and the reasons for one particular line of inquiry and not another.

The second criterion, *fittingness*, has been suggested for evaluating the applicability of qualitative findings. That is, a qualitative study whose findings can "fit" contexts outside the current research study situation can be described as having fittingness (Kirk & Miller, 1986). This is further supported when readers / practitioners view the study findings "as meaningful and applicable in terms of their own experiences" (Sandelowski, 1986, p.32).

The emergent findings were presented to a non-participant registered nurse, who confirmed that the findings depicted her experience. In addition, segments of the results that were presented at national and international conferences were supported by conference delegates as reflective of their own experiences and applicable to similar contexts where nurses practice postoperative pain management (Rees, 1999a, 1999b). Additionally, several North American academic colleagues, acknowledged as experts in pain management, confirmed that the researcher's nascent interpretations of emergent themes and categories resonated their own experiences (E. Devine, personal communication, April 6, 1999; C. Miaskowski, personal communication, March 31, 1999).

To some extent, fittingness is dependent upon the degree of similarity between two contexts (Koch, 1996), which can only be judged by readers if the original context of a study is described adequately (Guba & Lincoln, 1989). The description of the context of this stage is made available to the reader in the detailed writing of the research process and the incorporation of extracts of interview data within the descriptive narrative of emergent themes and categories. Furthermore, throughout this stage, the investigator maintained a field journal in which was noted information about the setting, including the physical environment, organisational structure, daily ward routines, nurse staffing and medical rounds. This journal has been retained for scrutiny by readers of any future publications arising from this research within the next five years (an excerpt of these journal notes is included in Appendix H).

The final criterion, *auditability*, refers to the ability of another researcher to follow the thinking, decisions and methods used by the original researcher (Guba & Lincoln, 1981), and depends upon the adequacy and transparency of the description of the whole process (Andrews, Lyne, & Riley, 1996). Referred to as a “decision trail” or “audit trail”, this option supports the principles of academic rigour in qualitative research in that it permits the research community to make their own judgements concerning the process of analysis, the overall trustworthiness of the research and therefore its presented interpretations (Cutcliffe & McKenna, 1999; Yonge & Stewin, 1988). The authenticity of qualitative findings is an “appeal to the audit process” (Koch, 1996).

Specific warrants of auditability in this stage included:

- using a tape-recorder to record every interview;
- writing theoretical notes immediately after each interview to record impressions of both the context and emergent themes and categories;
- creating complete verbatim transcripts of all interviews;
- using a computer-based data management program to ensure appropriate and consistent data storage and retrieval;
- maintaining analytic memos and diagrams to assist with data analysis;
- maintaining a methodological file of the researcher’s reflections on issues of gaining access, establishing rapport with informants, interview technique and



questions, and possible influences of the researcher on informants' responses and data interpretation.

These and other procedures outlined in this chapter provide a detailed and transparent account of the methodological decisions, plan for data analysis and interpretive framework for this stage of the research.

### **Human Subject Protection**

Extending this thesis in the direction described for this stage required that permission be sought once again from the University's Human Research Ethics Committee and the Nursing Research and Ethical Review Committees of the selected hospital. A request was made to the hospital to approach registered nurses working in surgical care areas to invite them to participate as study informants. Approval was negotiated also with the Nursing Directors of Surgical Clinical Divisions and the Nurse Managers of each surgical unit.

Registered nurses who agreed to participate were issued a consent form to sign and return, and a letter to retain that explained the purpose of the study, the nature of their involvement, and measures that would be taken to ensure their anonymity and the confidentiality of data collected through interview (see Appendix G). Assurance was also given to all informants that participation in the study would in no way affect present or future standing in the hospital. Informants were advised of the voluntary nature of the study and reassured of their right to withdraw from the study at any time without being subjected to any penalty.

Prior to commencing, permission was sought from all informants to tape-record the interviews. Confidentiality was maintained by using a numerical coding system. A codebook was used to keep account of the names of nurse informants and their code numbers. This was held in a safe place by the researcher, and was referred to only when further contact with informants was required throughout this stage of the study. The codebook was destroyed on completion of data analysis. Tapes of the interviews were transcribed verbatim and, on completion of the study, the tapes were erased. All

electronically maintained interview data has been kept in a secure place during data analysis and will be destroyed after five years.

Nurses who agreed to participate in the study were asked to give the researcher permission to publish the findings of the study as aggregate data. Every care was and will be taken to ensure informants' anonymity when citing extracts from interviews in all publications and presentations.

### **Concluding Remarks**

This chapter sets out the investigator's rationale and method for Stage Two of this research, which proceeds within an interpretive research paradigm. The qualitative research processes of interviewing, transcribing, categorising and theme development described in this chapter are appropriate for exploring nurses' perceptions of postoperative pain management from an interpretive perspective. They have been applied in a manner that ensures a trustworthy and rigorous analysis of nurses' voiced interpretations of their practice in postoperative pain management and the factors that impact on this practice. In the next chapter a descriptive narrative of these interpretations is set out and discussed.

## CHAPTER EIGHT

### Stage Two

#### Outcomes: Major Themes and Categories

Four major themes emerged from analysis of nurses' comments regarding pain and pain management:

1. *finding out about the patient's pain,*
2. *making decisions about pain and pain management,*
3. *individual factors affecting pain management,*
4. *interpersonal and organisational factors affecting pain management.*

The descriptive narrative that follows, which includes illustrative verbatim extracts of interview data, explains these themes in more detail.

#### Finding Out About the Patient's Pain

When questioned about how they determined their patients' pain condition, informants' initial response was that they would *ask the patient*. Nurses working in surgical care areas using the Acute Pain Service (APS) reported using the numeric rating scale (NRS) to solicit verbal pain reports from postoperative patients. Clearly, they were aware of both the correct way of administering the NRS as well as the principles underlying its use. Furthermore, informants expressed an understanding of their collective responsibility for practicing in accord with prescribed guidelines. As one nurse explained:

*The protocol states that we assess it [pain] every three hours on a scale...zero is no pain and ten is the worst pain imaginable. It's an individual thing as to whether it's a ten or a zero or in between. All pain is an individual thing. What's painful to somebody may be nothing to*

*somebody else so it has to be a scale that's easily used for an individual so we'll gain a reliable response. (#1)*

Irrespective of protocol, however, the NRS would be modified on occasions if, in the opinion of the nurse, it was easier for patients to understand. Modifications were cited for very elderly patients, those who were hearing impaired, and patients who were bewildered by the 11-point numeric pain scale. For example:

*I just use the number scale from zero to five. I tend to find that's quite easy particularly when they're emerging from anaesthesia. That works well. (#5)*

Periodically, nurses indicated their preference for a more thorough assessment of postoperative pain that included qualitative descriptions of the pain experienced by patients. As proclaimed by one experienced nurse:

*...I believe in a really good assessment [of pain]...what the patient says and the way they state their pain to highlight what their pain score is. Numbers don't mean a lot [on their own]. (#1)*

However, informants reported little consistency in seeking qualitative descriptions of pain because “it's not necessary according to the protocol”.

In surgical areas not serviced by the APS, such as the day surgery unit, the NRS was rarely used for pain assessment, despite any familiarity or previous experience informants may have had with the assessment tool. In these instances, no formal pain assessment tool was used and pain was assessed informally by simply asking patients if they had pain, and, if so, how bad it was. As one nurse reported:

*We don't have pain scoring sheets and we don't usually ask people to score their pain here because most people's pain isn't that high. We use an informal approach, just ask if they have any pain, whether they're uncomfortable... (#2)*

In these circumstances, nurses reported using other descriptive terms to approximate pain, such as “discomfort”, “soreness”, “aching”, and “hurt”. When asked why the word pain was substituted, one informant replied:

*I don't use the word pain if I can avoid it. I read somewhere that that is a negative. I tend to use other words like discomfort or uncomfortable or sore...(#5)*

Beyond asking the patient about pain, all informants commented frequently about the importance of **physical signs** and **patient behaviours**. For example:

*Physical things mean a lot, general body language, if their blood pressure's increasing and their pulse rate's going up...you just have to look at the patient...(#1)*

and:

*Visually you're going to assess them all the time whenever you do their obs...(#8)*

also:

*It's pretty easy to tell they're in pain by the way they're acting. (#6)*

Informants described certain patient behaviours they felt confirmed either the absence of or presence of pain. Absence of pain was indicated by the following:

*If the patient's sleeping I assume that they haven't got pain. (#4)*

and:

*...if they settle within themselves and their observations are stable...(#1)*

whereas subtle changes in behaviour might indicate the presence of pain:

*If someone is withdrawn and quiet, stiff muscularly, they were cheerful before but they're not cheerful now, they keep quiet and to themselves... (#2)*

Even when caring for patients who could not clearly articulate confirmation of their pain condition, most nurses expressed confidence in their ability to recognise pain from patient behaviour:

*I tend to find that most people, even when they can't speak English, can communicate that they're in pain, with general body language. I find it pretty easy to tell when somebody's in pain. (#1)*

and:

*Their [the patients'] non-verbal behaviour is absolutely classic. They can be stuporous with an airway in and you can see their foreheads wrinkle. (#4)*

Patient behaviours signifying severe or excruciating pain levels were unmistakable in the eyes of these informants:

*Facial grimacing, if they're screwed up in a ball with pain or rolling around the bed in agony...most of the time they just can't get comfortable in bed when they're in agony... (#6)*

and:

*if it's [the pain] quite severe that's usually obvious with them holding themselves and grabbing at you... (#2)*

However, less severe levels of pain were not so obvious or easily discriminated by less experienced informants when the patient's behaviour was not as demonstrable:

*I'll admit if they do have a slight discomfort quite often it can go unnoticed... (#7)*

or:

*There are the odd occasional ones who I don't know whether they're in pain or not or whether they're just uncomfortable... (#4)*

Finally, one experienced nurse informant expressed an intuitive approach to pain assessment, when stating that:

*I assess them [patients] based on my intuition...I know that they are sore.*  
(#3)

In summary, informants reported that finding out about patients' pain was a relatively straightforward process by which they would *ask the patient* about pain and observe relevant *physical signs* and *patient behaviour*. Strategies for soliciting verbal pain reports varied according to the procedural guidelines and policies in place in different surgical units, and ranged from use of a formal assessment tool for scoring pain intensity, to an unstructured approach whereby patients were asked simply whether or not they had pain. This latter approach to pain assessment was considered sufficient when it was felt that pain was unlikely to reach severe or excruciating levels, in which case a range of synonymous terms was used to substitute for the word pain.

Physical signs of pain were implicated by variations in vital signs, while certain patient behaviours were assumed to be diagnostic of the pain condition. Sleep, for example, held particular meaning as the antithetical behavioural state of pain. Other pain defining patient behaviours identified, but vaguely described by informants, included subtle to profound changes in facial expression, particularistic body postures and movements, and intuitively recognised body language. Despite this vagueness, however, informants conveyed an overall sense of confidence and certainty in their approach to determining their patients' postoperative pain condition.

### **Making Decisions About Pain and Pain Management**

The second major theme, *making decisions about pain and pain management*, emerged from analysis of nurses' explanations of how they determined what action to take in relation to patients' pain condition.

*Interpreting pain severity* was identified as an integral part of the decision-making process for establishing the need for pain relief. Reflected throughout these informants' responses was their belief that the "*reality*" of the pain experienced by

patients was more than their expression of it, and could only be understood by examining a multitude of evidentiary data:

*It's a multitude of things – the type of surgery, the weight of the patient, their vital signs, what drugs they've had [in surgery], the intensity of their behaviour...(#3)*

Some nurses felt that it was important to consider such a wide variety of data sources because of perceived problems with patients' verbal reports of pain. For one informant, this problem manifested as a lack of trust in the validity of numeric pain scores:

*Sometimes the scores are high but the patient is OK...like the pain score of 8 but the patient says he is comfortable or is able to deep breathe and comfortable...the number doesn't necessarily mean the whole assessment (#4)*

Another informant expressed ambivalence about patients' ability to report discriminative levels of pain intensity using a numeric rating scale:

*I don't care particularly about what numbers they [patients] give – it's a question of what they mean....There's always a bit of balancing out as to what you think the pain score really is [compared] to what they say it is...there's a big grey area in the middle from 3 to 7. What's 3 to 7, could mean anything ...(#5)*

The problem with patient self-report was disclosed by one nurse as a complete lack of trust in the veracity of patients' reports of pain:

*You must know that saying that pain is what the patient says it is is a load of rubbish...because people lie and they say things depending on the setting, their emotional state at the time and a number of other things... (#2)*



Frequently, interpreting pain severity involved establishing the authenticity of patients' stated pain condition by evaluating the congruency between reported pain levels and patient behaviour. Generally, informants expressed scepticism toward patients who displayed behaviour that in their opinion, was inconsistent with reported pain levels. Furthermore, in the event of any incongruence, nurses placed greater value in their interpretation of the patient's behaviour, *not* the stated pain level. The significance of patient behaviour to nurses' interpretations of pain severity is illustrated by the following extracts. What is also shown is how nurses viewed patients in relation to their behaviour.

Evident in this first example is a distinct undertone of benevolence toward patients who report no pain yet, by their behaviour, appear to be in pain:

*They don't want to admit that they're sore, and yet they'll sit there [informant holds herself and rocks back and forth indicating patients' non-verbal behaviour] (#3)*

However, when the circumstances were reversed, that is, when patients reported severe or excruciating pain that appeared unsupported by their behaviour, nurses were less sympathetic:

*A 19 year old boy who keeps coming back in...he just keeps asking for IM opiate regularly but he'll spend all his time downstairs smoking and drinking and being able to wander around the hospital and then as soon as he comes back up to the ward he huddles up and then he's in pain and wants his IM analgesia. It's very hard to believe somebody like that when you see him perfectly well sitting in all sorts of positions downstairs when you come on duty and then 5 minutes later he's coming upstairs and because he's back on the ward he's asking for his opiates. It's not our place to judge but unfortunately we're all human and you do, in that respect, you become a bit complacent about his pain. I'm sure he does have pain, it's just the severity of the pain he's complaining about that you begin to wonder about. (#7)*

In some instances, informants expressed outright disbelief in patients' reports of pain, almost to the point of vilification:

*People come in on a regular basis...and their pain scores...would be fabricated. Scores of 9 or 10 and smiling through their teeth with no physical sign of pain...(#8)*

Informants spoke often about **strategies for pain relief** in relation to their interpretation of patients' postoperative pain. Non-pharmacological strategies, such as deep breathing, relaxation, and body massage, were mentioned infrequently by these informants, and usually then only in relation to situations where these strategies were used to complement pharmacological pain relief measures:

*Sometimes massage can help or a rub with cream on their backs, using hot packs, can help just lengthen out or soothe the pain until the doctor gets there...(#1)*

Not surprisingly, most comments focused on administration of medically prescribed analgesic medications. Where relevant to their working environment, nurses were aware that protocols existed for certain pain relief strategies, as well as the parameters given by these protocols for administering the prescribed analgesic medication. For example, one informant explained the following protocol for continuous intravenous opioid infusion:

*We have protocols for the IV. They usually use morphine 50mg in 500 ml so it's a dilution of 1 mg in 10 mls. If, say, it's running at 40 ml, or 4mg, an hour, we're allowed to give bolus doses of the previous hour's amount three times in the hour, so we can give three 40 ml boluses 20 minutes apart in the hour to try and control their pain. (#1)*

When asked about how this protocol was used to determine how much analgesia was administered to patients in pain, this informant responded somewhat vaguely with:

*...for somebody scoring a 10 or in the high 5 to 10s then we usually give them their analgesia within the prescribed limits...(#1)*

Nurses described using a range of strategies for making decisions about administering analgesia to patients receiving pain relief in the form of intramuscular and/or oral medications. One informant described what seemed an incremental approach:

*We look at what they've been getting and how long it's been covering them for. If they've only been getting 75mg and its only been prescribed 3 hourly and you know that at 2 and a half, 2 and three quarter hours they're asking for analgesia I'll give them 100mg next time and see if that'll cover them for the 3 hours. I'll do it like that – looking at what they've had and how long it's been covering them. (#6)*

Another informant, an experienced nurse, was more specific about how patient behaviour influenced her decisions:

*I mean, if they're just lying there and saying I'm sore well I'll still give, say if it's 75-100mg, I'll give 75mg. But if they're absolutely writhing around I think I'd give them 100mg. (#4)*

Other informants declared more absolute opinions:

*I always give them the maximum dosage [prescribed]. I don't think people should suffer pain at all...(#2)*

and:

*I call myself the needle queen. I have absolutely no hesitation in giving anybody in pain any pain killers they're ordered.(#8)*

Regardless of how nurses responded, in most cases their intention to administer analgesia was subject to their interpretation of the patient's pain and their subsequent determination of the patient's need for analgesia. As one informant disclosed:

*...primarily it's when they need it [analgesia] or maybe when they request it.... But I would say that that's secondary to me feeling that they need it. (#2)*

Fortunately for patients, nurses usually felt that analgesia was needed prior to patients undertaking activities, such as showering, ambulating, wound dressing changes and physiotherapy. In these cases, when nurses anticipated painful outcomes, they did not hesitate to administer prescribed pain relief. For example:

*Generally speaking we will give boluses for movement or for the first shower or for physio [physiotherapy]. It's not very often that patients aren't given an extra dose for a first shower or before physio. (#5)*

To summarise, implicit in the reflections of these informants about how they determined what action to take in relation to the patient's pain condition was the interface between their *interpretation of the patients' pain severity* and their decisions regarding *strategies for pain relief*. Nurses felt unable to accept the patient's verbal report of pain at face value, and instead sought to reveal the "true" severity of pain by examining additional data. In particular, nurses relied on their evaluations of patient behaviour to support their conclusions about how much pain the patient was "really" experiencing, and their subsequent need for analgesia. From the perspective of some informants, this was justified because patients were unable to give accurate accounts of their own pain, and in some cases, would fabricate their pain severity just to receive medication.

Most of the strategies for pain relief described by these informants involved administration of analgesia. Whether by protocol or prescription, nurses were generally given certain responsibility for deciding when to administer analgesia as well as what dose to administer. Irrespective of how informants preferred to adjust analgesic administration, that is, by increment, according to behaviour, or giving as much as possible, their decision to give anything at all was based on their determination of the patient's need for analgesia, and not necessarily the patient's report of pain or request for analgesia.

**Individual Factors Affecting Pain Management**

Another theme to emerge from informants' comments was concerned with personal attributes, or characteristics, of nurses that impact on their decisions regarding pain assessment and management. There were three key aspects to nurses' reflections on their own and others' practice: (1) knowledge of pain and experience in dealing with patients in pain; (2) attitudes, values and beliefs toward pain assessment and management; and (3) personal experiences of pain and pain management.

A general sense of frustration prevailed throughout these informants' stories of colleagues whose *knowledge and experience* of pain assessment and management were not always current or sufficiently comprehensive. This frustration was evident in the expressions of one nurse while describing the pain assessment practices of less experienced colleagues:

*I just don't think they recognise pain...they ask numbers that don't mean anything – not doing a proper assessment – asking numbers just because they have to write them down but not really assessing the patient and consequently not managing their pain properly. (#5)*

More frequently, however, informants despaired of the inappropriate actions of their colleagues in providing analgesia for patients in obvious pain. For example, this informant described the erroneous assumptions of colleagues regarding opioid dosage titration:

*...nurses would make the mistake of giving somebody, say if you had a choice of 50 to 75 [mg] or 50 to 100, they would give 50 and of course it didn't work. And they would take it that they had given 50, so had to wait 4 hours before giving more...(#8)*

Another nurse related this particularly poignant narrative:

*One of the nurses...received a patient back from theatre through the night and the boy was only 17 and he'd had a traumatic amputation of his fingers and his mother of course was really upset. When he woke up he said he was in pain and she turned around and said, "Oh I can't give him anything, he's just had an anaesthetic." I thought, it's not my ward, it was the ward next door and I said to her afterwards "You do realise of course that you can give him something." She said, "Oh I'm not taking responsibility, he's just had an anaesthetic." I mean that's what the mentality is...(#1)*

Often, informants linked these inappropriate actions to nurses' lack of knowledge of opioid pharmacology, particularly their unsupported fear that by administering high doses of opioid analgesia, they would potentiate the risk of opioid addiction, and even death. One informant related the following experience:

*...old school nurses who are very reluctant to give, if the patient was ordered 50 to 75 [mg] they'd always give 50 and if it was 75 to 100 they'd give 75 when a person was in obvious severe pain...they'd usually say well it's best to start off low and that would prevent them getting addicted. I think they still have a fear of addiction despite the fact that nurses know they're supposed to say no they're not concerned...(#6)*

Another made the following observation:

*I find that so many nurses are scared of giving large amounts of opioids. They tend to feel that they're just going to knock the patients off straight away...(#3)*

Sometimes, informants' lack of knowledge and experience of pain management became evident through descriptions of their own practice. For example, current practice guidelines in opioid administration for postoperative pain advocate around-the-clock or regular administration of opioid analgesia in order to sustain therapeutic blood levels. However, one informant proclaimed:

*I aim for complete pain relief, but would not give it [opioid analgesia] just because it's due...(#2)*

Another nurse's misunderstanding of the pharmacokinetics of opioid analgesics, which generally reach their peak action within the first 20 minutes of administration, is revealed by her willingness to wait 60 minutes before seeking further analgesia for her patient:

*...if the patient is still in pain an hour after IM [intramuscular] analgesia I'd get back onto the doctors straight away and ask them to come up and review the patient. (#3)*

Generally, informants agreed that ongoing education and experience in managing postoperative pain had a positive impact on nursing practice and patient outcomes. This was implicit in their descriptions of certain ineffective routines that were "common practice" prior to the availability of educational programs in pain management. For example, this informant described how patients receiving continuous intravenous opioid infusions were managed before the introduction of an inservice education program to improve nurses' knowledge about this pain management strategy:

*You wouldn't accept that the patient was comfortable because of the [opioid] infusion. It was always turned down. We always had to have people feeling pain rather than, if we can get them comfortable, leave them comfortable with no side effects...(#7)*

Similarly, when speaking about the clinical judgments of colleagues regarding opioid administration, another informant declared:

*I can always tell when they're beginners [as registered nurses]. They just won't give as much [analgesia] as they can to the patients to relieve their pain...(#6)*

Informants' comments also highlighted the importance of knowledge and experience to developing confidence in making decisions regarding administration of opioid analgesia:

*...a lot of nurses make mistakes purely because they don't have the experience or the knowledge to deal with opiate drugs. I feel for myself that I've had a wide range of experience with opioids...I've just seen so many patients given such large amounts [of opioids]. If they have a bad reaction we can just give them naloxone to reverse it...it's not that big a deal...(#1)*

Not surprisingly, nurses' decisions regarding pain assessment and pain relief reflected many of their **beliefs, values and attitudes** regarding pain and pain management. Generally, informants who expressed liberal attitudes toward opioid administration also declared goals of pain management which were consistent with contemporary practice goals and guidelines:

*...enhance their [patients] recovery...have them able to get up and move more quickly, have less postoperative complications. Be comfortable at rest, to still be able to do their deep breathing and all the things they need to do to get better...(#1)*

and:

*By having adequate pain cover it makes a definite improvement...[patients] can perform their feats for the physiotherapist sooner and they get out [of hospital] a lot quicker...(#8)*

As another informant explains:

*You can't say that one [patient] will be more likely to have pain or more pain than the other [after the same operation]. It's purely individual when it comes to pain.(#3)*



On the other hand, it was clear that nurses who administered opioids at the lower level of the prescribed range were those less enthusiastic about the outcomes of pain relief:

*...we have to recognise the limitations of opioids...it's unrealistic to expect that patients will be totally pain free...(#4)*

and:

*the patient has had surgery, what do they expect. There's no such thing as pain-free surgery.(#6)*

Several nurses even expressed assumptions about the degree of pain patients could expect following different types of surgery. For example:

*There is an extent that you know that abdominal surgery is going to be really, really sore...more than perhaps having a lesion taken off an arm...that isn't going to be as painful as an abdominal hysterectomy...(#2)*

At times, these assumptions worked in the patient's favour, particularly if nurses expected patients to experience severe pain following surgery:

*If we know that somebody is having a major operation we tend to put them on a double mattress...to try to increase their comfort.(#1)*

At other times, however, patients in pain may have been neglected entirely if nurses expected that surgical procedures would not be painful:

*There's not much discussed about their pain because most of the procedures as a rule don't end up being too painful.(#7)*

Informants recognised that improvements in pain assessment and pain management were hampered when nurses remained reluctant to change their negative attitudes

toward patients in pain and pain relief. The following extracts portray some of their concerns:

*There is still resistance to believing patients, resistance to believing that a patient with an appendectomy can have a lot of pain...(#6)*

*“There are still some hard nurses who make the right noises but really basically haven’t changed their perception of pain management...they believe that if you need more than two injections then you’re a wimp...(#4)*

*There is still a resistance to change. We had a patient with an epidural [opioid infusion] and a nurse wanted to stop it and the doctor said no let’s keep it going for another day. Her comment was they [patients] don’t need fancy infusions for these little procedures – this was a total knee replacement. Give them IM [analgesia], it makes them sleepy, keeps them quiet and they get better...(#1)*

Informants provided disturbing examples of practice aimed at “punishing” the difficult or demanding pain patient. These “punishments” included delaying or minimising pain relief:

*People who it is very doubtful whether they are experiencing the pain they say they have or they’re disliked by the nursing staff for some reason, they [nurses] do take a while to actually answer the bell, or you give them 50[mg] rather than 100...(#2)*

One informant, deeply angered by an event she described in which a colleague refused analgesia to a patient postoperatively, had this to say:

*Nurses still think they have the right to refuse analgesia...they don’t understand that if it’s written by a doctor and the patient asks for it they really don’t have the right to refuse it...(#4)*

Nurses acknowledged freely that their attitudes toward pain assessment and pain relief were in no small measure influenced by their *personal experiences* of pain and pain management. For example:

*If we haven't had [severe] pain then we can't interpret it...(#8)*

and:

*I can only judge that [patients' pain] on what I myself would be like...(#1)*

Some informants felt that their own experiences improved their ability to empathise with patients in similar circumstances. As one informant explained:

*I've had a lot of back and neck problems so I understand that if patients are lying in bed on a big stuffed up pillow that it can be very uncomfortable and that can be causing their pain as much as anything else...(#6)*

Another informant credits her beliefs about pain relief to her own unpleasant experiences following surgery:

*I have absolutely no hesitation in giving anybody pain killers [because] of what happened to me. I had a surgical procedure and I had an allergy to narcotics...they [nurses] deemed that I couldn't have anything so they didn't even offer panadol or digesic and because I was ...crying and moaning they restrained me in bed and shut the door and told me to stop moaning because I was disturbing the other patients...(#3)*

For another nurse, however, reference to personal experiences of pain was used to explain why he doubted some patients' complaints of pain following what he considered to be "not really painful" surgery:

*I always use the analogy of when I was bricklayer...if you smacked yourself with a hammer you wouldn't go racing off and burst into tears...(#2)*

In summary, nurses' narrations revealed that decisions of their own and others' regarding pain and pain management were influenced by a range of personal attributes. Lack of *knowledge* and limited *experience* in pain management were identified as restrictive mediators of effective pain assessment and pain intervention, particularly confidence in opioid administration. Fear of addiction was cited as prevalent among many nurses and remained a significant obstacle to providing effective pain relief.

These nurses' actions also resonated their *beliefs, values and attitudes* of pain and pain management. Informants who conveyed goals of pain management that were aligned with current opinion and practice standards delivered more appropriate and effective levels of pain relief than nurses who were ambivalent about the pain-relieving potential of therapeutic interventions. Furthermore, informants divulged that their assumptions regarding the degree of pain associated with surgery, as well as their *personal experiences* of pain and pain relief, provided referents for decision-making relative to their patients' pain assessment and pain management. The ramifications of this decision-making framework were significant for patients whose complaints of pain or needs for analgesia were dismissed if they did not "fit" with nurses' own expectations, assumptions and experiences.

### **Interpersonal and Organisational Factors Affecting Pain Management**

A final theme to emerge from interviews with nurses concerned *interpersonal factors* and *organisational issues* that impact on nurses' decisions regarding postoperative pain management, particularly decisions dealing with pain relief.

Informants' comments revealed the importance of effective communication and collaboration in the provision of optimum pain relief. Their narratives highlighted the positive outcomes of good teamwork with other health professionals, including a

greater sense of trust, negotiation and liaison between nurses and doctors. Notably, the most positive experience of collaboration appeared to be with medical and nursing staff of the APS. Nurses recognised the improvements in pain relief that had been established since the inception of the APS through ongoing education and support, as well as through the introduction of new analgesic techniques, such as continuous intravenous opioid infusions:

*The big difference with these [intravenous opioid infusions] is that the patient tends to have better control of pain. They're not in an up and down phase. Once you get them initially controlled ...you tend to have a pretty straight run of things...(#5)*

*We're using an increasing number of epidural infusions with a combination of opioids. Once you get it [the epidural infusion] established and at a good rate you tend to find that patients are a lot more mobile and they're not afraid to move...you're looking at almost a pain-free state...(#1)*

Informants were particularly positive about the support and advice they had received from the staff of the APS about patients whose postoperative pain was difficult to manage:

*...we phone up the APS if we're having real problems...if IM [intramuscular] analgesia isn't holding them we call the APS to start either a PCA [patient controlled analgesia] infusion or a morphine infusion. We can always get onto the APS 24 hours a day. (#7)*

Informants spoke also of their positive experiences of liaising directly with the patient's surgical team regarding management of postoperative pain. When recounting the outcomes of a discussion with a surgeon regarding her suggestions for improving her patient's analgesia regimen, one nurse stated enthusiastically:

*it was really good because...I'd felt as if we'd built a bridge...(#4)*

Another nurse related her thoughts about how professional partnerships with medical staff impacted on her practice in pain management:

*It depends on which medical officers are on. Some of them are pretty good and will say to you, "oh well if you feel she needs it go ahead and give it and I'll come up later and sign for it." But then you've got to be extremely trusting of them to come back and sign for it so it really depends on the medical staff and how well you know them.(#1)*

These positive views, however, were counterbalanced by comments which indicated several nurses' underlying frustration regarding efforts at collaboration and negotiation with medical staff, such as in this example:

*We have tried to talk to doctors about poor orders [for analgesia] like a young girl who had an irritable bowel condition and how she'd been given intermittent pethidine for 8 days and when we asked the doctor if we could refer her [to the APS] they said "oh no those people will only pander to her. Let's make her work for her pethidine..."(#6)*

Another nurse's statements reflect her belief that despite all efforts and appearances of collaboration with medical staff, little has been gained for nursing, and there is still no real partnership in decision making regarding postoperative pain management:

*The nurse is the one who does all the work. But when the chips are down I'm still the nurse and they're still the doctor...I don't think that will ever change...(#4)*

Implicit also in several informants' comments was a sense that many nurses lacked the confidence to approach doctors and suggest a change in their patients' pain management:

*...the nurses will talk with another nurse more than they will [talk] to another doctor...(#4)*

and:

*They think the anaesthetists don't like it and they wouldn't even think to ask just because they don't like it. (#1)*

For more experienced nurses, confidence in communicating with medical staff was recognised as a correlate of experience. For example:

*It's a lot easier for me now because I have more experience. I felt extremely intimidated [when I started] ...I would never have approached a doctor.(#5)*

Another major source of disappointment for many informants appeared to be a lack of support from peers for their decisions regarding pain management. This was particularly noticeable by nurses when new to ward areas:

*It's very difficult when you come on a ward for the first time and you've had experience that they've never come across and it isn't the way things have been done.(#8)*

and:

*When I first started I was yelled at by the [nurse] coordinator for giving the maximum amount [of analgesia]. She interrogated me and said I was wrong to give so much...(#3)*

Informants were concerned also about the reluctance of some nurses to give adequate analgesia and how this hindered effective pain relief. More so, however, informants expressed their frustration at feeling helpless to intervene on the patient's behalf because of the possible consequences for the patient:

*... you come across a nurse who's reluctant to give somebody who is in obvious pain adequate cover, or if they do give what they're [patients] prescribed and it's obviously not enough [then] they don't bother*

*following up, they're too lazy to cause a bit of a hassle. That sort of thing is difficult [because] the way we nurse now is that we [at]tend to patients to whom we are allocated...it can be perceived as sticking your nose in when that patient is being given care and attention by that nurse [but] is still in pain, so you go in feeling duty bound as a caring human being to say "what else can we do"...By doing that quite often the other nurse who's patient it is will feel as if you're passing judgment on them and that they're not doing their job properly. You have to avoid that situation or most nurses will let the patient suffer. (#2)*

To avoid confrontation, nurses would sometimes work around their peers, and instead convince the patient to demand appropriate care:

*I usually get round the situation by telling the patient that they're the boss, tell the nurses what to do. If you've still got pain and what you're getting isn't doing the job, have a chat to your doctor when he comes round – let them know that they [patients] have the power. (#5)*

Conversations with these informants revealed that their decisions regarding pain relief were, to some extent, influenced by their patients' willingness to report pain and accept analgesia. Reflected in nurses' comments was their frustration with the dilemma posed when trying to ensure effective pain relief while at the same time respecting patients' rights of self-disclosure and self-determination. For example:

*...but what can you do? You can't force someone to take tablets or injections for pain. You can advise them that it would help...but when it comes to the end of the day it's their right to say no and that they don't want it. You can only do so much... (#1)*

Several nurses linked patients' reluctance to report pain and accept analgesia to their lack of knowledge and understanding of current therapies. In this following extract, an informant explains the difficulty she encountered when trying to convince patients to accept more than one form of analgesia:



*There is a great deal of difficulty...giving paracetamol regularly because the patient says, "I'm fine. I don't need it. I've got the infusion." They just don't understand...(#6)*

In addition to the varied **interpersonal factors** that were found to impact on nurses' decisions of postoperative pain management, informants' comments also disclosed underlying **organisational issues** of relevance. Two key issues emerged from their narratives: (1) the impact of staff shortages and increased workloads on nurses' decisions, and (2) restrictions to effective pain relief imposed by hospital policies and procedures.

Informants commented frequently that nurses were often too busy to manage postoperative pain effectively as a consequence of reduced nurse staffing levels and increased workloads throughout the hospital. As one nurse explained:

*...as nursing staff get tighter, boluses are less frequent...sometimes they just let them [infusions] run on autopilot and don't really manage them because they're busy...There are time constraints as to what you can do...(#7)*

One strategy for keeping on top of these demands was to anticipate the extent of patients' pain based on the type of surgery performed, and to make pre-emptive decisions regarding the provision of pain relief:

*You always have to plan ahead. You have to think well he's having a such and such operation so I'm going to give him this when he comes back...(#3)*

In this way, nurses felt that at least they had developed a "skeleton plan" for postoperative pain management that could then be adjusted to meet specific patient needs and demands. However, despite these intentions, plans for pain management often went unchanged by temporary nursing staff who were employed to fill staffing shortages. One informant explained why this is so:

*We get a lot of outside staff who come in filling in and they only do what the person before them has done. They don't know enough about how things are done [in this hospital] to change anything...(#4)*

However, it was not only nursing staff shortages that impacted on nurses' decisions in pain management. A shortage of medical staff also restricted nurses' capacity to respond efficiently and effectively to patients' needs for altered analgesia, particularly at certain times of the day:

*Through the day you can get in touch with the medical team so that gives you a number of various residents that you can get to see your patient. But not for us at night with only one doctor on for all surgical patients in the hospital. At night when there's only one doctor covering surgery for the whole hospital. There's not a lot you can do...(#1)*

A further source of exasperation for these nurses related to hospital policies and procedures that restricted professional autonomy and decision-making regarding pain management. In particular, nurses complained of legal policies that restricted prescribing authority to medical practitioners only. This was especially difficult when prescriptions for analgesia were inadequate for patient needs. For example:

*It's very difficult sometimes. You can't just go ahead and give them another dose...we really are bound by the fact that we have to get the patient reviewed by the medical staff if something's not working.(#1)*

In similar circumstances, another informant expressed frustration at being unable to act to provide adequate pain relief for patients:

*"If somebody is in severe pain then yes it ties your hands really. OK the patient may have pain again within the hour and you'd like to give them some more but you've got to go through the rigmarole of calling up the doctor first.(#7)*

Nurses were also critical of aspects of the clinical protocols developed to assist their decision-making for pain management. Several informants claimed that certain of the requirements, such as assessing sedation levels and respiratory rates every hour and pain scores every three hours, were unnecessary and simply added to an already overburdened workload for most nurses. However, informants appreciated the positive aspects of having clinical protocols for specific pain control techniques. When asked to give an opinion of the value of clinical protocols for managing continuous intravenous opioid infusion, one informant responded with this:

*Things [about the protocol] bug me certainly but I can see why they're there...as safeguards for the patient and...as safeguards for the nurses who haven't had experience dealing with IV opioids or opioids in general. (#1)*

To sum up, *interpersonal* and *organisational factors* were implicated in these informants' responses as significant moderators of their decisions about pain management, particularly those regarding the provision of pain relief. Their stories conveyed both positive and negative pain management outcomes derived from the quality of communication and collaboration with patients, peers, and medical colleagues. Informants embraced the Acute Pain Service as a positive influence on interdisciplinary collaboration and an important determinant of improved pain relief. Balanced against this were factors impeding effective pain management, including patients' reluctance to report pain and accept analgesia, lack of peer support and consultation, and failed attempts at collaboration and negotiation with medical staff. These events generated feelings of anguish, frustration, and sometimes futility among nurses who felt unable to confront the issues or helpless to give what they believed was appropriate pain relief.

*Organisational issues* were raised in relation to staffing and workload levels and policy restrictions to effective pain relief. Informants expressed their concern about the deleterious consequences of insufficient and inexperienced staffing and increased workloads on pain management. Also highlighted throughout their comments was a sense of exasperation with having their "*hands tied*" by policies and procedures that

restricted their professional autonomy by limiting their parameters for analgesic drug administration. However, informants also acknowledged the necessity of having policies that safeguarded patients against nurses who were unknowledgeable and inexperienced in opioid pharmacology and administration.

## **Discussion**

Notwithstanding the fact that these findings represent the particular viewpoints and experiences of a limited few, the comments of informants in these interviews provide a valuable insight into nurses' perceptions of their practice of postoperative pain management. Their narratives raise a number of significant issues which contribute to further understanding of nurses' decision-making framework for pain assessment and pain relief, and factors that impact on these decisions and their outcomes. As such, these stories provide an additional perspective on nursing practice in postoperative pain management that is instrumental for elaboration and explanation of the findings of Stage One of this study. Furthermore, while there was no intention for triangulation in this stage, many observations made by informants confirm the empirical results of Stage One.

Overall, informants' comments embraced the notion that pain is an individual experience that requires definition and delineation by the person who experiences it. This is particularly encouraging as it encompasses current definitions of pain and supports contemporary principles of pain assessment (Merskey & Bogduk, 1994; NHMRC, 1999). However, although claiming to subscribe to this belief, nurses' descriptions of pain assessment strategies centred more often on what they perceived were telltale physical cues and patient behaviours. In fact, informants conveyed a great deal of confidence in the appropriateness and accuracy of assessing pain based on their interpretations of physical signs and symptoms along with behavioural responses to pain.

The most salient feature of this finding is that nurses considered themselves, and not the patient, as the authority with respect to determining both the existence and

severity of patients' pain. This is not surprising, but serves simply to reinforce the conclusions and concerns raised by previous research, which reports that nurses minimise the importance of patients' self-reports of pain and place greater credence in their own judgments of pain (Brunier et al., 1995; Drayer et al., 1999; Francke et al., 1997; Wakefield, 1995).

Nurses spoke not only of what indicators they looked for to determine patients' postoperative pain, but also of the processes they used. Despite a body of research evidence that advocates simple, consistent, and standard approaches to pain assessment (Coyne et al., 1999; Dalton et al., 1999; Turk & Okifuji, 1999; White, 1999), the narratives of these nurses revealed that this approach was carried out only where dictated by clinical protocols relative to specific techniques for pain intervention. Elsewhere, pain assessment was informal, inconsistent and, sometimes, even considered irrelevant. Again, this finding is congruent with those discussed previously in this thesis, which reported inconsistent use by nurses of any type of systematic assessment and documentation of pain and pain relief (McCaffery & Ferrell, 1997b; Meurier, 1998; Tittle & McMillan, 1994).

Of particular interest in this case is that irrespective of individual differences in educational background or experience, informants appeared ambivalent toward the use of systematic approaches to pain assessment, although this principle underpins current best practice standards for assessing acute postoperative pain (Charity Hospital Nursing Practice Committee, 1989; NINR Priority Expert Panel on Symptom Management: Acute Pain, 1994). This suggests, at least among these nurses, that the professional standard of care delivery is not predicated necessarily on degrees of professional qualities and attributes.

Another significant issue that emerged from these interviews concerned nurses' decision-making for the provision of pain relief. Within medically prescribed parameters, nurses made decisions regarding when to administer postoperative analgesia based on their determination of the patient's need for analgesia subsequent to their interpretation of the legitimacy of the patient's claim of pain. What is disturbing about this finding is the obvious lack of input from patients in this

decision-making process and how closely this aligns with the findings of other researchers (Carr & Thomas, 1997; Dahlman et al., 1999; Dalton et al., 1999; Riddell & Fitch, 1997).

Demanding equal concern is the absence within these narratives of a clear and consistent approach to adjusting analgesic medications. Almost every informant described a different strategy for determining what dosage of analgesia should be administered for pain relief. Not only is this lack of consistency between nurses of concern from a professional perspective, it also raises serious doubt about the effectiveness of pain management for postoperative patients who may be cared for by several nurses during their hospitalisation, as is frequently the case.

From a broader perspective, this finding suggests that significant ambiguity exists in the parameters established by both general practice guidelines and more prescriptive clinical protocols for administration of analgesic medications to postoperative patients. It also indicates that instituting guidelines and protocols is no guarantee of effective decision-making in postoperative pain management, just as the existence of professional practice standards in pain management is no guarantee that nurses will apply them appropriately (Dozier, 1998; Grimshaw et al., 1995; Grimshaw & Russell, 1993; Mead, 2000; Shekelle, Woolf, Eccles, & Grimshaw, 1999; Woolf, Grol, Hutchinson, Eccles, & Grimshaw, 1999).

A further issue to emerge from this stage of the thesis was the continuing influence of certain individual characteristics on nurses' decisions regarding pain and pain management. Informants were critical of episodes they defined as inadequate practice by colleagues who lacked knowledge and experience in pain assessment and pain intervention. Furthermore, they were supportive of educational efforts at improving pain management outcomes. On the other hand, self-reflection and introspection were not evident among their narratives, which were interspersed with examples of attitudes, values and beliefs that displayed ignorance and inexperience in pain management, particularly pain relief. Sadly, this finding augurs poorly for endeavours for the professionalisation of nursing, which seeks professional

recognition and autonomy for nurses through self-scrutiny and practice accountability (Meleis, 1992).

Prominent among the reflections of informants was the role that personal experience played in their decisions in pain management. The minimal amount of research that has been done concerning the relationship between personal pain experiences and pain management has been inconclusive in its findings (Clarke et al., 1996; Holm et al., 1989; Ketovuori, 1987). However, it is clear from these findings that nurses relied to a great extent on their own pain experiences to frame both their understanding of what patients were experiencing as well as their decisions of what to do about it.

Nurses generally believe that the life experiences of both themselves and their families strengthen their ability to empathise with patients and understand how patients are feeling when undergoing similar situations (Baillie, 1996; Burnard, 1988; Olsen, 1995; Reynolds & Scott, 2000). A central issue here concerns whether this framework for decision-making is therapeutic for patients in pain. Indeed, as depicted in these nurses' stories, patients' experience of pain and need for pain relief may be minimised by nurses who impose their experiential interpretations of pain and pain relief on their patients' situation.

Other important determinants of nurses' ability to manage postoperative pain effectively concerned communication, collaboration and negotiation with patients and medical staff. Of itself, this finding is not unexpected, and confirms the conclusions drawn by other researchers, which highlight the problems of managing pain effectively when both patients and physicians intervene respectively by under-reporting or under-prescribing (Brockopp et al., 1998; Furstenberg et al., 1998; MacLellan, 1997; Thomason et al., 1998; Vortherms et al., 1992).

Interpersonal factors were also relevant for informants' relationships with their peers. Although some nurses experienced positive relationships that served to enhance their practice, others described a lack of supportive consultation between nurses and spoke about the pressures to conform to the prevailing "norms" of pain management. Peer

consultation and collaboration have not been examined extensively within the body of research literature on pain management. However, attention has been previously drawn to the issue of relationships between nurses and their possible negative impact on practice (Cox, 1987; Cox, 1991; Hipwell, Tyler, & Wilson, 1989). Since the early 1980s, issues of interpersonal conflict between nurses have emerged in discussion as the notion of horizontal violence in nursing (Duffy, 1995; Hedin, 1986; Roberts, 1983). Hart (1990) addresses this notion and concludes that peer consultation and support are critical determinants of positive clinical experiences that contribute to personal confidence and positive work attitudes, which may influence the quality of care provided. There is thus significant potential for such processes to make a meaningful contribution to the development of strategies aimed at improving nursing management of postoperative pain.

One encouraging finding to emerge from these interviews was how positively nurses viewed the services and support of an Acute Pain Service in managing difficult pain management situations for postoperative patients. Although several authors report some ambivalence with respect to the benefits of such services to nurses (Carr & Thomas, 1997; Drayer et al., 1999; Nagy, 1998), most studies proclaim their value lies in their capacity to institutionalise best practice standards in acute postoperative pain management and improve patient outcomes (Filos & Lehmann, 1999; Macintyre et al., 1990; Miaskowski et al., 1999; White, 1999).

It is interesting to note that nurses approached the APS only as a “last resort” to *solving* pain problems, but rarely as a partner in the day-to-day decisions regarding *managing* their patients’ postoperative pain. However, it is in this latter role that such services plead their most significant contribution and worth (Mackintosh & Bowles, 1997; Rees & Davis, 1993). Clearly, if improved patient outcomes and best practices are to be attained, there is a need for greater communication, collaboration and understanding between nurses and specialist pain teams regarding their roles and responsibilities in strategic alliances and decision-making partnerships for postoperative pain management.



Not all organisational institutions and policies were considered as supportive devices with respect to postoperative pain management. Informants' expressed frustrations with staff shortages, increased workloads and restrictive practice policies echoed familiar complaints within the literature that examines factors impacting on nursing practice in general and pain management in particular (Franke et al., 1997; Healy & McKay, 2000; McMillan, 2000; Snelgrove & Hughes, 2000). Unfortunately, workforce shortages in nursing are certain to persist for some time amid an environment of shrinking healthcare resources. At the same time, public demands seeking increased accountability of healthcare providers will encourage the development of more and more professional practice guidelines and policies to safeguard patients and practitioners. Realistically, these pressures are unlikely to diminish in the near future. Therefore, it remains a challenge for the nursing profession to seek realistic and strategic solutions to organisationally-induced problems that compromise quality and patient outcomes in postoperative pain management.

### **Summary**

The most parsimonious interpretation of the findings presented in this chapter is that postoperative pain management continues to be problematic for nurses. The issues reflected in the narratives of registered nurses are reminiscent of those raised by previously discussed research and concern inadequate assessment of postoperative pain by nurses and their inappropriate decisions concerning pain intervention. These findings also reinforce the significant impact of personal and professional attributes on pain management decisions, and highlight the effect of interpersonal and organisational dynamics on nursing practice in postoperative pain management. Noteworthy in these narratives is how nurses' management of postoperative pain is influenced by personal experience, peer support, and clinical practice guidelines. It was also evident that criticism of peers' pain management strategies was not matched by similar levels of self-analysis.

The purpose and justification of this stage of the study was derived from the need to gain further understanding of how nurses managed their patients' postoperative pain

and the factors that influenced their pain management decisions. The findings of this stage, which provide a realistic and in-depth view of the motives, meanings, actions and reactions of nurses who manage postoperative pain on a daily basis, indicate that this has been achieved.

## **CHAPTER NINE**

### **Recommendations and Conclusions**

These may not be the best of times. I doubt that they are the worst of times. What is certain is that they are our times.

(Neylan, 1989, p.179, cited by Anderson, 1994)

It is difficult to remain optimistic about our times, for the findings of this research confirm that nurses continue to manage postoperative pain inadequately and ineffectively. This illuminative account of authentic practice determined that nurses do not respond to a large proportion of patients' complaints of pain, even when patients describe that pain as excruciating. It is clear from this study's results that nurses fail to assess pain accurately or adequately, act cautiously, and sometimes non-therapeutically, in their use of pharmacological interventions in postoperative pain, and rarely incorporate complementary non-pharmacological strategies into their management of postoperative pain. In as much as experienced nurses respond more appropriately than their less experienced colleagues, they too neglect to intervene skilfully in some instances.

In their own words, nurses disclosed a number of significant factors that influence the quality of their clinical decisions regarding postoperative pain management: lack of knowledge of and non-facilitative attitudes toward pain and pain management, obscure role responsibilities, role conflict and professional jealousies, cultural and personal biases, fear of legal repercussions, and lack of resources.

The results of this research highlight a shared professional and organisational responsibility for poor postoperative pain management. These findings support and extend the recommendations of previous research regarding the need for more in-depth education of pain and pain management for nurses, improved interdisciplinary collaboration and greater organisational support for pain management priorities (Bookbinder et al., 1996; Brockopp et al., 1998; Dalton et al., 1999; Nash et al., 1999). More importantly, the results of this study identify specific factors that

deserve particular attention in the development and implementation of future strategies designed to improve postoperative pain management.

The fact that patients continue to suffer needless episodes of postoperative pain cautions a degree of sobriety when making recommendations about the types of strategies that are most likely to improve nursing practice in postoperative pain management. Indeed, this fact serves to reinforce the need for more careful consideration of their selection, design and implementation (Wolf, 2000). Thus, at this point, there are two salient issues to consider: firstly, *what are the future strategies needed to improve nursing practice in postoperative pain management*, and secondly, *how can the findings of this study be utilised to effect more positive outcomes from these strategies?* The following suggestions are offered for consideration.

### **Strategies to Improve Nursing Practice in Postoperative Pain Management**

It is worthwhile here to review the behavioural indicators that define the minimum level of practice competency expected of nurses caring for patients with postoperative pain. Recall from Chapter Six that national competency standards for registered nurses practicing in Australia have been established within a framework of professional and ethical practice, reflection, problem solving and enabling care (Australian Nursing Council Incorporated, 1998).

Applied to postoperative pain management, these standards direct that nurses will (a) act promptly to relieve pain, and that they will do so within and up to their legal scope of practice, accepting accountability for their actions; (b) maintain an up-to-date level of knowledge and skill related to pain and pain management; (c) use a problem-solving framework for decision-making about pain management that is based on current practice guidelines and policies; and (d) communicate and collaborate effectively with patients and other health team members to maximise postoperative pain management.

Therefore, the most appropriate strategies for practice improvement in postoperative pain management are those that promote professional practice and accountability, facilitate knowledge and skill development, encourage the development and use of clinical practice guidelines, and support interdisciplinary and patient collaboration. Broadly, these may be addressed as issues related to professional practice and the organisation.

### ***Professional practice issues***

Strategies that address professional practice issues in postoperative pain management should focus on mechanisms that both enhance nurses' knowledge and understanding of pain, pain management and professional practice and facilitate their application in clinical practice. These mechanisms could be established through pre-registration nursing programs, continuing professional education, and professional specialty associations.

***Pre-registration nursing programs.*** An increase in the quantity and quality of pain-related content in preregistration nursing curricula is an imperative that has long been advocated but never actualised sufficiently (Ferrell et al., 1993; Zalon, 1995). The results of this study support previous research which indicates that nurses require greater understanding of pain mechanisms and theories, causes and manifestations of pain, factors that influence pain responses, methods of pain assessment and measures for pain alleviation, and the professional role and responsibilities of nurses in postoperative pain management (Dalton et al., 1999; Ferrell & McCaffery, 1997; IASP, 1998; McCaffery & Ferrell, 1997b).

In an economically constrained educational environment, where academics with different practice interests and expertise compete for teaching resources, it is difficult to gain consensus about the need for increasing pain-related content in the curriculum at the expense of other areas of importance to nursing practice, particularly when faculty knowledge and beliefs about pain and pain management are less than optimal (Carr & Mann, 2000; Ferrell et al., 1993). This problem is exacerbated by the structure of many nursing curricula, in which the delivery of pain-related content may be fragmented and disjointed, appearing in various subject areas

that are taught across several semesters, with little opportunity for nursing students to consider all relevant information in the same holistic way that is necessary for effective decision-making in practice (Wynne, Brand, & Smith, 1997).

Furthermore, opportunities for students to apply theory into practice and develop their skills of problem-solving and clinical decision-making in postoperative pain management are limited to relatively short periods of clinical experience that may or may not offer learning experiences to coincide with the theoretical program (Dunn & Hansford, 1997). During these brief sojourns to the “real world of nursing”, students are under a great deal of pressure to “learn everything about everything” and it is not surprising to find profound variations among students in skill development and acquisition (Karuhije, 1997; Massarweh, 1999). These variations are amplified in situations where students are assigned to work with new graduates “who are just learning themselves” (Dunn & Hansford, 1997).

To address these issues, nurse educators need foremost to acknowledge that pain is a problem that permeates all areas of practice and is the main reason that individuals seek medical intervention. Moreover, the outcomes of the current research provide an empirical basis for acknowledging the existence of poor pain management. As such, learning about pain management is a priority for basic nursing education (Carr & Mann, 2000; MacKintosh & Bowles, 2000; NHMRC, 1999). An important first step to achieving this priority is for faculty to improve their own understanding of pain and pain management by attending specialist conferences, joining pain societies such as the Australian Pain Society, and using textbooks and journals that expose themselves and students to recent and research-based evidence of pain and pain management.

A suggested outline of a nursing curriculum for pain and pain management has been developed by a sub-committee of the IASP, which includes internationally recognised nurse experts in pain management (IASP, 1998). This curriculum, which identifies specific theoretical content and student learning outcomes, may be used as a benchmark for the development of evidence-based pain-related content in nursing curricula at the undergraduate level. The findings of this research also indicate the

need to examine within a curriculum framework the impact of wider issues of health care and nursing practice on postoperative pain management: for example, drug use in society, principles of medication administration and the nature of drug administration errors, professional autonomy and accountability, and patient advocacy, empowerment and self-determination.

The problem of content fragmentation across the curriculum may be addressed by constructing the delivery of pain-related content around practice-based case studies that anchor the various content components to concrete examples and facilitate student understanding and application of relevant knowledge and skills to solving clinical problems in pain management (Dailey, 1992; Dowd & Davidhizar, 1999). Case study teaching also encourages narrative forms of thinking, which more closely reflect the ways people actually organise their experiences and develop professional knowledge and professional ways of thinking about problems (Friedman, 1994). Moreover, constructing learning in this way facilitates the use of theoretical models of decision-making, such as Greipp's model of ethical decision-making, as frameworks for teaching and learning about pain management (Greipp, 1992; Heye & Goddard, 1999).

Providing opportunities for nursing students to engage in theory application and development through structured clinical learning experiences is a primary requisite for improving nursing practice in postoperative pain management (Marriott, 1991; Zalon, 1995). Students' views, opinions, values, activities and means of communicating about pain and pain management are acquired most readily from others with whom they practice (Hogg & Abrams, 1988). Therefore, students need to be exposed to the types of clinical events that encourage the development of positive attitudes toward pain management, knowledge and skill in pain assessment and intervention, and effective problem-solving and decision-making abilities.

It may be argued that to become competent clinicians, novice nurses must acquire not only the explicit knowledge, psychomotor skills, and processes of professional nursing practice, but also the internal and covert processes of cognition, metacognition, and culture that guide the decision-making process characteristic of

the profession. One recommendation for achieving such outcomes is to plan clinical teaching and learning episodes using the concept of cognitive apprenticeship (Taylor & Care, 1999).

This approach is conceptualised in the literature as a teaching and learning experience in which novices participate with experts in a community of practice to learn “explicit knowledge, physical skills, procedures, thinking processes, and culture in that field” (Collins, Brown, & Newman, 1989, p.455). Figuring highly in this approach are teaching methods that utilise modelling, coaching and reflection, through situated learning and in a culture of expertise. This study’s results indicate that expertise in postoperative pain management is most likely to reside with experienced registered nurses and the specialist members of multidisciplinary pain management teams. When both appropriate and possible therefore, these sources of pain management expertise should be capitalised in the educative process for undergraduate nursing students.

***Continuing professional education.*** Undergraduate foundation education alone cannot prepare nurses sufficiently for the practice demands associated with rapidly evolving advances in pain management (DiMauro, 2000). As this study shows, the need for nurses to keep abreast of these changes is compelling. Moreover, the nursing profession has a responsibility to society to show that it is efficient, knowledgeable, and up-to-date. A primary strategy directed toward achieving these goals has been through continuing professional education programs (Brunier et al., 1995; Clarke et al., 1996; Cowley, 1995; Furze & Pearcey, 1999; Hogston, 1995; Wallace et al., 1995).

Numerous approaches have been taken in designing and implementing continuing professional education programs in pain management for nurses (Bookbinder et al., 1996; Campese, 1996; Camp-Sorrell & O’Sullivan, 1991; Dahlman et al., 1999; Dalton et al., 1999; Dols et al., 1995; Francke et al., 1995; Francke, Lemmens, et al., 1997; Franke, Luiken, et al., 1997; Heye & Goddard, 1999). As discussed elsewhere in this thesis, these programs have met with varying degrees of success with respect to improving nursing practice and patient outcomes. Broadly, mitigating factors that



have been identified from evaluation studies of continuing education programs include issues of program content and structure, learning reinforcement and feedback, and participant access (Furze & Pearcey, 1999; Gibson, 1998).

Motivation to participate in continuing professional education is linked inextricably to the learner's view of its relevance to personal development and professional practice (Fleck, 1997; Hogston, 1995). Therefore, pain management programs should be developed from an assessment of individual learning needs and, on this basis, structured to allow multiple entry and exit points for participants. Furthermore, to improve content relevance for participants, pain management programs could be tailored to unit "pain" profiles that capture the nature, diversity and effectiveness of pain and pain management techniques "typical" of each particular surgical unit (Cason, Jones, Brock, Maese, & Milligan, 1999).

The importance of utilising the pain management expertise of more experienced clinicians is as relevant to continuing professional education as it is to more formal programs of nurse education. Through consultation with other "experts", nurses learn to work with the technology, assess their patients, and move on to become clinical experts themselves (Benner, 1984; Bookbinder et al., 1996). Examples of innovative and facilitative strategies that are based on this process include professional networking, job exchanges and practice development projects (Gibson, 1998).

One particular teaching strategy that may facilitate development of expertise in postoperative pain management is the use of clinical teaching rounds with more experienced nurses and members of the multidisciplinary pain team (Segal & Mason, 1998). This framework embraces the collective and contextual dimensions of learning relevant for a particular clinical situation. By involving staff who are all familiar with the surgical unit, the learning that takes place is reinforced by the collective, and the strategy of role modelling extends beyond "the expert" to all staff who serve as role models for each other.

Reinforcement of learning is crucial to sustaining practice improvements derived from continuing professional education programs in postoperative pain management

(Wallace, Graham, Ventura, & Burke, 1997). While it is impossible to utilise knowledge that is not possessed, it is quite possible to possess knowledge that is not utilised. It is through the application of learning for the benefits of patients that standards of professional practice are enhanced and maintained. Mastery of the content of a pain management program and incorporation of the information into practice is likely only after some months following completion of the program.

Suggested strategies for reinforcing learning and improving practice during this period include weekly pain rounds similar to those described previously, mentoring partnerships between novice nurses and experienced nurses and/or members of a multidisciplinary pain team, including pain management strategies in all discussions of patient care, and establishing indicators that enable nurses to see the relationship between their efforts of improved pain management and increased patient satisfaction and pain relief (Brunt, 2000).

The literature specifies a range of formidable barriers that limit the accessibility of continuing professional education to nurses: lack of time and money, unavailability of appropriate educational programs, poor information and awareness of what is available, staff shortages that prevent release from the workplace, workload pressures, family commitments, and lack of encouragement from nurse managers (Furze & Pearcey, 1999; Nolan, Owens, & Nolan, 1995; Nugent, 1990; Whiteley, 1992). Compounding the above difficulties, it seems that certain groups of staff are potentially disadvantaged and have less chance of receiving continuing professional education. Such groups include enrolled nurses and more junior registered nurses, together with part-time, night and weekend staff (Kristjanson & Scanlon, 1992).

Solutions to these problems are not formulated easily, and will require communication and cooperation between all stakeholders, as well as a commitment to a future that creates a supportive system in which assertive, reflective and analytical nurses may flourish (Nolan et al., 1995). An initial and significant undertaking toward this future would be the provision of a wide and flexible range of program delivery approaches to enable maximum participation in learning activities (Gibson, 1998).

The findings of the current research indicate that nurses possess varying degrees of knowledge and skill in postoperative pain management. Consequently, programs in pain management that offer choices in access as well as choices within the course itself are more likely to enable and encourage participation (Ayer & Smith, 1998). For example, modularised programs of pain management could be developed from an assessment of participant learning needs and delivered through regular flexible programs, independent self-study packages or computer networks.

As the availability of computers in the home and workplace increases, nurses should be encouraged to take full advantage of the wide selection of educational material that exists currently on the World Wide Web, such as that offered at the Mayday Pain and Resource Centre (<http://mayday.coh.org/>). Futuristically, it is not inconceivable that a national media-based educational network, such as the Open Learning Agency of Australia, could be used as a platform for flexible delivery of continuing education programs in pain management.

***Professional specialty associations.*** Professional specialty associations serve as focal points for nurses with similar interests, skills, values and ethics in a particular field of nursing practice, and are invaluable sources of networking and shared expertise (Nolan & Hazelton, 1995). Such groups are presumed to be in the vanguard of practice in their specialty and to possess insights on the characteristics of satisfactory performance and endorsed practices (Ammons, 1994; Pemberton, 1994). Members of professional specialty associations are often afforded recognition of their expertise within a specific nursing practice context.

Among the professional specialty association's most important services to its members are those of information and education. Providing current, credible and useable information that members may apply in their professional lives is an increasingly vital role of professional associations. Here, it should be the professional specialty association that encourages, funds, monitors and, frequently, publishes the research that enlarges the field's knowledge base (Pemberton, 1994). Typically, professional groups sponsor regular scientific meetings and symposia to advance the professional knowledge and skills of their members. Such groups may also support

professional journals in order to have the widest circulation of the advances in the field to those who cannot attend the meetings or to others who may not be members of the association (McLendon, 1999).

Some consider that the development and enforcement of standards of professional performance are among the professional specialty association's most significant roles (Pemberton, 1994; Rodenhauser, 1991). Setting standards for education, certification, and continuing education requirements is a vital service; developed and maintained through the association, for those who employ a field's practitioners as well as for the field as a whole. In fact, the influence of association-endorsed practice guidelines and standards, as well as training and certification programs, may be substantial in improving patient care (Anonymous, 2000; Dossey, Frisch, Forker, & Lavin, 1998; Hurley, 1994).

In this country, the most notable professional organisation that unites health care professionals with research and/or practice interests in pain management is the Australian Pain Society. This multidisciplinary organisation is the Australian chapter of the International Association for the Study of Pain (IASP), and aims to advance pain research and improve care of patients in pain. The Society is most active in dissemination of information through annual scientific meetings, although its promotion and sponsorship of pain research and education is developing. Relative to its international counterparts, however, the Australian Pain Society is a neophyte in the business of research, education and practice regulation in pain management.

The Society has recently established a program of Special Interest Groups (SIGs) designed to provide a forum for members to discuss specific interests in pain and pain management in depth. Although one of the first groups to be established (Australian Pain Society, 1999), the Nursing Issues Special Interest Group has yet to achieve its full potential across all States of the country, including Western Australia. There is great scope for this group to provide leadership in nursing practice in pain management and to improve the quality of pain management to patients through dissemination of appropriate information, promulgation and accreditation of clinical

practice guidelines and standards, and provision of educational resources as a foundation for certification (Hurley, 1994).

A major achievement for the Nursing Issues SIG has been to establish a dedicated scientific program of nursing issues in pain management at the annual scientific meetings of the Australian Pain Society. The next challenge is to seek wider representation from nurses across the country through affiliated State SIGs that may work toward developing aims and objectives relevant for priorities of nursing research, education and practice in pain management, and the strategies by which these may be accomplished. The recent improvements in electronic means of communication through the development of a new Website for the Australian Pain Society (<http://www.apsoc.org.au>) will potentiate significant progress toward meeting this challenge.

### ***Organisational issues***

The influence of organisational factors on postoperative pain management outcomes has become increasingly clear (Bookbinder et al., 1996; Brockopp et al., 1998; Pargson & Hailey, 1999). In particular, the priority that is assigned to pain management is an important determinant of the range of strategies put in place by the organisation to manage patients' pain. Organisations that are committed to effective pain management are more likely to support a range of clinical practice guidelines and policies, dedicated pain services, and documentation protocols that increase the visibility of pain and therefore the likelihood that it will be managed effectively.

This research confirms, however, that the establishment of such strategies gives no assurance of quality postoperative pain management. What is recommended, therefore, is a re-examination of these systems and procedures within a continuous quality improvement (CQI) framework that seeks opportunities and processes to improve pain management outcomes for the patient (Mattera, 1995; Paice, 1999).

Forward-looking CQI initiatives encompass a broad range of activities that focus on outcomes measurement and management, process evaluation and continuous improvement, and regulatory compliance. This study's findings suggest that these

activities should begin by examining the effectiveness of practice standards and guidelines, professional accountability for practice competency, and interdisciplinary collaboration within the organisation.

***Practice standards and guidelines.*** At an institutional level, professional standards of practice provide a benchmark and reference point for developing context-specific clinical practice guidelines and protocols in postoperative pain management (Dozier, 1998). However, unbridled enthusiasm for their promulgation, coupled with unrealistic expectations of what they will accomplish, frequently exposes inexperience and unfamiliarity with their limitations (Grimshaw & Russell, 1993).

As indicated in this study, having clinical practice guidelines, policies and protocols, derived from professional practice standards, is no guarantee of effective decision-making and patient outcomes in postoperative pain management. This is possibly because they are poorly understood and written in generalities that are not helpful in daily care decisions, inconveniently placed thus rarely accessed, and only referred to in instances when complaints are made about the quality of care (Dozier, 1998; Woolf et al., 1999). Furthermore, in this study the clinical protocols and their associated documentation requirements were medically oriented and thus distanced somewhat from the practice standards and evidence-base of nursing care. Indeed, there were so many policies, procedures, guidelines and protocols, that finding significant aberrations of policy in actual practice was hardly surprising.

Rationalisation of the myriad guidelines, policies and procedural protocols is therefore a reasonable starting point for improving practice. Clinical guidelines for nursing management of postoperative pain should be structured to reflect and reinforce the professional practice competencies expected of registered nurses, with particular emphasis given to key elements of effective pain management; obtaining the patient's self-report of pain, instituting early pain interventions, and ensuring thorough and accessible documentation of both. Clinical protocols for postoperative pain management should provide clearer direction on the range of activities, both pharmacological and non-pharmacological, that are appropriate for different levels of

reported pain and, more importantly, pain relief. In particular, *protocols should direct the nurse to identify with the patient an agreed level of postoperative pain that demands immediate intervention.*

To further support improvements in postoperative pain management and reinforce clinical guidelines and protocols, clinical indicators of quality pain management practice and patient outcomes should be developed within the organisation for monitoring and evaluating the level and effectiveness of pain management service and care to patients (Kitson, Harvey, Hyndman, & Yerrell, 1994). Such indicators should reflect specific, clear and well-selected aspects of nursing care based on research findings that direct care to higher quality outcomes in postoperative pain management (Idvall, Hamrin, Rooke, & Sjostrom, 1999). They should also be simple and succinct, convenient to use in clinical practice, and useful in collaboration with other health care professionals and for comparing practices between different surgical units (Idvall & Rooke, 1997).

Practice events which indicate that quality has not been maintained, such as unexplained instances of untreated severe pain, or the administration of suboptimal opioid doses in the absence of any explanatory comments, should be “red flagged” within the patient’s hospital record to draw attention to the need for improvement (Carr & Mann, 2000; Paice, 1999). Just as importantly, examples of exemplary care that reflect quality and excellence in postoperative pain management should be recognised, reinforced and rewarded within the organisation.

***Professional accountability for practice competency.*** Nursing practice regulations and competency standards exist to protect and benefit the health, safety and welfare of all those cared for by the professional nurse (Otto, 1999). Professional accountability is each nurse’s responsibility for practicing according to these regulations and competency standards. All nurses are expected to engage in professional role activities appropriate to their education and position. Ultimately, nurses are accountable to themselves, their patients, and their peers for their professional actions (Gray & Pratt, 1989; Walsh, 1997).

Unfortunately, the professional and legal obligations of nurses that are codified in State practice regulations remain ill-defined at an institutional level (Mahlmeister & Koniak-Griffin, 1999). In addition, institutions often inadequately define their preferred patient care model and the scope of practice of health team members. This contributes to the nurse's uncertainty about what expectations the institution holds of nurses and nursing practice.

Generally, clarity of organisational expectations of professional accountability in postoperative pain management exists only for commissions of care that are beyond the nurse's legal scope of practice, such as administering more than the prescribed dose of opioid analgesia (Brockopp et al., 1998). Too often, however, as indicated by this research, poor pain management results from omissions of appropriate nursing care. It is essential, therefore, that mechanisms be put in place at an organisational level that not only reinforce nurses' professional accountability for maintaining standards of practice competency, but also discourage violations of minimum practice standards, whether by commission or omission, that threaten the effective management of postoperative pain, and thus the patient's postoperative recovery (Rudolph & Hill, 1994) .

One quality improvement strategy that may support and maintain increased professional accountability and pain management practice among practicing nurses is the use of a peer review process of evaluation (Mullins, Colavecchio, & Tescher, 1979; Waldo, Hofschulte, Magno, & Colleran, 1993). This is a mechanism by which nursing practice could be regulated and describes quality performance based on established practice standards (Mann, Barton, Presti, & Hirsch, 1990; Roper & Russell, 1997).

Using this process, nurses working with postoperative patients would systematically assess, monitor, make judgements, and provide feedback to peers regarding the structure and process of pain management practice by comparing actual practice with established standards. Peer review programs should establish (a) a statement of purpose and mission that reflects the goals and values of effective nursing practice in postoperative pain management, (b) evaluation policies and procedures that promote



professionalism, clinical advancement and excellence in patient care, and (c) an appeals process that supports that rights of individual nurses (Roper & Russell, 1997). Constructed in this way, peer review would contribute to a professional practice environment, which recognises the valuable contribution of nurses' professional autonomy and the encouragement of collaborative practice systems in postoperative pain management (Volk & Lucas, 1991).

***Interdisciplinary collaboration.*** Collaboration is defined as a flexible process of ongoing interaction, assertiveness, and creativity between individuals from two or more disciplines which influences the direction of patient care (Alpert, Goldman, Kilroy, & Pike, 1992; Dawkins, 1991). Stakeholders have come to anticipate significant benefits from collaborative models of practice, including consistency in advancing practice, improved patient outcomes, minimisation of adversarial approaches to care, multi-stakeholder ownership of outcomes, and elimination of institutional "blindspots" (Rawal, 1994; Vautier & Carey, 1994).

It is a widely held view that collaborative approaches to postoperative pain management lead to more comprehensive and effective patient outcomes (Filos & Lehmann, 1999; Galimberti, Conti, & Gullo, 2000; Gould et al., 1992; Miaskowski et al., 1999; Stichler, 1998). This view underpins the enthusiasm shown by the health care profession for the development of multidisciplinary acute pain services in acute care settings (Gouke & Owen, 1995; Mackintosh & Bowles, 1997; NHMRC, 1999; Ready et al., 1995; Sartain & Barry, 1999).

The current study confirms, however, that the presence of a multidisciplinary pain team is insufficient of itself to ensure effective outcomes in postoperative pain. This finding supports the view that multidisciplinary models of practice may be limited by the nature of interaction between group members, who practice with an awareness and tolerance of another's discipline, yet do not cross or collude on professional boundaries (Ray, 1998). Warren, Houston and Luquire (1998) suggest that a more effective collaborative arrangement is interdisciplinary practice, in which members of a team actively and equitably coordinate across disciplines to reach decisions about care provision. Therefore, it is recommended that organisations move from

multidisciplinary approaches and foster more interdisciplinary models of practice as frameworks for establishing acute pain services (Baggs, Ryan, Phelps, Richeson, & Johnson, 1992; Dawkins, 1991).

Experience and the literature both strongly suggest that the single greatest determinant of success for a collaborative process is the extent to which it has engendered ownership and trust among participants (Bailey & Armer, 1998; Morse & Brown, 1999; Warren et al., 1998). To this end, institutional frameworks for interdisciplinary acute pain services should reflect several key characteristics: (a) a shared vision and mutually agreeable objectives and performance measures, (b) shared management and decision making authority, with clearly defined roles and parameters for decision making, (c) collectively developed mechanisms for conflict resolution, (d) open and transparent formal and informal lines of communication among participants, and (e) balanced and inclusive representation of all relevant stakeholders (Lassen, Fosbinder, Minton, & Robins, 1997).

Finally, it is important to acknowledge that changing practice is a notoriously complex process. Acceptance of a new philosophy of interdisciplinary postoperative pain management will depend on overcoming organisational culture. The impact of organisation culture was explained in the work of Coeling and Simms (1993), who explored cultural assessment in relation to facilitating innovation at the nursing level. Culture, as they describe it, is a pattern of behaviours adhered to by a group of individuals that is the “way we do things around here”.

Cultural behaviours are survival strategies. Factors that facilitate adoption of a different philosophy of pain management are ones in which culture is acknowledged. Therefore, changes at an organisational level are likely to be more successful when implementation is carefully planned and adequately supported through educational and clinical programs (Reger, Gustafson, Demarie, & Mullane, 1994; Wolf, 2000).

### **Future Challenges for Nursing Research**

The present study focuses on registered nurses caring for postoperative patients in an acute care hospital in Perth, Western Australia. Furthermore, only documentation related to one specific postoperative pain intervention, continuous intravenous opioid infusion, is examined as a basis for determining the nature and extent of nurses' responses to patients' reports of postoperative pain. Although this latter criterion was not applied for the sample selection in Stage Two of the research, no claims of generalisability of the study's findings can be made.

Nonetheless, the results of this research serve as validation of, and an illustration to, the analysis in the literature of the way in which nurses manage their patients' postoperative pain. In addition, this study extends understanding of particular characteristics of nurse practice behaviours in postoperative pain management: in particular, variations that exist in nurse pain management actions as a function of pain intensity, differences in the pain management actions of nurses with different levels of professional education and clinical experience, and individual and organisational factors that impact on practice.

Overall, it would be beneficial to undertake similar research that spanned a greater range of postoperative settings and included documented and verbal accounts of nursing care for patients receiving different types of postoperative pain therapies. Meanwhile, the results of the current research highlight a range of challenging issues for future research examining nursing practice in postoperative pain management.

This study confirms that the personal pain experiences of nurses plays a significant role in their decisions about pain and pain control. Future research is needed to establish more clearly the nature of the relationship between these variables, and what factors exist as potential mediators of this relationship. Such knowledge is valuable in its broader application to the role of empathy in nursing management of postoperative pain, and for the manner in which this aspect of professional practice is addressed in nursing education programs and integrated within clinical practice competencies for registered nurses.

In spite of all efforts to convince nurses otherwise, they continue to rely on patient behaviour as one of the most valid indicators of both the existence and severity of postoperative pain. This was implied in the current research by evidence of nurses taking action in the absence of documented pain reports, and later confirmed in interviews with nurses. Acknowledging this behavioural characteristic of nursing practice in pain management, as well as the concerns of pain researchers who consider current definitions of pain inadequate and inappropriate for verbally compromised individuals (Anand & Craig, 1996; Anand et al., 1999; Selekman & Malloy, 1995), research is recommended to establish the most valid and reliable physical and behavioural indicators of pain. An example of this type of study would be to test the relationship between nurses' observations of behavioural and physical pain cues and patients' simultaneous reports of pain intensity, both before and subsequent to pain intervention.

The extensive variation in pharmacological pain interventions revealed by this study indicates that further research is needed to determine the specific decision-making processes and criteria that nurses use to choose doses of analgesics to administer to postoperative patients who report different levels of pain intensity. Patient variables, which were addressed briefly but warrant further attention in this respect, are gender, type of surgery and time since surgery. Although the distribution of pain in the patient sample was relatively similar for male and female patients, the effects of gender on nurse response could be further explored. Furthermore, this study did not attempt to differentiate nurses' responses to patients' pain reports for different types of surgery or as a function of time since surgery. Nurses' narratives in Stage Two of the research, however, indicate that these may be factors that influence nurses' pain management decisions, thus investigation of these factors is warranted.

The use and effectiveness of non-pharmacological pain interventions by nurses is also unclear in this study, and therefore requires further examination through systematic reviews, descriptive explorations and randomised control trials.

To more clearly determine the role of education and experience in postoperative pain management, prospective longitudinal studies would be advantageous to track

changes in practice behaviour over time that are consequent of variations in these characteristics of nurses with similar levels of basic nursing qualifications. In addition, more outcomes-based research is indicated to determine the effectiveness of educational strategies for improving nursing management of postoperative pain.

Extending the interpretive component of this study to include observations of nurses and interviews with patients and physicians would be valuable for gaining greater understanding of the nature and influence of various factors on postoperative pain and its management within an organisation from the perspective of both patients and care providers.

Interdisciplinary collaboration in postoperative pain management among care providers in an organisation should not be limited to practice issues alone but should also include research initiatives. For example, there is great scope to explore not only the effectiveness of the interdisciplinary team in pain management, but also the specific roles of member disciplines in achieving improved outcomes in postoperative pain management. Such a model of research will encourage an increased level of trust among professions and a deeper level of understanding of what each profession can contribute (Ray, 1998). Furthermore, through organisations such as the Australian Pain Society and the International Association for the Study of Pain, nurses have an opportunity to engage in collaborative cross-cultural and international research, and participate in the discussion and debate of issues pertaining to research and practice in postoperative pain management.

### **Conclusions: Nursing Management of Postoperative Pain**

Pain caused by disease or accident is a physical phenomenon. But pain caused or allowed to continue as a result of inappropriate human attitudes, value judgments and practices, becomes a matter of ethics.

(Lisson, 1987, p.649)

Under ideal circumstances, patients recovering from surgery should experience a subjective level of pain relief that in the absence of any underlying conditions, is

simultaneous of an uncomplicated recovery free of any adverse reactions to pain interventions. There exists a groundswell of opinion among health care providers that such circumstances are created by the pursuit of standards of best practice that assure quality in postoperative pain management (AHCPR, 1992; NHMRC, 1999). Quality assurance standards in postoperative pain management assume an effective partnership between patient and provider to maintain five major goals:

1. To recognise and treat pain promptly;
2. To make information about pain interventions readily available;
3. To promise patients attentive and prompt pain intervention;
4. To define explicit policies and procedures for pain interventions;
5. To develop mechanisms for monitoring the process and outcomes of pain management.

(American Pain Society Quality of Care Committee, 1995; Bookbinder et al., 1996; Idvall et al., 1999)

Implicit in these goals is an expectation that providers will maintain professionally-defined levels of practice competency. Achieving these goals is dependent on the professionalism of providers.

Professionalism is more than the framework that enables or identifies a profession. It is more than the legislation, the self-regulating bodies and educational mechanisms associated with a profession. It is about the actions of individuals who identify themselves as members of a profession. It is about how they enact the professional behaviours associated with that discipline: how they use relevant research, their legal and ethical behaviour, their accountability for their own actions. Nursing's quest for status as a professional discipline does not depend on the institutions it seeks to establish to support a profession, but rather the practice behaviours of individuals within the profession.

The original problem that initiated this thesis was the continued observation that the practice behaviours of nurses managing postoperative pain are largely ineffective; that nurses inadequately assess and document pain and pain relief and that, in most

practice contexts, they make inappropriate decisions concerning pain treatment, particularly drug utilisation. The persistence of this problem in clinical practice has been confirmed by this study through nurses' documented accounts of their pain management practice and by the narratives of nurses caring for postoperative patients. In particular, evidence indicates that pain assessment and intervention are often insufficient, and that patients' complaints of pain remain unheard or unheeded. Moreover, these findings suggest that nursing care of patients in pain is still based on personal bias, myth, tradition and ignorance, and that poor pain management is exacerbated by factors external to the nurse.

The present study extends research in the area of postoperative pain management in terms of the interaction between patients' reported levels of postoperative pain and the nature of nursing actions for pain management. The findings also test previously held assumptions to provide an alternative view of the relationship between professional attributes of the nurse and practice competency in pain management. Further, the significance of nurses' personal pain experiences to their decisions about pain and pain management is raised to a greater level of awareness.

The problem of poor postoperative pain management has been a tenacious characteristic of nursing practice in acute care settings that seems to have resisted all attempts of resolution. This study, however, is instrumental in providing a more authentic account of this problem. Suggestions based on its findings, therefore, offer new directions in nursing education, nursing practice and nursing research which will be valuable in future efforts toward achieving a professional ethic of optimum care and ensuring that patients cease to suffer needless episodes of postoperative pain and suffering.

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**Please note:**

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**Please contact the author or Curtin University Library and Information Service for further details.**

## **APPENDIX A**

### **Stage One: Part 1**

#### **Acute Pain Service I.V. Opioid Infusion Standard Orders Chart**

**Included here with written permission from the  
Head of Department , Acute Pain Service,  
*Charity Hospital*, Perth, Western Australia  
1999**



## **APPENDIX B**

### **Stage One: Part 1**

#### **Survey Sheet for Data Extraction from Patient Records**

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### Survey Sheet for Data Extraction from Patient Records

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|                   |               |
|-------------------|---------------|
| Postoperative Day | [ _ ]         |
| Patient ID Number | [ _ _ _ _ _ ] |
| Operation         | [ _ _ ]       |
| Age               | [ _ _ ]       |
| Gender            | [ _ ]         |
| ESB               | [ _ ]         |

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|  |  |  |
|--|--|--|
| Time [ _ _ _ _ ]<br>Pre-painrest [ _ _ ]<br>Pre-painmove [ _ _ ]<br>Nurse response [ _ _ _ ]<br>Nurse code [ _ _ _ ] ↓ |  | Time [ _ _ _ _ ]<br>Pre-painrest [ _ _ ]<br>Pre-painmove [ _ _ ]<br>Nurse response [ _ _ _ ]<br>Nurse code [ _ _ _ ] ↓ |
|  |  |  |
| Time [ _ _ _ _ ]<br>Pre-painrest [ _ _ ]<br>Pre-painmove [ _ _ ]<br>Nurse response [ _ _ _ ]<br>Nurse code [ _ _ _ ] ↓ |  | Time [ _ _ _ _ ]<br>Pre-painrest [ _ _ ]<br>Pre-painmove [ _ _ ]<br>Nurse response [ _ _ _ ]<br>Nurse code [ _ _ _ ] ↓ |
|  |  |  |
| Time [ _ _ _ _ ]<br>Pre-painrest [ _ _ ]<br>Pre-painmove [ _ _ ]<br>Nurse response [ _ _ _ ]<br>Nurse code [ _ _ _ ] ↓ |  | Time [ _ _ _ _ ]<br>Pre-painrest [ _ _ ]<br>Pre-painmove [ _ _ ]<br>Nurse response [ _ _ _ ]<br>Nurse code [ _ _ _ ] ↓ |
|  |  |  |
| Time [ _ _ _ _ ]<br>Pre-painrest [ _ _ ]<br>Pre-painmove [ _ _ ]<br>Nurse response [ _ _ _ ]<br>Nurse code [ _ _ _ ] ↓ |  | Time [ _ _ _ _ ]<br>Pre-painrest [ _ _ ]<br>Pre-painmove [ _ _ ]<br>Nurse response [ _ _ _ ]<br>Nurse code [ _ _ _ ] ↓ |

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## **APPENDIX C**

### **Stage One: Part 2**

#### **Nurse Demographic Questionnaire**

## **APPENDIX D**

### **Stage One: Part 2**

**Information Sheet and  
Informed Consent Statement  
for  
Nurse Subjects  
and  
Follow-up Letter**

**Information Sheet for Participants**

Dear Colleague,

My name is Nancy Rees and I am a Masters student in the School of Nursing at Curtin University of Technology. As part of the requirements for this Degree, I am conducting a study, which is titled “Nursing Management of Postoperative Pain”.

The aim of this study is to examine current nursing practice in postoperative pain management. Understanding is sought into nurses' responses to patients' reports of postoperative pain, and how such things as the nurse's level of education and length of clinical experience influence these responses. In the long run it is hoped that results of this study can be used to improve nursing practice in postoperative pain control, and provide appropriate content and structure to nurse education programs in pain management.

You are invited to take part in this study by completing the enclosed questionnaire, which asks questions pertaining to level of professional education, length of professional clinical experience, and length of experience in surgical care. This should take about 20 minutes. Please answer every question, giving only the information asked for and no other. Please use the pre-paid envelope to return the completed questionnaire, along with the signed consent form, within the next two weeks.

All information will be numbered and your name will not be used. This information is confidential and will only be seen by myself. Any information that may identify individual participants will be destroyed on completion of the study.

Your participation in this study is entirely voluntary and you are free to withdraw at any time with no disadvantage to yourself. The final report will only contain information about the whole study group, and you will have access to this report.

I appreciate how busy you are, and your assistance is greatly valued. Any questions you may have concerning this project can be directed to:

Nancy Rees, Postgraduate student  
School of Nursing  
Curtin University of Technology  
Telephone: 9266 2054 (W)  
9245 1040 (H )

Thank you once again for your time and support in taking part in this project.

**Informed Consent Statement**

I would like to invite you to take part in this research project and would be very grateful if you decided to do so.

If you decide that you would like to assist me by participating in this study, please read the following statement and sign below.

I, \_\_\_\_\_, have read the above information on the  
(print full name)

study relating to "Nursing Management of Postoperative Pain". I understand the nature and intent of the study and any questions I have asked have been answered to my satisfaction. I know where to direct any future questions that I may have. I agree to participate in this study, realising that I may withdraw at any time without consequence. I agree that research data gathered for the study may be published, provided my name is not used.

Signed \_\_\_\_\_ ( Nurse )

Signed \_\_\_\_\_ ( Researcher )

Date \_\_\_\_\_

**Follow-up Letter**

Dear Colleague

Some weeks ago you were sent a questionnaire as part of a study that examines professional education and experience as factors influencing how nurses manage their patients' postoperative pain.

If you have recently returned the completed questionnaire, thank you for your participation. If you have not received the questionnaire, please let me know and one will be forwarded as soon as possible. If you have not yet completed the questionnaire, I would like to encourage you to do so. The information you provide is very important to understanding and improving nursing management of postoperative pain.

Knowing how busy you are, I have designed the questionnaire so that it can be completed in about 20 minutes. I assure you that all information you provide will remain confidential and you will not be identified in any way.

I really appreciate your time and assistance in this study. If you have any questions regarding any aspect of the questionnaire or the study generally, please don't hesitate to contact me.

Many thanks,

Nancy Rees, Postgraduate student  
School of Nursing  
Curtin University of Technology  
Telephone: 9266 2054 (W)  
9245 1040 (H )

## **APPENDIX E**

### **Stage Two:**

#### **Interview Guide**



**Interview Guide for Initial Interviews**

- Tell me about the sorts of things you do to manage your patients' postoperative pain.
- What sorts of things do you do to determine your patients' pain condition?
- How do you go about determining what to do for your patients' pain?
- What makes it easier for you to manage your patients' postoperative pain?
- What things make it difficult?
- How do you deal with these things?

**Interview Guide developed for Later Interviews****Introduction**

- consent and demographic sheet
- patients who have pain following surgery
- aim for your perceptions, will not give mine so some questions may seem a bit odd
- may choose not to answer or ask that tape be turned off

**Tell me about the sorts of things you do to manage your patients' postoperative pain.**

- What types of things do you do for patients who have pain following surgery?
- Do you do this all the time? for all patients?
- When do you do something different?
- What are the consequences / outcomes of these actions? Do they vary? and when?

**What sorts of things do you do to determine your patient's pain?**

- How do you know about your patients' pain?
- Do you do it this way all the time? for all patients?
- What do you look for?
- What tells you if your patients' have less or more pain?
- What makes it hard for you to tell? what makes it easier?

**How do you decide what to do for your patient's pain?**

- Do you do it this way all the time? for all patients?
- What makes it easier for you to do these things?
- What gets in the way of you doing what you think you should?
- What do you do then?

**Is there anything else I should have asked you about this topic?****Conclusion**

- may need to speak with you again
- may ask you to judge whether what I come up with holds true
- thanks for helping in study

## **APPENDIX F**

### **Stage Two**

#### **Demographic Data of Nurse Informants**

## **APPENDIX G**

**Stage Two:**

**Information Sheet  
and  
Informed Consent Statement  
for  
Nurse Informants**

**Information Sheet for Participants**

Dear Colleague

My name is Nancy Rees, and I am a registered nurse enrolled in a PhD program at Curtin University of Technology. Part of my research project, which is titled “Nurses’ Perceptions of Postoperative Pain Management”, is being undertaken in your hospital.

The aim of this research is to examine clinical practice in postoperative pain management from the nurse’s viewpoint. This information is important for increasing our understanding of current nursing practices, and to help our efforts in developing and maintaining high standards of care in this fundamental area of practice.

Nurses working in postoperative care areas throughout the hospital will be asked if they wish to participate in the research project. If you are asked and agree to take part in the study, you would be asked to share with me your views about how you manage your patients’ postoperative pain. This information will be collected by a tape-recorded interview that will last about 60 minutes. We can organise a mutually agreed time and place.

During the interview you may decline to answer any question, and request that the tape recorder be turned off. The information you give will be completely confidential and neither you nor your hospital will be identified in any way in the results of the study. Extracts of the interview may be used in the final report, but you will not be identified in any way.

No names will be attached to the tapes. Only a code number will be used to identify the tapes and any information which could link them to you will be kept in a separate place in case I need to contact you again before the end of the study.

Please understand that any information you give will remain confidential. Participation in the study is entirely voluntary, and there will be no consequences for you whether you take part or not. You are free to withdraw this consent at any time during the study for any reason. If this happens, then any information that has already been collected from you will be destroyed if you so wish.

If there are any questions or concerns you have regarding this project, please do not hesitate to contact:

Nancy Rees, Postgraduate student  
School of Nursing  
Curtin University of Technology  
Telephone: 9266 2054 (BH)  
9245 1040 (AH)

Thank you again for your time and assistance.

**Informed Consent Statement**

I would like to invite you to take part in this research project and would be very grateful if you decided to do so.

If you decide that you would like to assist me by participating in this study, please read the following statement and sign below.

I, \_\_\_\_\_, have read the above information on the  
(print full name)

study relating to "Nurses' Perceptions of Postoperative Pain Management". I understand the nature and intent of the study and any questions I have asked have been answered to my satisfaction. I know where to direct any future questions that I may have. I agree to participate in this study, realising that I may withdraw at any time without consequence. I agree that research data gathered for the study may be published, provided my name is not used.

Signed \_\_\_\_\_ ( Nurse )

Signed \_\_\_\_\_ ( Researcher )

Date \_\_\_\_\_

## **APPENDIX H**

### **Stage Two:**

#### **Excerpt of Fieldnotes**

**Note: All names appearing in these fieldnotes have been changed to maintain confidentiality.**

**Friday 19th January 1997, 11:45am to 1:20pm**

**Recording commenced 4:20pm same day**

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I arrived at the hospital at 11:30am. On my way through the hospital I noticed a sign indicating that today was a Low Activity Day, or LAD. This indicates to the public that only emergency procedures are carried out on that day.

When I got up onto the ward, Alice, the Staff Development nurse, was busy in her office with another nurse. She seemed to be showing this nurse how to work an infusion pump, which I later found out was a PCA pump. While I was waiting the ward clerk asked me if I was OK, and I replied that I was waiting for Alice. As I stood there I made a mental note of what was going on at the nurse's desk, since I had promised myself I would do this when I got there. Besides the ward clerk (I assume it was the ward clerk because she was typing at a computer terminal and dressed in civvies), I noticed at least four RNs at the desk, two of whom were sitting writing in what seemed to be patient's notes, and two standing talk to each other from either side of the desk. There was what looked like a couple of doctors there also, although I have no idea whether they were interns or registrars. Some people dressed in a dark green shirt and trousers were also there. I noticed this guy particularly because his attire appeared uniform like, but I was unfamiliar with these colours in the hospital. I later noticed other people in the hospital wearing the same combination of attire, and wondered whether this was the uniform for the PCAs (patient care assistants) or physios (physiotherapists). No one other than the ward clerk seemed to notice my arrival, or said anything to me while I was waiting.

*PN: This made me feel nervous again about being on the ward since it seemed so typical of what happens when I'm on clinical with students - no one acknowledges your presence, as if you're nothing or no one.*

At this time Alice was finishing with the nurse, whom I noticed was a Staff Nurse, indicating her status as a new graduate. There was also another staff nurse listening to what Alice was saying. Alice greeted me warmly and asked if she could show me where to put my belongings so they would be safe. As she showed me the coded

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room I mentioned that today I intended to try to orientate myself to the ward and listen in on the afternoon handover. Alice mentioned that the nurses she was with in her office were also being orientated to the ward that day.

*PN: This made me feel a bit like I had comrades in arms, so to speak. I wasn't going to be the only one asking questions or poking around in cupboards.*

Alice gave me the code for the staff room and went back to her office. I followed and then asked if there was an orientation manual that I could look at. One of the new nurses was using that, but Alice gave me a ward fact file that she said contained a lot of useful information that I might find helpful. I asked her about the operation lists or patient profiles but she seemed vague about there being any factual information on these aspects of the ward. She said that "we're very flexible up here and things are always changing", indicating that they had a mix of orthopaedic, neurological and medical patients on the ward.

*PN: I remember thinking at the time that this was a bit strange for the Staff Development Nurse not to have a handle on these things in the ward. Maybe I was placing more importance on them than staff in the ward did. I'll have to think a bit more about this later.*

With that I asked if I could stay in her office and go through the fact file and she was happy about that. The first page of the file is an orientation check and started to go through it.

*PN: I'm not sure if I'm on the right track but I get the feeling that it's important to have these documents so I can try to put what I'm seeing within the context of where I see it, and how these nurses interpret this context.*

This list started with emergency equipment that the new nurse was expected to find, then the physical layout of the ward's facilities, operating specific items, finding specific equipment and other members of the ward team. Following this, facts about different aspect of care and procedures on the ward are arranged in alpha order in the

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file. This placed information about the APS (Acute Pain Service) at the beginning of the list and made reference to the Nursing Practice Manual for further information.

*PN: Made a note to make sure that I made copies of these documents on my next visit to add to my data.*

When I looked up the section in the Nursing Practice Manual, which was easily located in Alice's office, I found a relatively substantial section relating to the intravenous administration of opioid analgesics, via infusion, patient controlled analgesia, epidural. The policies on these procedures are up to date (April 1995) and address the technical aspects of these procedures. The last practice standard for this section relates to monitoring the patient's extent of pain relief in principle, but no actual assessment procedures are included in the documentation. The policy also makes it clear that there are several different standards of practice for nurses working with patients in recovery room.

*PN: I thought at the time that it would be important to find out how nurses viewed these policies; one, as policy documents and two, as guidelines for pain management.*

While I was going through this file Alice was talking with the new nurses in the office and discussing the equipment associated with patient controlled analgesia. One of the nurses mentioned that she felt it really remarkable how all the different readouts can be obtained from the infusion pump. Alice continued with the discussion which was mainly centred on operating the equipment, getting print outs of the electronic readings. "The Acute Pain Service has an instrument that gives precise print outs of how much has been given and when it was given, so they know when someone has changed the dosage or given the wrong amount." "Oh" said the other nurses.

*PN: This sounded like this nurse thought that their actions could be checked, that the APS had a way checking up on their (the nurses') actions.*

When they left the office I continued looking through some of the files that were in Alice's office, one being the staffing/roster file. From this I could work out who was allocated to the ward, what they were working, and the general staffing levels that the ward operated with. I noticed that there was a lot of nurses rostered onto the ward, 34 in all, and mentioned that to Alice. She remarked that it was due to the "heavy patient load" on the ward.

*PN: This should give me some direction for finding out about what "heavy" is in this context.*

Staffing levels for the ward indicated that on most days, seven nurses needed to work the morning shift, six on the evening shift, and three at nighttime. Alice also mentioned that what I was doing must be hard because of the amount of information I had to collect.

After looking through this file I took the orientation sheet, with Alice's OK, and went around the ward trying to find some of the things noted on the sheet.

*PN: I feel that it's important to negotiate consent for everything I do on the ward at this stage. Maybe later on I won't have to ask permission all the time. I should follow up on a reference about this point in doing fieldwork and negotiating entry to the research site and informants.*

Most things were fairly straightforward - equipment, store rooms, treatment room, etc

*PN: - probably because I know what these places are going to look like, so I'm not completely unfamiliar with what I'm looking for from the orientation list.*

The two new nurses were following on my trail and we had a slight giggle about it. I could not easily find some of the files, or lists that I wanted to look at, for example, the operation list, or the roster of medical officers on the ward. There was a list at the

nurses' desk indicating the colour coding scheme for each of the consultants on the ward, but this list didn't say what specialty each of these consultants represented.

*PN: I wonder how new nurses and doctors find out about the Acute Pain Service rounds, when they're done, by whom, and what the staff's involvement is during these rounds. I already knew about the rounds from my previous work with the APS but didn't ask any staff about that yet.*

While I was at the desk I had a look at the patient bed list to try to get a feel for what types of patients were on the ward. As Alice had said, there was a mixture of patients - some medical, a few orthopaedic and several neuro patients. I had asked her what having an LAD meant for the ward and she said the "it really didn't make much difference to the workload except that there were fewer rounds - in fact sometimes it got busier because you spent a lot of time trying to find whoever (doctor) was on call.

*PN: I must make a list of these medical abbreviations so that anyone reading these notes will know what they mean.*

*PN: I made a mental note yesterday to record what I was wearing for my field work, since I have heard and read enough to realise that this makes a difference to how you are received by the participants in the field. I had had several informal discussions with colleagues about their experiences in this matter, and all said that dressing like others made it easier to "fit in". This was also reinforced by Holly Skodol Wilson at a workshop I attended in November last year at which she recounted her experience of fieldwork. Her attempts to gain entry as a "new fieldworker" were denied until she dressed the part - as others who lived and worked at the field site.*

I made sure that I was dressed in navy blue slacks and a white shirt. This is almost uniform like, and typically nursing type colours. My badge indicated that I was a visitor in the hospital and I had attached a small round name badge with my name.

*PN: I wanted to make sure that I didn't appear too officious or formal, but could reasonably blend in with everything else going on in the ward.*

Around 12:40 Alice asked the new RNs if they were ready for lunch. Before she left I asked what time handover usually was and how it was done. She said that it normally got under way at about ten past one by the time "everyone got their act together". I asked her if the handover was a taped one, since this is what the Clinical Nurse Specialist had said. She replied that "it should be, and sometimes it is but usually the morning coordinator does a sit down handover with the two on as afternoon coordinators. Then staff allocated to each area of the ward does their own handover to the new staff and everyone gets together at about 3:00pm for a "whiteboard" handover, where things like tests to be done are discussed". I already knew that this should be the procedure, but she mentioned that this was still something new and not done all the time. She believed it was important so that "everyone knew basically what was going on in the whole ward, but it certainly wasn't an in-depth handover".

I decided to go down with Alice and the new nurse to grab a sandwich. They waited for me to come back with them, which surprised me a bit. I went back up and sat in the staff tearoom with them to eat my lunch, but more to see if there was anything interesting to listen to. No conversation at all. I went out at 1:00pm to introduce myself to the morning coordinator, who up to this time still hadn't approached me to find out who I was or what I was doing on the ward.

*PN: I had deliberately made sure that I was around her so that she might say something, but she never did. I 'm going to have to make it a point to always be the one to initiate introductions. I must admit however that it would be nice for a change if it was the other way around!*

When I got to the nurses' desk none of the coordinators were there and I suspected that handover had already begun. I went to the tutorial room and peered in through the window to see three of them at handover. I knew two of the coordinators from the introductory talk Alice had arranged for me to give on the ward the previous week. I

decided however not to interrupt the handover because the day coordinator didn't know me and I felt she may feel that I was intruding. I decided to wait until next time to listen to handover. I went back and told Alice that I wouldn't go in, even though she said I could have just gone in. I explained my reasons for not doing so then said my goodbyes and left, saying I would see them again next week.

I had made a note to photocopy the documentation for the Acute Pain Service and policies from the Nursing Practice Manual regarding pain management. I also collected the Nursing Assessment Form, Major Surgery 48 hour Postoperative Care Plan and the Orientation Checklist.

The nursing staffing profile for this ward is indicated in a policy document directive from the Level 4 coordinator for this area. This policy states the following staffing levels are appropriate for this ward:

|    | Mo | Tu | We | Th | Fri | Sat | Su |
|----|----|----|----|----|-----|-----|----|
| AM | 7  | 7  | 7  | 7  | 6   | 7   | 6  |
| PM | 6  | 6  | 6  | 6  | 6   | 6   | 6  |
| ND | 3  | 3  | 3  | 3  | 3   | 3   | 3  |

This includes 2 CNs per shift on most days and 1 CN per shift on Sundays.

ID Code [ \_ \_ \_ ]

Office Use  
Only

## EDUCATIONAL QUALIFICATIONS AND PROFESSIONAL EXPERIENCE SELF-REPORT QUESTIONNAIRE

### Instructions

Please indicate your answer to each of the following questions by placing a circle around the appropriate number, or completing your response in the space provided.

The questionnaire should take about 20 minutes to complete. Return the completed questionnaire and the signed consent form in the prepaid envelope. Please retain the information sheet for future reference.

### BACKGROUND INFORMATION

- |  |           |       |
|--|-----------|-------|
| 1. How old were you on your last birthday?   | _____     | Years |
| 2. What is your sex?                         | FEMALE    | 1     |
|  | MALE      | 2     |
| 3. What level are you currently employed at? | LEVEL 1   | 1     |
|  | LEVEL 2   | 2     |
|  | LEVEL 3   | 3     |
|  | LEVEL 4   | 4     |
| 4. Are you employed full-time or part-time?  | FULL-TIME | 1     |
|  | PART-TIME | 2     |

**EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS**

5. What is the highest nursing qualification you have obtained?

- |                        |   |
|------------------------|---|
| HOSPITAL BASED DIPLOMA | 1 |
| TERTIARY DIPLOMA       | 2 |
| UNDERGRADUATE DEGREE   | 3 |
| POSTGRADUATE DIPLOMA   | 4 |
| MASTER'S DEGREE        | 5 |
| DOCTORATE              | 6 |

6. Please list below all other tertiary qualifications you hold.

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7. Please list all postbasic (non-tertiary) nursing certificate qualifications you hold.

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8. Have you attended any continuing education or inservice courses in the past 2 years that were specifically focused on pain management?

YES 1

NO 2

**PROFESSIONAL EXPERIENCE**

9. Please give details of your length of employment as a registered nurse (starting from your present job), INCLUDING breaks in employment.

For example:

| FROM | TO      |
|------|---------|
| 1991 | Present |
| 1988 | 1990    |
|      |         |

| FROM | TO |
|------|----|
|      |    |
|      |    |
|      |    |
|      |    |
|      |    |
|      |    |
|      |    |
|      |    |
|      |    |

10. Please give details of your experience working in surgical settings (starting from your present job).

| FROM | TO |
|------|----|
|      |    |
|      |    |
|      |    |
|      |    |
|      |    |
|      |    |
|      |    |
|      |    |
|      |    |

**END OF QUESTIONNAIRE**

***Thank you for your time and assistance***



ID Code [ \_ \_ \_ ]

**EDUCATIONAL QUALIFICATIONS AND PROFESSIONAL EXPERIENCE  
SELF-REPORT QUESTIONNAIRE**
**Office  
Use  
Only**
**Instructions**

Please indicate your answer to each of the following questions by placing a circle around the appropriate number, or completing your response in the space provided.

The questionnaire should take about 20 minutes to complete.

**BACKGROUND INFORMATION**

- |  |           |       |
|--|-----------|-------|
| 1. How old were you on your last birthday?   | _____     | Years |
| 2. What is your sex?                         | FEMALE    | 1     |
|  | MALE      | 2     |
| 3. What level are you currently employed at? | LEVEL 1   | 1     |
|  | LEVEL 2   | 2     |
|  | LEVEL 3   | 3     |
|  | LEVEL 4   | 4     |
| 4. Are you employed full-time or part-time?  | FULL-TIME | 1     |
|  | PART-TIME | 2     |

## EDUCATIONAL AND PROFESSIONAL QUALIFICATIONS

5. What is the highest nursing qualification you have obtained?

- |                        |   |
|------------------------|---|
| HOSPITAL BASED DIPLOMA | 1 |
| TERTIARY DIPLOMA       | 2 |
| UNDERGRADUATE DEGREE   | 3 |
| POSTGRADUATE DIPLOMA   | 4 |
| MASTER'S DEGREE        | 5 |
| DOCTORATE              | 6 |

6. Please list below all other tertiary qualifications you hold.

---



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7. Please list all postbasic (non-tertiary) nursing certificate qualifications you hold.

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8. Have you attended any continuing education or inservice courses in the past 2 years that were specifically focused on pain management?

YES 1

NO 2

**PROFESSIONAL EXPERIENCE**

9. How many years of clinical experience do you have in total as a registered nurse? (Please exclude periods of unemployment)

\_\_\_\_\_ Years

10. How many years of clinical experience do you have as a registered nurse working in a surgical post-care area? (Please exclude periods of unemployment)

\_\_\_\_\_ Years

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**END OF QUESTIONNAIRE**

***Thank you for your time and assistance***

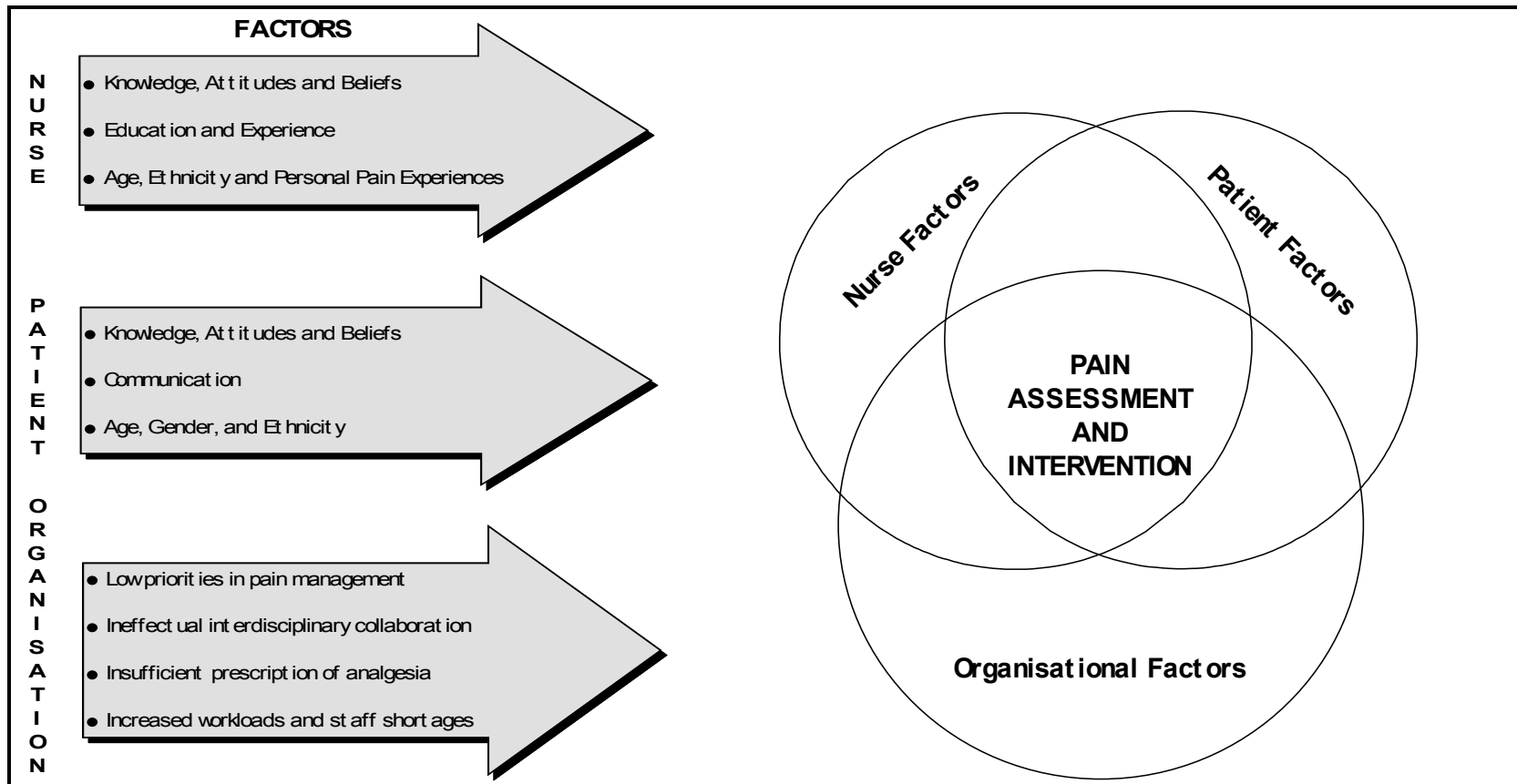
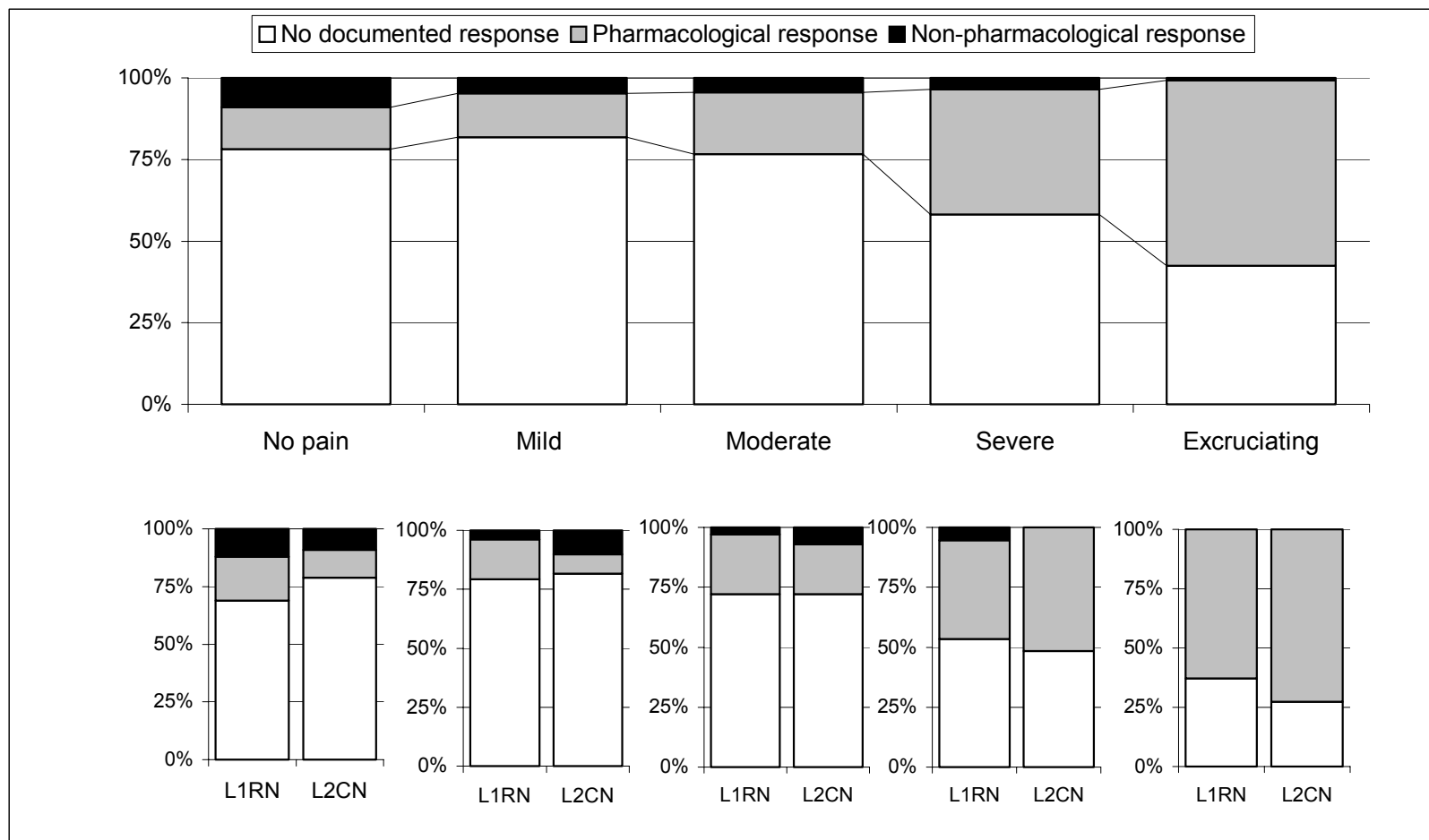


Figure 3.1. Factors influencing nursing practice in pain management.



**Figure 6.5.** Comparisons between total distributions of documented nurse responses and variations in responses between Level 1 RNs and Level 2 CNs for each category of pain report.

Table 5.2. Distributions of Documented Nurse Responses to 3-Hourly Patient Reports of Pain (N = 3316).

| Type of Nurse Response               | Pain Rating Category       |        |          |        |          |        |          |        |          |        |              |        |          |        |
|--------------------------------------|----------------------------|--------|----------|--------|----------|--------|----------|--------|----------|--------|--------------|--------|----------|--------|
|                                      | Pain report not documented |        | No pain  |        | Mild     |        | Moderate |        | Severe   |        | Excruciating |        | Total    |        |
|                                      | <i>n</i>                   | %      | <i>n</i> | %      | <i>n</i> | %      | <i>n</i> | %      | <i>n</i> | %      | <i>n</i>     | %      | <i>n</i> | %      |
| <b>No documented response</b>        | 499                        |        | 244      |        | 826      |        | 379      |        | 149      |        | 51           |        | 2148     |        |
| Within pain rating category          |                            | (44.4) |          | (78.2) |          | (81.9) |          | (76.6) |          | (58.2) |              | (42.5) |          | (64.8) |
| <b>Pharmacological responses</b>     | 479                        |        | 40       |        | 136      |        | 94       |        | 98       |        | 68           |        | 915      |        |
| Within pain rating category          |                            | (42.6) |          | (12.8) |          | (13.5) |          | (19.0) |          | (38.3) |              | (56.7) |          | (27.6) |
| <b>Non-pharmacological responses</b> | 146                        |        | 28       |        | 47       |        | 22       |        | 9        |        | 1            |        | 253      |        |
| Within pain rating category          |                            | (13.0) |          | (9.0)  |          | (4.7)  |          | (4.4)  |          | (3.5)  |              | (0.8)  |          | (7.6)  |
| <b>Total</b>                         | 1124                       | (33.9) | 312      | (9.4)  | 1009     | (30.4) | 495      | (14.9) | 256      | (7.7)  | 120          | (3.6)  | 3316     | (100)  |

Table 6.3. Total Distributions of Documented Nurse Responses per Employment Level ( *N* = 1132).

| Type of Nurse Response                | Employment Level             |        |          |        |                              |        |          |        | Total    |         |          |        |
|---------------------------------------|------------------------------|--------|----------|--------|------------------------------|--------|----------|--------|----------|---------|----------|--------|
|                                       | Level 1 RNs ( <i>n</i> = 80) |        |          |        | Level 2 CNs ( <i>n</i> = 26) |        |          |        |          |         |          |        |
|                                       | <i>n</i>                     | %      | <i>n</i> | %      | <i>n</i>                     | %      | <i>n</i> | %      | <i>n</i> | %       | <i>n</i> | %      |
| No documented response                | 474                          | (55.9) |          |        | 158                          | (55.6) |          |        | 632      | (55.8)  |          |        |
| Pharmacological responses             | 298                          | (35.1) |          |        | 92                           | (32.4) |          |        | 390      | (34.5)  |          |        |
| Bolus administration                  |                              |        | 118      | (39.6) |                              |        | 33       | (35.9) |          |         | 151      | (38.7) |
| Altered intravenous infusion rate     |                              |        | 177      | (59.4) |                              |        | 59       | (64.1) |          |         | 236      | (60.5) |
| Gave supplementary drugs              |                              |        | 3        | (1.0)  |                              |        |          |        |          |         | 3        | (0.8)  |
| Sub-total                             |                              |        | 298      |        |                              |        | 92       |        |          |         | 390      |        |
| Non-pharmacological responses         | 76                           | (9.0)  |          |        | 34                           | (12.0) |          |        | 110      | (9.7)   |          |        |
| Repositioned patient                  |                              |        | 1        | (1.3)  |                              |        |          |        |          |         | 1        | (0.9)  |
| Alternative remark of pain assessment |                              |        | 69       | (90.8) |                              |        | 31       | (91.2) |          |         | 100      | (90.9) |
| Contacted APS                         |                              |        | 6        | (7.9)  |                              |        | 3        | (8.8)  |          |         | 9        | (8.2)  |
| Sub-total                             |                              |        | 76       |        |                              |        | 34       |        |          |         | 110      |        |
| Total                                 | 848                          | (74.9) |          |        | 284                          | (25.1) |          |        | 1132     | (100.0) |          |        |

Note. RN = Registered Nurse, CN = Clinical Nurse.

Table 6.4. Distributions of Nurse Responses between Level 1 RNs and Level 2 CNs for Patient Reports of *No Pain* (N = 107).

| <b>Employment Level</b>    | <b>Category of Nurse Response</b> |        |                           |        |                               |        |          |         |
|----------------------------|-----------------------------------|--------|---------------------------|--------|-------------------------------|--------|----------|---------|
|                            | No Documented Response            |        | Pharmacological responses |        | Non-Pharmacological responses |        | Total    |         |
|                            | <i>n</i>                          | %      | <i>n</i>                  | %      | <i>n</i>                      | %      | <i>n</i> | %       |
| Level 1 RNs                | 51                                |        | 14                        |        | 9                             |        | 74       | (69.0)  |
| within response category   |                                   | (66.2) |                           | (77.8) |                               | (75.0) |          |         |
| within employment category |                                   | (68.9) |                           | (18.9) |                               | (12.2) |          |         |
| Level 2 CNs                | 26                                |        | 4                         |        | 3                             |        | 33       | (31.0)  |
| within response category   |                                   | (33.8) |                           | (22.2) |                               | (25.0) |          |         |
| within employment category |                                   | (78.8) |                           | (12.1) |                               | (9.1)  |          |         |
| <b>Total</b>               | 77                                | (72.0) | 18                        | (16.8) | 12                            | (11.2) | 107      | (100.0) |

Note. RN = Registered Nurse, CN = Clinical Nurse.



Table 6.5. Distributions of Nurse Responses between Level 1 RNs and Level 2 CNs for Patient Reports of *Mild Pain* (N = 416).

| Employment Level           | Category of Nurse Response |        |                           |        |                               |        |          |         |
|----------------------------|----------------------------|--------|---------------------------|--------|-------------------------------|--------|----------|---------|
|                            | No Documented Response     |        | Pharmacological responses |        | Non-Pharmacological responses |        | Total    |         |
|                            | <i>n</i>                   | %      | <i>n</i>                  | %      | <i>n</i>                      | %      | <i>n</i> | %       |
| Level 1 RNs                | 252                        |        | 54                        |        | 12                            |        | 318      | (76.4)  |
| Within response category   |                            | (75.9) |                           | (87.1) |                               | (54.6) |          |         |
| within employment category |                            | (79.2) |                           | (17.0) |                               | (3.8)  |          |         |
| Level 2 CNs                | 80                         |        | 8                         |        | 10                            |        | 98       | (23.6)  |
| Within response category   |                            | (24.1) |                           | (12.9) |                               | (45.4) |          |         |
| within employment category |                            | (81.6) |                           | (8.2)  |                               | (10.2) |          |         |
| Total                      | 332                        | (79.8) | 62                        | (14.9) | 22                            | (5.3)  | 416      | (100.0) |

Note. RN = Registered Nurse, CN = Clinical Nurse.

Table 6.6. Distributions of Nurse Responses between Level 1 RNs and Level 2 CNs for Patient Reports of *Moderate Pain* (N = 176).

| <b>Employment Level</b>    | <b>Category of Nurse Response</b> |        |                           |        |                               |        |          |         |
|----------------------------|-----------------------------------|--------|---------------------------|--------|-------------------------------|--------|----------|---------|
|                            | No Documented Response            |        | Pharmacological responses |        | Non-Pharmacological responses |        | Total    |         |
|                            | <i>n</i>                          | %      | <i>n</i>                  | %      | <i>n</i>                      | %      | <i>n</i> | %       |
| Level 1 RNs                | 96                                |        | 33                        |        | 4                             |        | 133      | (75.6)  |
| within response category   |                                   | (75.6) |                           | (78.6) |                               | (57.1) |          |         |
| within employment category |                                   | (72.2) |                           | (24.8) |                               | (3.0)  |          |         |
| Level 2 CNs                | 31                                |        | 9                         |        | 3                             |        | 43       | (24.4)  |
| within response category   |                                   | (24.4) |                           | (21.4) |                               | (42.9) |          |         |
| within employment category |                                   | (72.1) |                           | (20.9) |                               | (7.0)  |          |         |
| <b>Total</b>               | 127                               | (72.1) | 42                        | (23.9) | 7                             | (4.0)  | 176      | (100.0) |

Note. RN = Registered Nurse, CN = Clinical Nurse.

Table 6.7. Distributions of Nurse Responses between Level 1 RNs and Level 2 CNs for Patient Reports of Severe Pain (N = 106).

| Employment Level           | Category of Nurse Response |        |                           |        |                               |         |          |         |
|----------------------------|----------------------------|--------|---------------------------|--------|-------------------------------|---------|----------|---------|
|                            | No Documented Response     |        | Pharmacological responses |        | Non-Pharmacological responses |         | Total    |         |
|                            | <i>n</i>                   | %      | <i>n</i>                  | %      | <i>n</i>                      | %       | <i>n</i> | %       |
| Level 1 RNs                | 40                         |        | 31                        |        | 4                             |         | 75       | (70.8)  |
| within response category   |                            | (72.7) |                           | (66.0) |                               | (100.0) |          |         |
| within employment category |                            | (53.3) |                           | (41.3) |                               | (5.3)   |          |         |
| Level 2 CNs                | 15                         |        | 16                        |        |                               |         | 31       | (29.2)  |
| within response category   |                            | (27.3) |                           | (44.0) |                               |         |          |         |
| within employment category |                            | (48.4) |                           | (51.6) |                               |         |          |         |
| Total                      | 55                         | (51.9) | 47                        | (44.3) | 4                             | (3.8)   | 106      | (100.0) |

Note. RN = Registered Nurse, CN = Clinical Nurse.

Table 6.8. Distributions of Nurse Responses between Level 1 RNs and Level 2 CNs for Patient Reports of *Excruciating Pain* (N = 46).

| Employment Level           | Category of Nurse Response |        |                           |        |                               |   |          |         |
|----------------------------|----------------------------|--------|---------------------------|--------|-------------------------------|---|----------|---------|
|                            | No Documented Response     |        | Pharmacological responses |        | Non-Pharmacological responses |   | Total    |         |
|                            | <i>n</i>                   | %      | <i>n</i>                  | %      | <i>n</i>                      | % | <i>n</i> | %       |
| Level 1 RNs                | 13                         |        | 22                        |        |                               |   | 35       | (76.1)  |
| within response category   |                            | (81.3) |                           | (73.3) |                               |   |          |         |
| within employment category |                            | (37.1) |                           | (62.9) |                               |   |          |         |
| Level 2 CNs                | 3                          |        | 8                         |        |                               |   | 11       | (23.9)  |
| within response category   |                            | (28.7) |                           | (36.7) |                               |   |          |         |
| within employment category |                            | (27.3) |                           | (72.7) |                               |   |          |         |
| Total                      | 16                         | (34.8) | 30                        | (65.2) |                               |   | 46       | (100.0) |

Note. RN = Registered Nurse, CN = Clinical Nurse.

Table 6.9. Distributions of Nurse Responses between Level 1 RNs and Level 2 CNs in the Absence of 3-Hourly Pain Reports (*N* = 281).

| Type of Nurse Response                | Employment Level             |        |          |        |                              |        |          |        |          |         |
|---------------------------------------|------------------------------|--------|----------|--------|------------------------------|--------|----------|--------|----------|---------|
|                                       | Level 1 RNs ( <i>n</i> = 80) |        |          |        | Level 2 CNs ( <i>n</i> = 26) |        |          |        | Total    |         |
|                                       | <i>n</i>                     | %      | <i>n</i> | %      | <i>n</i>                     | %      | <i>n</i> | %      | <i>n</i> | %       |
| No documented response                | 22                           | (10.3) |          |        | 3                            | (4.4)  |          |        | 25       | (8.9)   |
| Pharmacological responses             | 144                          | (67.6) |          |        | 47                           | (69.1) |          |        | 191      | (68.0)  |
| Bolus administration                  |                              |        | 61       | (42.4) |                              |        | 11       | (23.4) |          |         |
| Altered intravenous infusion rate     |                              |        | 81       | (56.3) |                              |        | 36       | (76.6) |          |         |
| Gave supplementary drugs              |                              |        | 2        | (1.4)  |                              |        |          |        |          |         |
| Sub-total                             |                              |        | 144      |        |                              |        | 47       |        |          |         |
| Non-pharmacological responses         | 47                           | (22.1) |          |        | 18                           | (26.5) |          |        | 65       | (23.1)  |
| Alternative remark of pain assessment |                              |        | 43       | (91.5) |                              |        | 17       | (94.4) |          |         |
| Contacted APS                         |                              |        | 4        | (8.5)  |                              |        | 1        | (5.6)  |          |         |
| Sub-total                             |                              |        | 47       |        |                              |        | 18       |        |          |         |
| Total                                 | 213                          | (75.8) |          |        | 68                           | (24.2) |          |        | 281      | (100.0) |

Note. RN = Registered Nurse, CN = Clinical Nurse