

**POST-OPERATIVE PAIN MANAGEMENT KNOWLEDGE AND
ATTITUDES OF PAEDIATRIC NURSES:-
A NEW ZEALAND REGIONAL VIEW**

by

Sue Smart

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A child's expression of pain

Pain

Pain is like a lightening bolt striking you,
Sometimes it's physical but sometimes emotional,
Pain can affect all the things you do,
And traumatize you and leaves a mark,

Pain can cause other emotions too,
Such as fear, and resentment,
Sometimes you despise the people who love you
Pain can lead to all sorts of suffering,

Pain is when someone forgets your birthday,
Or when someone beats you up and leaves you scarred,
Pain is present in our lives from day to day,
But is sometimes so small we cannot see it

Healing is when the pain finally goes
And when you are no longer hurting
When you wake one day and find it's gone who knows,
Maybe now you can move on with your life.

By Adele Clifford

Retrieved March 3rd, 2004 www.poetryzone.ndirect.co.uk/funny.htm

Abstract

Pain and fear of pain are major concerns for many hospitalised patients. Nurses need to understand this pain, and be able to assess and manage it effectively. Despite advances in knowledge and an increased amount of nursing research related to pain management, literature continues to identify that infants, children and adolescents continue to experience unrelieved pain post surgery. Contemporary literature suggests that nurses' knowledge and attitudes towards pain affects their pain management practices. Nurses in small regional hospitals often don't have the support of paediatric pain specialists and therefore rely on their own knowledge, education and experience to manage the pain of the infants, children and adolescents in their care.

This research explored the knowledge and attitudes towards paediatric post-operative pain, within the New Zealand context of small regional hospitals. It established how nurses working in these areas obtain and update their paediatric pain management knowledge, and what is it that influences their paediatric post-operative pain management practices. A questionnaire survey of registered nurses working in three small paediatric units (5 to 12 beds), in regional secondary service hospitals was undertaken. The questionnaire developed was based on the Paediatric Nurses Knowledge and Attitude Survey (PNKAS). The survey had a 79% (n=33) response rate. Findings corroborate many findings in previously published literature including that nurses do well in questions related to assessment. However pharmacological knowledge continues to be lacking. Results also indicated that while nurses have a good understanding about who is the best person to rate pain, this wasn't carried through in the clinical scenarios provided. Education is clearly an important factor in improving the knowledge and attitudes needed in clinical practice.

While this survey was somewhat limited, both in size and in that a clear correlation between the results and actual clinical practice could not be made, results are significant for the areas surveyed and for the development of pain education for nurses. Wider research into both pain education and clinical practice is needed.

Some of the first steps could be to survey the knowledge and attitude of those who instruct in undergraduate programs related to pain, and review what is being provided in the course programs, and then examine what is being offered within the clinical environments. Research, incorporating chart review and utilising open written questions and/or interviews, or group discussions would provide far more information on which to base recommendations for practice.

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I would also like to thank my employer for their ongoing support and encouragement.

Dedication

To my husband,
Max
with all my love.

Without your love, support, encouragement and understanding
I would never have completed this thesis.
Thank you.

Table of contents

A child's expression of pain	I
Abstract	II
Acknowledgments	IV
Dedication	V
Table of contents	VI
List of tables	IX
List of figures	X
Chapter 1:- Introduction	1
Aim of the research	2
<i>Why is this research needed?</i>	2
<i>Previous research in the New Zealand context</i>	3
Research approach	5
Key definitions used in this thesis	5
<i>Pain</i>	5
<i>Paediatric Nurse</i>	6
<i>Children</i>	6
Personal background, and why this interest	7
<i>Personal philosophy of pain and my role in pain management</i>	8
<i>Exemplar from practice</i>	9
Structure of this thesis	11
Chapter 2:- Understanding and managing children's pain	- 13 -
Introduction	- 13 -
Background to the current understanding of pain	- 13 -
<i>Pain theories</i>	- 14 -
<i>The Gate Control Theory of pain</i>	- 15 -
Developing an understanding of pain	- 15 -
<i>Classification of pain</i>	- 16 -
<i>Psychological aspects of pain</i>	- 17 -
<i>Cultural aspects and expression of pain</i>	- 17 -
Paediatric pain assessment	- 18 -
<i>Assessment tools</i>	- 19 -
<i>Prioritising pain assessment</i>	- 20 -
Protocols and guidelines for pain assessment and management	- 20 -
Ethical considerations in pain management	- 21 -
Reasons for the mismanagement of pain in children	- 22 -

Theory / practice gap	- 23 -
Conclusion	- 24 -
Chapter 3:- Pain knowledge and the attitudes of nurses	- 25 -
Introduction	- 25 -
Post-operative pain management in children	- 26 -
Attitudes and misbeliefs related to children and pain	- 27 -
<i>Misbeliefs related to narcotic use and administration</i>	- 27 -
<i>Misbeliefs about the pain experience</i>	- 28 -
<i>Social and cultural misbeliefs</i>	- 29 -
Time and workload	- 30 -
Lack of knowledge and education	- 31 -
Research within New Zealand	- 34 -
Pain knowledge and attitude surveys	- 35 -
<i>Knowledge and attitude survey research specific to paediatric nursing</i>	- 37 -
Conclusion	- 38 -
Chapter 4:- Research methodology and study design	- 40 -
Introduction	- 40 -
Methodology	- 40 -
Setting	- 44 -
Sampling	- 44 -
<i>Determining the size of the survey</i>	- 45 -
<i>Subjects</i>	- 45 -
The tool	- 46 -
<i>Reliability and validity of the tool</i>	- 48 -
<i>Distribution of the tool</i>	- 49 -
Data management	- 50 -
<i>Statistical analysis</i>	- 50 -
Cultural safety considerations	- 51 -
Ethical Considerations	- 52 -
Conclusion	- 53 -
Chapter 5:- Results	- 54 -
Introduction	- 54 -
Descriptive results from survey	- 54 -
<i>Demographic data of respondents</i>	- 55 -
<i>Respondents' involvement in the management of paediatric pain</i>	- 56 -
<i>Education qualification and experience of the respondents</i>	- 57 -
<i>Pain educational experience of the respondents</i>	- 59 -
Factors influencing nurses' skills, and paediatric pain knowledge	- 61 -
<i>Personal experience</i>	- 61 -
<i>Nurses' comfort levels with undertaking paediatric pain assessment and management</i>	- 62 -
<i>Influence of knowledge on pain management practice</i>	- 63 -
<i>Patient responses</i>	- 64 -

Nurses' knowledge and attitudes	- 66 -
<i>General knowledge and attitudes</i>	- 66 -
<i>Pharmacological and addiction knowledge and attitudes</i>	- 71 -
<i>Assessment and management of pain knowledge and attitudes</i>	- 71 -
<i>Case scenarios</i>	- 72 -
Conclusion	- 76 -
Chapter 6:- Discussion	- 77 -
Introduction	- 77 -
Research process	- 78 -
<i>Response to the survey</i>	- 78 -
Knowledge and attitude towards paediatric pain management	- 79 -
<i>Demographic influences on knowledge and attitude</i>	- 79 -
<i>Knowledge and attitudes scores</i>	- 80 -
<i>Knowledge and attitude of pain assessment</i>	- 81 -
<i>Knowledge and attitude towards the goal of pain management</i>	- 84 -
<i>Knowledge and attitude towards pharmacological interventions</i>	- 85 -
<i>Organisational barriers</i>	- 90 -
<i>Prescribing patterns</i>	- 91 -
Source of paediatric pain management knowledge, and how it is updated	- 92 -
Influences on paediatric post-operative pain management practice	- 94 -
Limitations of this study	- 96 -
Conclusion	- 98 -
Chapter 7:- Conclusion	- 100 -
Introduction	- 100 -
Background literature review	- 100 -
Role of education in paediatric post-operative pain management	- 101 -
Recommendations for practice	- 102 -
Recommendations for future research	- 103 -
Significance of this research	- 104 -
Appendices	- 106 -
Appendix 1. Paediatric Nurses' Pain Knowledge and Attitudes Survey	- 106 -
Appendix 2. Permission from Renee Manworren	- 116 -
Appendix 3. Permission from Marie Whedon (Bakitas)	- 117 -
Appendix 4. Letter of explanation	- 118 -
Appendix 5. Confidentiality agreement for receiver of the questionnaires	- 120 -
Appendix 6. Ethics approval	- 121 -
References	- 122 -

List of tables

Table 4 1	Numbers by area	46
Table 5.1	Percent of returns from each area surveyed	54
Table 5.2	Age of participants and Nursing Council profile of NZ Registered nurses	55
Table 5.3	Respondents nursing experience	57
Table 5.4	Length of time, educational qualifications and frequency managing pain in children post surgery	58
Table 5.5	Frequency of decision making related to infant pain assessment and medication administration	59
Table 5.6	Type of pain education	60
Table 5.7	Frequency of accessing learning opportunities	61
Table 5.8	Personal experiences influence on pain management	61
Table 5.9	Nurses' comfort level related to aspects of pain management	62
Table 5.10	What inhibits nurse's administration of narcotics	64
Table 5.11	Patient responses that influence nurses' decisions to provide interventions for pain relief	64
Table 5.12	Barriers or problems related to nursing staff being able to provide optimum pain relief	65
Table 5.13	Questions most frequently answered <u>correctly</u> in Section 2 & 3	69
Table 5.14	Questions most frequently answered <u>in-correctly</u> in Section 2 & 3	70
Table 5.15	Medication dosage chosen by respondents	76

List of figures

Figure 5.1. Type of employment by area	56
Figure 5.2. Personal lack of knowledge by type of employment	63
Figure 5.3. Total score results for correct answers on pain knowledge and attitude question in Section Two	66
Figure 5.4. Total score results for correct answers on pain knowledge and attitude question in Section Three	67
Figure 5.5. Total scores for Section Two and Three	68
Figure 5.6. The most accurate judge of pain	72
Figure 5.7. Nurses' assessment of Robert' and Andrew's pain	73
Figure 5.8. Nurses' assessment of Andrew's pain related to time in area	74
Figure 5.9. Nurses' assessment of Robert's pain related to time in area	74
Figure 5.10. Nurses' assessment of Andrew's pain related to years nursing	75
Figure 5.11. Nurses' assessment of Robert's pain related to years nursing	75

Chapter 1:- Introduction

Children have the right to have appropriately assessed and managed post-operative pain, and paediatric nurses are uniquely positioned to facilitate accurate and safe pain management practices. The importance of providing effective pain management cannot be overemphasised, given that pain, left untreated, under treated or over treated, can have long lasting psychological and physical effects (Harrison, 1991). Effective paediatric pain management is reliant on the nurse being able to assess an infant, child or adolescent for pain, implement strategies to resolve pain and then assess how effective the strategies were. Undoubtedly strong clinical knowledge in pain management is the cornerstone for the effective management of post-operative paediatric pain.

This thesis is about the knowledge and attitudes, towards paediatric post-operative pain, of nurses working in small paediatric wards within general regional hospitals in New Zealand. By conducting a questionnaire survey of registered nurses working in three small South Island paediatric units (5 to 12 beds), situated in small geographically isolated provincial secondary service hospitals, and analysing the data collected, this study addresses three main areas of concern. Firstly what is the knowledge and attitude, towards paediatric pain management, of nurses working in the areas identified? Secondly, how do nurses working in these areas, get their paediatric pain management knowledge and how is it updated? Finally, what is it that influences the paediatric post-operative pain management practices of these nurses’?

This chapter introduces me as the researcher and explains why this research was chosen. It provides a brief overview of pain and defines key terms used. By sharing some exemplars from practice it demonstrates that I identified issues surrounding pain management in children more than a decade ago. The chapter finishes with an overview of the thesis.

Aim of the research

The aim of this research project is to expand the body of knowledge related to paediatric post-operative pain management practices, within the New Zealand context of small regional hospitals. It aims to determine the present level of knowledge and attitudes regarding paediatric post-operative pain assessment and pain management of registered nurses, working in small general regional paediatric wards. It is only through the accurate assessment of nurses' knowledge, attitudes and needs, as perceived by the nurse, that appropriate strategies can be developed to address the educational needs of nurses, related to paediatric pain management practices. This research also aims to explore how nurses working in these areas gained their paediatric post-operative pain management knowledge, and skills, and if they felt they were able to implement their knowledge within their clinical setting.

Information gained by conducting this research will inform the body of knowledge related to paediatric pain in the New Zealand (NZ) context. The knowledge gained will also help me, as the Clinical Nurse Leader, by helping to inform the development of a nursing education strategy, to improve the experiences and outcomes for the infants and children in our care.

Why is this research needed?

Pain and fear of pain are major concerns for many hospitalised infants, children and adolescents. Nurses need to understand this pain, and be able to assess and manage it, to be able to improve the experiences and outcomes for the infants, children and adolescents in their care. There is an abundance of literature and research available to nurses, to guide them in the assessment and management of all aspects of pain. In addition, literature and research related to paediatric post-operative pain has also increased in the last 20 years. However, the majority of previous research involving nurses and paediatric pain has occurred primarily in the Northern Hemisphere, and samples nurses with a different training and or educational background from those in NZ. They are also usually working in large tertiary hospital settings (Beyer, DeGood, Ashley, & Russell, 1983; Burokas, 1985; Hammers, Abu-Saad, van den Hout, & Halfens, 1998; Jacob & Puntillo, 1999b).

Research into paediatric pain has involved surveys, interviews, or pre and post education studies, all of which identify similar issues. Post-operative pain assessment and management is the focus of my research. The decision to confine the research to post-operative pain was made for a number of reasons. Firstly a person's diagnosis is known, and pain usually occurs as a result of surgical intervention. Secondly, analgesia is usually required, and thirdly, but most importantly, this is the most frequent area of pain management encountered by nurses working in the areas surveyed.

A great deal of the published research, into pain management, has been in areas of specialty. For example neonatal units, paediatric intensive care units and in oncology or palliative care (Leek, Grant, Rivera, Ferrell, & McCaffery, 1995; McCaffery & Ferrell, 1995; Mitchell & Boss, 2002; Reyes, 2003; Watt-Watson, Stevens, Garfinkel, Streiner, & Gallop, 2001). However, it has been clearly established that post-operative patients, young and old, often fail to receive adequate post-operative pain treatment. The literature review, detailed in Chapters 2 and 3, will discuss this research, and will highlight how knowledge deficits and poor attitudes towards pain result in poorly managed pain, which leads to unnecessary suffering, surgical complications, and increased length of stay and cost.

Nurses in small regional hospitals, in New Zealand, often don't have the support of paediatric pain specialists (medical or nursing), and rely on their own knowledge and experience to manage the pain of the infants, children and adolescents in their care. With the increasing degree of staff turnover, and the shortage of skilled and experienced paediatric nurses, infants, children and adolescents in small regional inpatient areas are frequently being cared for by inexperienced, casual or adult focused nurses. It was with this in mind that this research study was developed.

Previous research in the New Zealand context

Very little is written, in the paediatric context or in the context of small paediatric units anywhere, regarding paediatric post-operative pain. Previous pain research undertaken in New Zealand has focused on nurses working in tertiary hospitals, and not specifically in paediatric areas (Barton, 2001; King, 1999; Strochnetter, 2000),

or in education settings with student nurses (Murphy, 1998). And although this previous research has provided valuable information to the body of nursing knowledge related to pain management, it has left some unanswered questions related to paediatric post-operative pain. The purpose of this survey is to add to the body of knowledge, with the hope that it will raise nurses' awareness, especially in the areas surveyed, in relation to paediatric post-operative pain management. It is also hoped it will help to develop improvements in knowledge and attitude, and therefore in nursing practice, and improved outcomes for the infants, children and adolescents they care for.

Reviewing literature for both this project and previous academic papers led me to ask a number of questions about paediatric pain management. Are New Zealand nurses being educated enough, in the understanding of the nature of paediatric pain, in the social context of paediatric pain, and in the assessment and treatment of paediatric pain? What understanding do nurses, educated in New Zealand, and working in small paediatric wards in regional secondary service hospitals, have in relation to infant and children's experience of pain? Is it different for nurses who were educated overseas as children's nurses, but who are currently working in these New Zealand settings? Do nurses routinely use pain-scales or other pain assessment tools that are appropriate for the infant or child's developmental age, and are such tools reliable, valid, quick and easy to administer? Are nurses supported with guidelines and standards in their paediatric post-operative pain management, and what influences their pain management practices?

As a nurse working in a small paediatric ward, I am aware that for some nurses the answer to these questions is often no. What I am not aware of is why, and what influences that response. This thesis sets out to provide answers to some of these questions. Firstly what is the knowledge and attitude, towards paediatric pain management, of nurses working in the areas identified? Secondly how they get their paediatric pain management knowledge and how is it updated? Finally what influences the pain management practices of these nurses? A much larger project will need to be undertaken if all of the question could ever hope to be answered.

Research approach

Many methods of research are available and have been used to explore various aspects of pain, pain assessment and pain management. Survey, utilising a tool previously developed to establish knowledge and attitude of paediatric nurses is chosen as the method for this research. The decision to use survey as a method was made after exploring other research methodologies. Every method of research has the potential to provide valuable insight and knowledge. However the decision to use this particular method was made from a personal choice perspective, and because while this type of survey has been done before it has not been done in the context presented in this thesis. The questionnaire used for this survey was primarily based on the “Pediatric Nurses Knowledge and Attitude Survey” (PNKAS) tool developed by Manworren (2000), which she had developed from the “Nurses’ Knowledge and Attitude Survey” (NKAS) tool developed by McCaffery and Ferrell (1997).

Key definitions used in this thesis

Pain

To assess and manage pain effectively it is first necessary to understand what the word pain means and what pain is. Pain is part of life and is one of the most complex of human experiences, epitomising the unity of mind and body. Pain experience and the meaning of pain are different for different people. This makes defining pain difficult. Dictionary or encyclopaedia definitions do not provide a complete sense of understanding or meaning of the concept. However, they are useful in identifying basic elements, perceptions and feelings related to the concept, and are useful in tracking the origin of specific words. The word pain itself comes from the Latin word *poena* which means penalty, punishment, grief, and the Greek word *poinē* meaning penalty (Allen, 2003; Makin, 1995; Montes-Sandoval, 1999). Most dictionary definitions are very similar, according to Allen and Makin pain is defined as either an unpleasant physical sensation, or a feeling of discomfort, or an emotional distress, or as somebody or something troublesome.

As these definitions show that pain is a solely subjective experience, it therefore cannot be objectively observed, measured or reproduced in purely scientific terms. This has probably played a key role in the misunderstanding and underestimating of

the experience of pain. Nurses must be aware that pain means many things, to different people, in many different situations, and that the word is used in many different contexts. For the purpose of this research, the word *pain* is used to refer to the physical pain that infants, children and adolescents may experience as a result of surgery. This pain is what nurses assess and manage in the post-operative care of infants, children and adolescents.

There are many issues of pain management facing nurses who work with premature infants and neonates, and the older adolescent that can not be addressed within the scope of this thesis. However, some of the literature available, related to the pain issues of premature infants, neonates and the older adolescents, also relates to issues faced by nurses working within the paediatric areas surveyed for this thesis and will therefore be used to help inform the thesis. This literature also helped inform the definition of the terms, *paediatric nurse* and *children*, used in this thesis.

Paediatric Nurse

In the New Zealand context there is no undergraduate education of specific child health nurses, the term paediatric Nurse usually refers to a registered General/Obstetric, Comprehensive or Degree educated nurse, working in a paediatric setting. Therefore in the documentation of this thesis, the term paediatric nurse refers to nurses working with infants, children and adolescents in small paediatric inpatient settings within the hospitals surveyed. It must be noted however, that much of the literature reviewed for this thesis, refers to paediatric nurses as those who have undergone a specific paediatric nurse education course or who work in large tertiary or university paediatric hospitals.

Children

Post-operative management of pain in infants, children and adolescents, from birth to 14 years, is the primary focus of this thesis, as that is the age group commonly nursed in small paediatric inpatient wards in New Zealand. In the literature infants are generally classified as being under one year, with children being one to 12 years, and adolescents are usually defined as being over the age of 12 years. However, many of the articles reviewed for this research classify infants as under 1 year and children as 3 to 18 years old. Unless otherwise stated, I use the term

children to include birth to 14 years, as that is the age group routinely cared for in the areas surveyed.

Personal background, and why this interest

The experience of being a nurse is a constant journey. There are always challenges, always questions.

(Darling, 1995, p.19)

Much of who I am and how I practice nursing is influenced by my experiences prior to starting nursing, and although they can't be seen directly they underpin and influence the nurse that I am today. As a toddler I experienced a liquid burn and as a result visited the doctor and local hospital many times. I have no clear memory of this, but as I always wished to be a nurse I believe that this experience impacted on my life, and also my interest in the issue of paediatric pain. In current literature related to pain, authors indicate that the pain experienced by children has an influence on their current pain response and on pain perception and behaviour later in life (Elander, Hellstrom, & Ovarnstrom, 1993). My own experience may have impacted on my perceptions of pain and pain management, however I believe the education I received, or did not receive, related to pain and pain management has had a greater impact.

I began my nursing career more than 30 years ago when nurses were trained to follow instructions, and not to question senior medical or nursing staff on how patients were managed. I have no memory of receiving any pain assessment education, rather my memories centre around basic anatomy, physiology, adult medication dosages and side effects, with very little in relation to individual patient's experience of pain. In contrast, nurses today are well educated and are instructed on how to professionally question, both medical and nursing staff, about the management of the patients in their care. However despite this, literature still indicates that the issues related to poorly managed pain remain similar to those that were present decades ago.

Marriner-Tomey describes knowledge as "an awareness or perception of reality, acquired through learning or investigation" (Marriner-Tomey, 1994, p3). Therefore

nursing is about knowledge, continuing development and gaining of new skills, pain management is also about knowledge, continuing development and gaining of new skills. Currently I am the Clinical Nurse Leader in one of the areas surveyed for this research, a 12 bed general paediatric ward within a regional secondary service hospital. My current interest in paediatric pain management began more than a decade ago, when, as part of post registration studies, I explored the use of narcotic patient controlled analgesia (PCA) in the paediatric setting. Despite the researched safety and benefits of using PCA for children, for example with intravenous morphine, it is my impression it continues to be poorly utilised and I find that I have to continually advocate for the use of PCA and other forms of narcotic use.

Personal philosophy of pain and my role in pain management

From my early readings into pain and paediatric pain research, I have developed an increased knowledge and awareness of the issues surrounding paediatric pain, pain assessment and pain management. I don't believe as a person I can ever really "know" another person's experience of pain. Pain is not just physiological, it has many origins, and pain is a perception that differs for the individual. I don't believe children should expect to experience unnecessary pain as a result of admission to hospital. I also believe all health professionals share a responsibility in preventing the experience of unnecessary pain in children.

As a paediatric nurse I am in frequent contact with children experiencing pain as a result of surgery. Many of these patients and their families rely heavily on me, as the nurse, to advocate for them and protect them from unnecessary pain. As a senior nurse I have a unique role in providing this direct care and also in educating the families and less experienced staff, in pain assessment and management. Working in partnership, with the patient and family, is pivotal in achieving effective pain management. In this modern age of short hospital stays, day case procedures and an increasing emphasis on early discharge, it is becoming increasingly important that nurses are well educated on how to effectively manage post-operative pain. Of equal importance is how to educate families in how they can assess and manage the pain experiences of their children at home.

Exemplar from practice

The following three exemplars are taken from my personal portfolio and reflect both the theory/practice gap, and that the knowledge and attitudes of nurses caring for paediatric patients needs to be explored further, as these exemplars highlight that little has changed in the last decade. Whilst the exemplars reflect my experiences of the last decade, when I think back on my memories of nursing throughout the 1970's and 1980's, I remember many occasions of less than acceptable pain management. During this time I did not keep a reflective journal or write exemplars, however with the development of nursing as a profession, nurses are now encouraged to write exemplars and keep journals of practice reflection (Conway, 1994; Cooney, 1999). Reflection and reflective practice is one method of examining practice and developing knowledge. This reflection allows nurses to examine, question and learn from both their experiences and also the experiences of those they are involved with. Reflection on practice encourages nurses to challenge themselves, the way they think, feel and respond, and also on how they and others do things (Schon, 1987). This is necessary for nurses to be able gain knowledge and use it in a flexible holistic way. Reflection also enables nurses to constantly look at improving and changing what they do (Burrows 1995).

Note; names have been fictionalised to protect identification

A) Exemplar from practice 1991

Mary had been in hospital 16 hours when I met her. She had broken her ankle while playing netball three days prior to admission, but she had only been admitted for surgery the day before.

The night staff reported that she had not required pain relief and was a rather quiet uncommunicative girl. They also said that she had slept very little [if at all]. I was not responsible for her primary care that day but I noted during the first part of the morning that she was pale and quiet, lying still with her eyes closed but opening them whenever any activity occurred near her.

I approached her nurse who said she had offered her pain relief but it had been refused as she (Mary) had stated "it's Okay" (referring to her ankle). Still not feeling happy I reviewed her chart, she'd had one dose of intramuscular (IM) pain relief after surgery and two oral doses of a simple analgesia. Observations recorded showed that the colour, warmth, movement and sensation of her foot were all normal. I decided to have a talk with her.

Mary was 14 years old and according to her notes was doing well at school. I spent some time talking to Mary about her surgery, both what had been done, and what

she should expect over the next few weeks. I also talked to Mary about pain and how her body managed pain. After a little gentle probing I discovered she had not enjoyed the intramuscular injection and greatly feared another. She stated she would "rather be in pain than have another injection." She also feared that if she admitted to pain we would give her an injection, even if she didn't want it! Therefore, she had been telling everyone she was okay.

With reassurance that we would not do anything to her that she had not consented to, I explained to her that we could get her pain relief medication changed so that it could be given via the tube in her arm, like the antibiotics that we were giving her. Mary was reluctant to give it a go but after some further explanation and reassurance, I managed to get her to at least try. After discussing it with her nurse for the day, I consulted the House Surgeon and was able to get her some intravenous morphine charted. This I checked with her nurse but elected to administer it myself, as I was the one who persuaded her to try it.

When reviewing her half an hour later, I observed that Mary was sleeping soundly looking much more relaxed, with a little colour in her cheeks. She only required two more doses of intravenous (IV) analgesia before oral medication controlled her pain. This she was able to request for herself.

B) Exemplar from practice 1996

Hand over this day was brief, James, a 12 year old had come into the emergency department (ED) the afternoon before following a fall at school and had fractured his ulna and radius. He had gone straight to theatre from ED, and had been transferred to the ward around eleven o'clock at night. The night staff handed over that he had not had any analgesia in ED or theatre, and that on return to the ward was somewhat uncooperative but quiet. After reviewing the notes, the night staff had given him some analgesia, which they reported had made him "a different kid". He had then slept for the rest of the night. Staff were concerned that his pain had not been managed well in ED or theatre.

Following hand over from the night staff, I reviewed his chart and then later in the day went to ED to find out their perspective of the story. When I spoke to the nurse involved, his response was that he had been offered analgesia and had declined, and that as he was 12, he felt he had the right to say no and that he would have said if he had pain.

James's triage record stated that he had an obvious deformity of his right forearm and that he was crying on arrival in ED at two-thirty. He was transferred to theatre at eight o'clock that evening after having x-rays and a Plaster of Paris (POP) back-slab applied. I attempted to suggest to the nurse in ED, that he may have denied pain for many reasons, and that pain was inevitable given the gross deformity of his arm. At this stage he became very defensive stating that, as he "deals with this type of thing all the time, I could be assured he knew what he was doing".

By the time I returned to the ward James had gone home, so I was unable to ask him how he felt about what happened in ED the night before. My experience and knowledge of pain, tell me that he would have had pain, and that the ED nurse

should have been aware of that and should have ensured that he had analgesia before x-rays or POP were commenced.

C) Exemplar from practice 2003

John was 11 months old. The day before I met him, he had undergone surgery for Ureteric Reflux. At hand over the nurse, caring for John said he had had a really good day and was managing well with minimal simple oral analgesia.

She said he had only been unsettled when he was moved but that he quickly resettled when left alone. After hand over, I went into John's room. John was awake lying on his back with his eyes open. John followed all activity with his eyes only, never moving, not even his head.

When I talked to John's mother, she said he had been like that most of the day. John's mother expressed a little concern about this, as he was normally a very active infant, full of smiles and noise. I immediately reviewed his medication chart and saw that, although he had a narcotic charted intravenously, he hadn't had any for eight hours. After telling John's mother what I was planning, I gave John some IV analgesia, and repeated it at regular intervals throughout my shift.

When I gave my report to the next shift, I was able to say that John was progressing very well. He was alert, smiling and talking to his mother, moving from side to side and playing with some of his toys. Although he did still cry, whenever someone strange went near him, as could be expected by his age.

While these three exemplars have been written to show that issues of pain assessment and management were something that I was concerned about more than a decade ago, on reflection, this has always been something that has bothered me. Over the years as a nurse I have been “guilty” of poor assessment and management of pain, and I continue to witness it, in both medical and nursing staff. It was this continual observation of poor assessment and management of post-operative pain that led me into further study of paediatric pain and the conduction of this research.

Structure of this thesis

Chapter 1 has provided an overview of where this research, from the researcher's perspective developed from, and what the aim of the research is. Pain, and other key words, in relation to this research have been defined. By using practice exemplars, related to paediatric pain, the lack of progress in paediatric pain management is demonstrated. Chapter 2 offers a brief overview of pain including how the understanding of pain has developed, the history of pain theory development, and the classifications of pain, to provide the reader with a

background to the understanding of pain. Following this, a brief review of the principles of paediatric pain assessment and pain management is presented. Some of the reasons for the mismanagement of pain in children, ethical considerations and the understanding of the theory/practice gap as related to paediatric pain management will also be discussed

After that, Chapter 3 reviews what we have already learnt, through research, about the knowledge and attitude nurses have in regard to paediatric pain assessment and management. This chapter explores the literature related to what is already known about post-operative pain and the attitudes and misbeliefs that have been identified in relation to paediatric pain. Nursing research utilising survey questionnaires, that informed this research study, are reviewed in this chapter. In Chapter 4 the research methodology used for this research is described, including the detailed processes undertaken in relation to this survey, encompassing the methodology, setting, sample and tool used in the survey. This chapter also details how the data was managed including the statistical analyses used. Cultural and ethical considerations identified as important to this thesis will be presented.

Following this, Chapter 5 presents the results of the survey, including the descriptive results and factors influencing nurses' management of pain, and includes the findings in relation to knowledge and attitudes. The relationship between these results and the demographic data is also presented. Next, Chapter 6 discusses the research process, the findings, and the results in relation to previous research, and the implications of the findings for paediatric nursing in New Zealand. Limitations of this research are presented and discussed in this chapter.

Finally, Chapter 7 reviews what has been presented throughout this study. The recommendations for further development of paediatric pain management knowledge, education and practice will be presented. I conclude by offering my understanding of the significance of this research, both for myself and in the context of New Zealand paediatric nurses and nursing education.

Chapter 2:- Understanding and managing children's pain

Introduction

Full understanding of pain, and the expression of pain throughout the child's development, is important when considering the assessment and management of post-operative pain in children. What's more, effective management of post-operative pain is reliant on the nurse being able to understand the complexity of pain, the sensory – body aspect, and the emotional – mind aspect. Effective pain management is also reliant on a multi-disciplinary approach, the involvement of all health professionals, not just the nursing perspective. However, exploring this was beyond the scope of this research. This thesis focuses on post-operative pain from the nursing perspective. As nurses are often the link between children and the rest of the multi-disciplinary team, to be effective they need a high degree of knowledge, understanding and the right attitude towards pain.

Knowledge related to pain is continuously expanding and developing. In this chapter I explore literature related to pain in general and offer a brief overview of pain. This includes providing a background to the understanding of pain as viewed from a western societal perspective, common classifications of pain, an overview of the history of pain theory development and the principles of pain management. The information presented is the kind of basic knowledge that should be used to inform the curricula of students undertaking nursing undergraduate programs. Therefore content provided in nursing programs, knowledge of the providers, and the knowledge of nurses in the clinical setting, also needs to be constantly growing and developing.

Background to the current understanding of pain

Pain is an old problem and a common symptom facing all humankind. Despite this history, until recently, there has been very little understanding of the concept. Any understanding that existed was from an adult perspective. Earliest human initially thought pain to be the result of evil spirits entering the body, as punishment for sins. Aristotle believed that pain was an emotion that grew in the head and as such was the opposite of pleasure (Francis & Munjas, 1975). Years ago the philosophers, Plato and Aristotle, understood the mind aspects of pain. However,

17th century French philosopher, Descartes, altered this view by proposing that mind and body were two separate entities. Therefore pain was either in the mind or in the body (Montes-Sandoval, 1999). Descartes proposed that although humans have a mind (or soul), the human body itself was a machine and therefore worked like a machine. Descartes also proposed that there was a direct relationship between the severity of the injury and the amount of pain felt (Melzack & Hall, 1996). The Descartes' concept of pain changed little until the 19th century when an increase in knowledge related to human anatomy and physiology began to change our understanding of pain.

Pain theories

Following Descartes' concept, the traditional theory of pain, as it was known, became identified as the *specificity theory*. The specificity theory proposes that pain is a specific sensation and that the intensity of pain is proportional to the extent of tissue damage. Müller (1842) contributed to the understanding of the sensory process when he recognised that the brain receives information about external objects by way of five sensory systems, seeing, taste, hearing, smell and touch. Von Frey (1894) expanded this and deduced that the skin was comprised of four types of sensory spots that responded to specific sensations. However, given that this was still focused on the relationship between physical sensation and experience of pain, this theory is not very different to what Descartes proposed centuries earlier (Melzack & Hall, 1996).

Various other theories followed this and are classified in the literature as *Pattern theories*. Goldscheider (1894) for example, was the first to propose that the intensity and frequency of the stimuli (known as pattern of the stimulation), and the brains interpretation of this, are the critical determinants of pain. All pattern theories developed from the premise that stimuli produced a pattern of impulses in neuron's, that are transmitted and interpreted as pain (Melzack & Hall, 1996). Whilst there have been a number of others who contributed to the understanding of pain it wasn't until 1965 when psychologists Melzack and Hall proposed their theory of "The Gate Control Theory of Pain", that the complexity of pain as a problem really begun to be understood (Melzack & Hall, 1996).

The Gate Control Theory of pain

The Gate Control Theory of Pain, a very complex theory, is one explanation of how the mind plays an essential role in pain perception. Melzack and Hall (1996) suggested in 1965 that a “gating system” in the central nervous system, opens and closes pain pathways. The gates can be opened to let pain proceed through the afferent and efferent pathways to and from the brain, or the gates can be closed to block these pain pathways. The gate control mechanism for opening and closing can be influenced by nerve impulses in the efferent pathways. Efferent nerve impulses are affected by an enormous variety of psychological factors known to influence the brain. Many external factors also impact on the interpretation of pain, such as emotions, or prior experience with pain and anxiety (Montes-Sandoval, 1999). This pain theory integrates the physiological, psychological, cognitive, and emotional components that regulate the perception of pain (Melzack & Hall, 2003).

On the basis of their beliefs about the different types of influences that can alter the perception of pain, Melzack and Hall (1996) postulated that a person could modulate his/her pain using external forces. Their ideas about the interpretative aspects of pain form the basis of the gate control theory. This theory explains why pain is diminished when the brain is experiencing a distracting sensation such as soothing music or the attention of a loved one (stroking or cuddling). In these circumstances, the perception of pain is decreased because the interpretation of pain is modulated by the distracting pleasant experience. It is this theory that governs current pain assessment and management in paediatric settings. However this is only part of the understanding required to effectively manage post-operative pain in children.

Developing an understanding of pain

Health professionals have for too long perceived pain as solely a symptom of underlying disease. The first major step forward in the improved understanding of pain and in the assessment of pain occurred in May 1972, when John Bonica invited 300 fellow clinicians and researchers together and formed the International Association for the Study of Pain (IASP) (Meldrum, 2003). The ISAP Subcommittee on Taxonomy, defined pain as "an unpleasant sensory and emotional

experience associated with actual or potential tissue damage, or described in terms of tissue damage" (Sofaer, 1992, p.15).

Shortly after this McCaffery, a well known pain authority, proposed another definition of pain. Her definition states that "Pain is what the experiencing person says it is, existing whenever and wherever he says it does" (McCaffery & Beebe, 1994, p.15). This definition stresses the subjective nature of pain and identifies the patient as the expert. Self reported pain in any age, must be respected, acknowledged and treated appropriately. This definition is reliant on the child verbalising their pain, and on the nurse understanding the way pain experience is verbalised by children. This raises special issues in paediatric nursing, as many children either can't or will not verbalise their pain experiences. These children are heavily dependent on adult carers, whether they are nurses, parents or caregivers, in the management of post-operative pain. Therefore where communication from or with children is limited, there is a risk that pain indicators may be discounted or ignored. In the post-operative care of children, because of a lack of ability or capacity for self report, distress may be ignored and pain poorly treated. In 2001 the IASP amended their original definition by adding, "the ability to communicate pain in no way negates the possibility that an individual is experiencing pain" (Reyes, 2003).

Pain in children should not be seen as either a biological event or a psychological phenomenon, nor can it be dissociated from the social context in which it occurs. According to Thompson and Vari (1986), as the symbolic meaning of pain is affected by the cognitive developmental level of the child, it must be considered when managing paediatric pain. In children, an understanding of the effects of cognitive appraisal, and emotions on pain perception is complicated by differences in cognitive competencies throughout childhood. Stages of growth and development influence the physiological, psychological and experimental components of pain (Eland & Anderson, 1977).

Classification of pain

Pain experienced by children has been classified into four main categories; acute, procedure related, cancer and chronic (Stark, 1998). It is interesting that this

classification is focused on physical dimensions and doesn't allow for pain caused by non-physical factors. However, it is beyond the scope of this thesis to explore the literature related to all of these. Post-operative pain fits into Stark's classification as acute and procedure related, and is the predominant cause of pain experienced by children, within the clinical settings that were surveyed for this research. Literature related to acute post-operative pain in relation to nurses' knowledge and attitude will be reviewed in more depth in Chapter 3.

Many children experience acute pain as consequence of admission to hospital. This is normally predictable, and occurs as result of surgery and procedures such as venous-puncture and insertion of intravenous cannula. Nevertheless, it is difficult to consider these causes of physical pain in isolation from the context in which it occurs. Pain that children experience as a result of surgery may originate from a combination of many causes. However, many children experience physical pain that should be anticipated and prevented by the nurses caring for them.

Psychological aspects of pain

Regardless of what class, or type of pain a child experiences, pain is a highly personal experience that is affected in part by the psychological factors that are unique to that individual. The gate control theory of pain emphasises the tremendous interplay of psychological and neuro-physiological variables in pain perception (Adams & Field, 2001; Field & Adams, 2001; Melzack & Hall, 1996). However, physiological and psychological components of pain are impossible to separate. And it must be remembered that this biomedical model of pain doesn't allow for the social context of paediatric pain assessment and management. Pain is always more than just a physical experience; it is multi-dimensional. Past experience, spiritual underpinnings, social structure and cultural background has an affect on the pain perception threshold and pain tolerance of an individual (Watt-Watson & Donovan, 1992).

Cultural aspects and expression of pain

Culture plays an enormous role in the assessment and management of pain. Theories of pain themselves can be culturally determined. Children requiring pain management will bring their own cultural perspective, as both their understanding

of, and response to pain may be culturally determined (Craig, Lilley, & Gilbert, 1996). Also nurses have their own cultural perspective of pain and this may be reflected in how they assess and manage pain. For some children and their families the verbal expression of pain is an acceptable cultural behaviour. Nurses must also be aware that for other children, silence may be more a common response, and from their cultural perspective a more acceptable form of behaviour (Adams & Field, 2001; Craig et al., 1996; Waddie, 1996).

Like the experience of pain, the expression of pain is also very individual. Pain can be expressed in behaviour, body language, verbal and nonverbal expressions, and as a physiological response, all of which vary for each individual child. Language is defined by Waddie (1995), as “part of the cultural expression of individuals” and that “culture is transmitted through language” (p. 868). As the words children and parents use for identifying pain vary, it is vital that nurses caring for children understand the importance of clarifying with both the child and the parent, what words are used in their individual context.

Paediatric pain assessment

Having established that paediatric nurses must first understand what pain means, before they can manage post-operative pain in children, it is important to explore the next step in pain management, that of pain assessment. Accurate pain assessment is fundamental in the management of every patient’s pain. Therefore, resolving issues of poorly managed paediatric post-operative pain requires accurate pain assessment. This may be with or without the child's co-operation as shown in the practice exemplars in Chapter 1. Literature related to pain assessment is extensive and multifaceted. A great deal of the literature reviewed suggests a failure of nurses to adequately manage pain, has been as a result of inaccurate pain assessment (Fuller, Neu, & Smith, 1999; Hammers, Abu-Saad, Halfens, & Schumacher, 1994; Hammers et al., 1998; Jacob & Puntillo, 1999b; Watt-Watson, 1987). Research into paediatric pain assessment has usually been divided into preverbal infants and children, and verbal children and adolescents, and also divided into acute and chronic pain.

Paediatric pain assessment has been studied extensively from the nursing perspective and results indicate that many factors affect pain assessment, and that nurses are greatly influenced by attitudes and misbeliefs. This will be explored in more detail in Chapter 3. However, much of the research documented has occurred within large paediatric hospitals with qualified paediatric nurses, nursing students, or in the Northern Hemisphere. More research needs to be done in New Zealand to determine if the findings from larger or specialist paediatric hospitals is true in the Southern Hemisphere and for smaller paediatric units within small general hospitals.

Literature reviewed for this chapter highlights the need for pain assessment to be regular and for all nurses to be using validated, age appropriate assessment tools (Collins, 1999). Furthermore, for assessment of pain to be accurate and effective tools should be quick and easy to administer. Accurate pain assessment also requires consideration of children's developmental level, type of pain experienced, history and context of pain, family influences, and interaction with the health care team (Frank, Greenberg, & Stevens, 2000). In addition, children and their families need to be empowered, through education, to participate in their own pain management. Fuller et al. (1999) undertook a study of paediatric nurses' pain assessment practices, with infants under one year. From their results they contended that using the right contextual knowledge, with the correct tool, allows even the most junior inexperienced nurse to accurately assess post-operative pain.

Assessment tools

Research into infant and children's pain assessment tools, has also been extensive. Whilst some of the research has been done with children themselves (Van Cleve & Savedra, 1993), most of the literature reviewed was related to pain assessment from the nurses' perspective and researched what influences a nurse's ability to assess pain (Fuller et al., 1999; Hammers et al., 1994; Jacob & Puntillo, 1999a; Reyes, 2003). Collins (1999) concluded in her review of pain management practices that pain should be assessed and documented at regular intervals using validated tools. Over the last three decades a number of pain scale assessment tools, using vocabulary or pictures appropriate for verbal children have been developed. The Wong – Baker FACES scale, the Oucher scale, the Visual Analogue scale, the

Eland Colour Scale are just four examples of tools that have been developed (McCaffery & Beebe, 1994).

There have also been a number of infant pain scales developed that use infant behaviour as indicators of pain; these are considered appropriate for the preverbal child as well as infants (Fuller et al., 1999). The behaviour categories that are consistently used include facial expression, body movement/posture, consolability, sleep and crying/vocalisation. No single category has been found to be reliable on its own. Unfortunately vocal and verbal expressions of pain, especially crying, seem to influence nurses more than non-verbal expressions (Bennett, 2001; Carr & Mann, 2000; Hammers et al., 1994; Hester & Barcus, 1986).

Prioritising pain assessment

Literature indicates that nurses must prioritise paediatric post-operative pain assessment as an important aspect in their care of children. One study, that reviewed the pain management practices in a neonatal intensive care unit in upstate New York, indicated that the lack of a standardised approach to pain contributed to the inadequacy of paediatric post-operative pain management (Furdon, Pfeil, & Snow, 1998). While this study was undertaken in a neonatal intensive care unit, I believe the lack of a standardised approach in any area would have the same result. A first step when prioritising pain assessment is to standardise pain assessment tools and develop organisational policies and standards of care related to pain assessment and management (Collins, 1999).

Protocols and guidelines for pain assessment and management

Lack of any clear protocols has the potential to result in erratic assessment, under prescription and under-medication of pain, and this can also lead to inconsistent approaches to pain management. It could be argued that policies and protocols can result in pain management being too structured and not individualised, however clear guidelines do provide nurses with a basis to practice, and to advocate for their patients from. Consequently, in many countries clinical practice guidelines and standards for pain management have been published and are readily available from government agencies and professional health care specialty organisations (AAP,

2001; Manworren, 2001). These guidelines, along with pharmaceutical information, should make it easy for nurses to make informed, clinical decisions related to pain management.

Despite all the information currently available to paediatric nurses, contemporary studies indicate that current guidelines and standards have not been applied consistently, in the care of children (Hammers et al., 1994; Hammers et al., 1998; Jacob & Puntillo, 1999b). Hammers et al. (1994) suggested that nurse educators should pay more attention to pain assessment and ways of responding to the results of pain assessment, both in the academic and clinical setting. Highlighting with undergraduate students, the clinical practice guidelines and standards for pain management that have been published, would be an effective start in ensuring guidelines are developed, and standards applied consistently, in the care of children in the clinical setting.

Ethical considerations in pain management

One of the basic principles of ethical practice is to “do no harm”. When children are experiencing pain, to do nothing does not avoid harm. The fear of doing harm, such as by giving an intramuscular injection or withholding narcotics because of the fear of side effects, does not avoid harm, as unrelieved pain can result in short and long term consequences. Children often cannot speak for themselves. Therefore it is an ethical responsibility that the nurse providing their care has the knowledge and skills to speak for them, and to ensure that pain prevention, not just control, is the aim of their care. Advocating is an important part of ethical knowing. In order for nurses to be able to effectively advocate for suitable pain management for the children in their care, they require adequate pain assessment and management knowledge, and require the right attitude towards pain assessment and management.

The decisions nurses make in pain assessment and pain management may be as a result of a moral or values judgment. Therefore an awareness of personal values and beliefs, and the ability to openly share any concerns with colleagues helps a nurse to practice pain assessment and pain management in a more ethical manner (Copp, 1993). Both the child and the family normally believe and trust that the

nurse has the knowledge, and skills to appropriately assess and manage the pain experience of the child. Effective care cannot be achieved while the nurse has a knowledge deficit or attitudinal barriers (Copp, 1993; Kachoyeanos & Zollo, 1995).

Reasons for the mismanagement of pain in children

Historically, there has been a poor understanding of children's pain experience, and the consequences of unrelieved pain. This is reflected in how children have been treated. For example, performing invasive procedures such as infant circumcision without any anaesthesia or analgesia (Mitchell & Boss, 2002). And in how pain has been managed, for example the limited use of narcotics for post-operative pain (Beyer et al., 1983; Burokas, 1985; Elander et al., 1993; Mather & Mackie, 1983; Schechter, 1989; Simons & Robertson, 2002). While it is evident that knowledge related to the anatomy and physiology of pain has substantially improved in the last century, it is not so evident that pain management practices have matched this. There are three main themes for the mismanagement of pain, that repeatedly appear in literature. They are, firstly the attitudes and misbeliefs of the doctors, nurses, children and their families, secondly that of time and workload of nurses, and thirdly that of the lack of knowledge and education of nurses, medical staff, children and their families. Chapter 3 will explore the literature related to these issues in more depth.

Another important aspect in the mismanagement of post-operative pain in the New Zealand context is the lack of any agreed national standards of pain management. Advocacy groups, such as the New Zealand Pain Society, support the development of national standards, but currently it is left up to each District Health Board (DHB) to develop their own. In one of the DHB's where this research was undertaken, there has been some development of pain protocols and policies. However these primarily focus on adult needs. Pain related study days in this DHB have also focused on pain from the adult perspective, and while this knowledge is worthwhile and valuable to adult nurses, it does little to inform pain management from a paediatric perspective. One paediatric area that is usually well covered by protocols and policies is that relating to narcotic administration. However, as the prescribing of narcotics is reliant on junior medical staff, often with insufficient

paediatric knowledge and experience, children frequently have minimal doses prescribed.

Post-operative paediatric pain cannot be managed by one discipline alone; a collaborative team model approach to pain management must be used (Carr & Mann, 2000; Haigh, 2001). Most nurses in New Zealand do not have prescribing rights and are therefore not responsible for the prescribing of analgesics. However they are pivotal members of the pain management team and have a key role in assessing pain, advocating for adequate analgesia, administering analgesia and assessing the effectiveness of analgesia. To achieve this, knowledge needs to be extensive and developed in a continuing and expanding manner.

Theory / practice gap

Many nurses practicing today are concerned with the apparent gap between theory/research and practice (Backhouse & Brown, 2000; Conway, 1994; Harriss, 2004). Research into nursing practice and the application of research findings into clinical practice is important if this perceived gap is to be decreased, or ultimately removed (Landers, 2000; Upton, 1999). The ability to access, evaluate, and interpret findings from research, especially nursing research, is a skill all nurses need to develop. It provides a source of power in clinical decision-making, and also provides a strategy for both achieving excellence in practice and in formulating the future direction of nursing practice. This is especially so in many clinical practice situations, for without nursing research it is hard to argue for a change in practice, in what is often a medically, therefore a scientifically orientated environment. Therefore research should link theory, education and practice.

The goal of any research in nursing is to confirm and expand the present body of nursing knowledge, which in turn contributes to improved health care (Chater, 1975). The approach chosen by a researcher, when undertaking research, determines how data is collected, analysed and interpreted. It also determines how that research may be used in clinical practice. As the Clinical Nurse Leader in one of the areas surveyed, findings from this research will help to inform any development of pain inservice education and practice standards. Whilst I have no

influence in the other areas, findings of the research and any inservice plans will be shared with the other areas surveyed.

Conclusion

Nurses spend the most time with children, and their families, of all the health professionals involved. Therefore nurses must be the foundation on which good multi-disciplinary pain management occurs. This chapter has highlighted that there is an abundance of knowledge available to nurses related to pain, pain assessment and pain management in children. The basic principles of pain management determine that pain should be assessed regularly, using appropriated methods and tools, acknowledging that the person experiencing pain is the best person to report his/her pain, even if they are a child. Nurses responsible for medicating children experiencing post-operative pain, also have a responsibility to ensure that they have the knowledge required to use the various medications and routes of administration that are recommended for post-operative pain, and that this knowledge is regularly updated. It is only by reviewing contemporary literature, undertaking and taking part in research, and sharing the results and implications for practice, that the perceived theory/practice gaps are decreased or removed.

Chapter 3:- Pain knowledge and the attitudes of nurses

Introduction

The focus of this thesis is nurses' knowledge and attitude towards paediatric post-operative pain, how nurses gained their knowledge and what prevents them putting their knowledge into practice. As noted in Chapter 2, pain perception and pain behaviour is not solely a reflection of tissue damage. It is a very personal, and variable subjective experience that is influenced by cultural learning, past experience, anxiety, fear, degree of understanding and many other cognitive and physiological variables (Adams & Field, 2001; Carr & Mann, 2000; Craig et al., 1996; Waddie, 1996; Watt-Watson & Donavan, 1992). The same can also be said for how nurses assess and manage pain.

While over the years there have been many studies carried out related to adult pain and the management of this by health professionals (Brown, Bowman, & Eason, 1999; Carr & Mann, 2000; Lavis, Hart, Rounsefell, & Runciman, 1992; Weisberg, 1984). It has only been over the last 25 years that the amount of research related to pain management, in infants and children, has increased (Burokas, 1985; Elander et al., 1993; Ely, 2001; Hammers et al., 1998; Jacob & Puntillo, 1999b; McCaffery & Beebe, 1994; Price, 1990; Scott, 1992). Whilst nurses have been leaders in the development of this research (Eland, 1990), it remains uncertain, to those interested in the issues of pain management, how much of this knowledge is carried through into the education of the nurse, or into nurses' clinical practice. This is of particular interest in the New Zealand context where much of the research does not originate.

This chapter reviews what is already known, through research, about the knowledge and attitudes that nurses have, in regard to paediatric pain assessment and management, especially in regard to post-operative pain. Both international and New Zealand literature related to pain knowledge and management will be explored. Literature related to survey research into knowledge and attitudes of nurses towards pain and pain management will also be presented.

Post-operative pain management in children

Nurses need to understand pain, be able to assess and manage pain, to improve the experiences and outcomes of the children in their care. Literature reviewed for this thesis suggests that for too long, too many children have suffered unnecessary pain post-operatively, because of the poor understanding of pain and its management, by medical and nursing professionals (Bennett, 2001; Beyer et al., 1983; Burokas, 1985; Collins, 1999; Coyne et al., 1999; Craig et al., 1996; Eland, 1990; Elander et al., 1993; Ely, 2001; Hammers et al., 1998; Jacob & Puntillo, 1999b; Lavis et al., 1992; Mather & Mackie, 1983; Price, 1990; Simons & Robertson, 2002). Unrelieved or poorly managed post-operative pain delays healing, alters immune function and increases the levels of stress and anxiety of the child and their family, resulting in increased length of stay, higher readmission rates, and more frequent outpatient visits. It can also have profound long lasting consequences, and may increase emotional and behavioural responses during future painful events.

Inconsistent approaches to the management of post-operative pain in hospitalised children has been attributed to a lack of knowledge, specifically that of the concept of pain, the ability to assess pain accurately, and the use of pharmacological and non-pharmacological interventions (Carr & Mann, 2000; Coyne et al., 1999). Many studies into the management of paediatric post-operative pain have occurred (Bennett, 2001; Burokas, 1985; Carr & Mann, 2000; Eland & Anderson, 1977; Elander et al., 1993; Ely, 2001; Frank et al., 2000; Hammers et al., 1998; Jacob & Puntillo, 1999b; Mather & Mackie, 1983; Salantera, 1999; Simons & Robertson, 2002). Most of these are retrospective studies, using questionnaires or individual and group interviews, and all support the belief that children receive insufficient pain relieving medication when compared with adults in similar circumstances. Furthermore, the findings in the more recent studies reflect similar issues to those that were reported more than two decades ago (Beyer et al., 1983; Burokas, 1985; Hester & Barcus, 1986; Schechter, 1989).

Key issues relating to the post-operative management of pain in children that repeatedly appear in literature are those of the attitudes and misbeliefs of the doctors, nurses, children and their families; time and workload of nurses; and the lack of relevant knowledge and education of nurses, medical staff, children and

their families. This lack of knowledge and education appears to be intrinsic in the inadequate assessment and management of post-operative paediatric pain.

Attitudes and misbeliefs related to children and pain

Attitudes and misbeliefs held by nurses have been identified by many researchers as contributing to how well nurses are able to achieve effective pain assessment and pain management (Adams & Field, 2001; Brown et al., 1999; Burokas, 1985; Carr & Mann, 2000; Chapman, Ganendran, Scott, & Basford, 1987; Clarke et al., 1996; Eland & Anderson, 1977; Heath, 1998; Lavis et al., 1992; Lebovits et al., 1997; Manworren, 2000, 2001; McInerney, Goodenough, Jastrzab, & Kerr, 2003; Miller, 1994; Salantera, 1999; Schechter, 1989; Sofaer, 1992; Wessman & McDonald, 1999). Furthermore, in a survey of paediatric critical care nurses, attitude was identified as a key influence in the management of pain (Pederson & Bjerke, 1999). Poor attitudes about pain and pain management are often based on misbeliefs.

Misbeliefs related to narcotic use and administration

Many of the poor attitudes and misbeliefs identified, relate particularly to the use of narcotics and the fear of subsequent respiratory depression or addiction (Bishop-Kurylo, 2002; Burokas, 1985; Eland, 1990; Miller, 1994). Because of potential side effects, research has revealed that many nurses believe children should not be given opioid analgesia for pain. A consequence of this belief is a reluctance to administer narcotic analgesia to children, resulting in poorly managed pain experiences for children. Research has also identified that many nurses and other health professionals feel that children are at greater risk of complications and addiction. However, all drugs have side effects. Respiratory depression, the most likely adverse effect of a narcotic, and the side effect that causes the most concern, is quickly reversible should it occur. Studies show that children and infants, when given appropriate dosages of narcotics, have no greater risk of respiratory depression than adults (Atkinson, 1996; Carter, 1998; Eland, 1990). Side effects of other commonly given drugs, for example penicillin, can be potentially more lethal. It is important for nurses to remember that 15 out of every 1000 people who take penicillin will develop true anaphylaxis, yet it is prescribe and administered intravenously, more freely than narcotic analgesia (Atkinson, 1996).

Misbeliefs about the pain experience

Nurses also have misbeliefs about the pain experience that affects their management of pain. Lavis et al. (1992) identified that many nurses, parents and patients themselves, believe that patients should expect pain as a result of being in hospital, and that some of those complaining of pain should actually learn to deal with it better. While this study was with adult patients, much of what is recorded can be transposed into the paediatric setting. A belief that everyone should respond to pain in the same way is both erroneous and unfair. This is particularly relevant when considering paediatric pain, as different stages of cognitive development affect a child's response to and management of pain. Watt-Watson and Donovan (1992) identified that people do have varying ways of responding to, reporting and dealing with pain, and that it is incorrect to expect that patients will use the term pain when reporting it. There is also the misbelief that children cannot accurately verbalise their pain. Literature indicates that while it is true that children may not be able to accurately verbalise pain at times, that doesn't mean they don't feel it. This failure to verbalise pain may be related to their fear of additional pain, as from intramuscular injections (Eland & Anderson, 1977), or they may not want to be labelled as weak (Schechter, 1989).

Many health professional seem to be afraid that some people will state they have pain in order to get medication, when in actual fact malingerers comprise of only 1%-2% of the population (Watt-Watson & Donovan, 1992). Patients who ask for pain relief or 'clock watch' are often the ones to be viewed with suspicion. Indeed, although nurses cannot feel what patients feel, it is not uncommon to overhear staff making comments that indicate that they disbelieve what patients say. Therefore it is imperative that when assessing a child's pain the nurse should firstly believe a child's self report of pain. However, it must be remembered that children can under report pain as shown in Exemplar A, or be unable to verbally report pain as in Exemplar C. Therefore self report along with parental observations, clinical assessment and pathology and or surgery should all be part of the nurses' assessment of pain.

Other misbeliefs about pain are that chronic pain is not as serious as acute pain, and that patients are not the experts about their pain, health professionals are. Children with prolonged or gradually increasing pain may not be able to identify that pain is

what they are experiencing (McCaffery & Beebe, 1994). The misbelief that obvious pathology, and or type of surgery, is what determines the existence and intensity of pain is incorrect. In a study by Hammer et al. (1994), results showed that nurses are greatly influenced by the medical diagnosis; and that children perceived to have a less severe diagnosis, were less likely to be medicated when complaining of pain, than those who had a more severe or serious diagnosis.

One of the most widely held misbeliefs is that infants and children do not feel pain, or if they do it is not like adult pain and it is quickly forgotten (Burokas, 1985; Mather & Mackie, 1983; McCaffery & Beebe, 1994). Some believe that infants do not feel pain because of an immature nervous system in which the nerves are not completely myelinated. However, it is now known that myelination progresses rapidly after birth, and that it is not necessary for this to be complete for pain transmission to occur (Burokas, 1985; Carr & Mann, 2000; Elander et al., 1993; Frank et al., 2000; Mitchell & Boss, 2002). It is now known that by the 30th week of gestation infants have a nerve structure that is quite capable of responding and therefore 'remembering' pain (Reyes, 2003, p. 292).

It is documented that some health professionals believe that children forget painful experiences and are able to tolerate pain better than adults (Burokas, 1985; Craig et al., 1996). Nurses need to be aware that while children are able to use certain coping strategies, such as sleep, distraction, and play and other physical activities, better than adults, generally an adults' overall ability to cope with pain is much greater than children's. Adults also have more control over individual pain situations. It is therefore incorrect to believe that children who are sleeping or playing do not feel pain. Hester and Barcus (1986) reported that children may sleep as a means of coping with pain not because they are pain free. Children possibly appear to tolerate pain better simply because they cannot or do not pursue pain relief as well as adults. Most older children assume that the nurse taking care of them will know when they hurt and what they need (McCaffery & Beebe, 1994).

Social and cultural misbeliefs

Chapter 2 drew attention to cultural and social aspects of the experience of pain, however, social learning and cultural beliefs of the nurse, also affect how nurses

perceive pain, and undertake pain assessment and management (Adams & Field, 2001). The cultural values and beliefs, of the larger society to which nurses belong, generally provide the moral guidelines used by individuals to measure themselves and others. This is often reflected in how nurses perceive the use of narcotics. These have frequently viewed with suspicion, over caution and are commonly used as the last resort (Adams & Field, 2001; Craig et al., 1996; Heath, 1998; Waddie, 1996). It has been reported that a nurse's own personal experience of pain or their own children's pain experiences can affect how they perceive pain in others (Wessman & McDonald, 1999). However research undertaken by Burokas (1985), reported that nurses' own experience with severe pain did not significantly influence their pain management practice, although, having offspring who had experienced severe pain did.

Time and workload

The institutional environment that nurses work in is changing. Issues of time and workload repeatedly appear in literature (Ely, 2001). Hospitals are busier, with higher acuity patients, limited resources, funding cuts and lower staffing levels. There are also an increasing number of nurses working part-time. Coyne et al. (1999) used a non-experimental, descriptive-comparative approach to look at the different levels of knowledge related to pain assessment, pharmacological and non-pharmacological strategies between medical and surgical nurses from three hospital in Mississippi, and found that there were significant knowledge differences in their sample groups. They concluded that further research was needed to explain why this was so and also that further research was needed to identify the impact of part-time versus full-time employment, on nurses' management of children in pain.

The combination of inexperience and part-time work also has the potential to decrease effective management of post-operative pain in infants and children. In a survey of 134 paediatric nurses, Burokas (1985) determined that experience and the type of unit nurses work within, also affect how paediatric pain is managed. While much of the research reviewed for this paper was from surveys of paediatric nurses working in larger paediatric hospitals, staff shortages, part-time employment and the amount of experience a nurse has, are also a reality in the small paediatric wards scattered throughout New Zealand's regional secondary service hospitals.

Lack of knowledge and education

As effective pain management is viewed as a patient's right, nurses need a background of appropriate education and sufficient resources to administer effective pain management. (Leek et al., 1995, p. 1)

According to the literature reviewed, attitudes and misbeliefs about post-operative pain and its management often occur as a result of lack of knowledge. Several authors hypothesise that schools of nursing have not adequately educated nurses to enable them to effectively assess, critically analyse and manage pain (Chui, Trinca, Lim, & Tuazon, 2003; Manias & Bullock, 2002; Zalon, 1995). Nurses' knowledge relating to pain management issues, and their ability to incorporate pain management theory into practice, is dependent on the education they receive, in both the academic and clinical setting (Carr & Mann, 2000; Zalon, 1995).

Lavis et al. (1992) conducted a questionnaire survey of adult patients, doctors and nurses, in an attempt to identify beliefs and attitudes to post-operative pain. Their study conclusion was that education was clearly needed for all groups involved in pain management. Ideally this should begin for doctors and nurses at the undergraduate level, while patients' education should begin at first presentation to a health professional. Whilst this was a survey of nurses in an adult area, other literature reviewed would support the assumption that these findings would be the same in the paediatric setting (Craig et al., 1996; Hammers et al., 1994; Jacob & Puntillo, 1999b; Manworren, 2000).

Following their review of current research and professional literature Craig et al. (1996) proposed that all health care professionals required further education, not only in ways of treating pain, but also in the understanding of the nature of pain and the social context of pain. Manworren (2000) in a survey of paediatric nurses' noted that nurses with masters' degrees and those that worked in specialised areas like intensive care units and haematology/oncology wards consistently ranked higher, than other nursing units, in areas of pain assessment, drug interactions, and effectiveness of dosing. This would appear to support the theory that post graduate education and increased knowledge improves paediatric pain management practices.

There have been considerable advancements in nursing knowledge related to the management of pain in the last couple of decades (Carr & Mann, 2000; Manworren, 2000). This has in part, been attributed to improved educational programs provided over the past 15 years (Moore, 2001). Personal attitudes or misbeliefs are major contributing factors in the effective management of paediatric pain. However, it is unclear what emphasis is put on this in the undergraduate education of all nurses, or in any ongoing education of nurses. The majority of the literature reviewed for this research originates outside New Zealand, but raises questions in my mind regarding the content of pain pharmacology, pain assessment and pain management in the New Zealand nursing curricula and is an area worthy of further research. Ongoing education and professional development of practicing nurses, and other health professionals, involved in the management of paediatric pain is important and therefore education should not stop in the academic setting but must continue into the clinical areas (Coyne et al., 1999). Accordingly, education programs must not only focus on nurses' role in pain control, but also on educating all health professionals in facilitating a work culture with other disciplines to achieve a pain-free goal of care (Carr & Mann, 2000; Moore, 2001).

It is the responsibility of all paediatric nurses to educate themselves and their peers with regard to pain assessment and pain management. The current literature would suggest that many nurses when compared to physicians, were more knowledgeable on the subject of pain assessment and management of pain, but they understand less about other aspects of pain, for example pharmacology (Chui et al., 2003; Coyne et al., 1999; Furstenberg et al., 1998; Manias & Bullock, 2002). In the New Zealand context there is no undergraduate education specific to child health nurses. The lack of such specific educational programs, possibly impacts on the extent of paediatric pain pharmacology, assessment and management content that there is within the current nursing curriculum. This also impacts on how much of this knowledge is held by registered nurses undertaking clinical practice in the paediatric setting for the first time.

When beginning to practice for the first time nurses are guided by competencies as set out by their governing body, and the policies and protocols of the organisation and area that they work in. However, nursing practice should be viewed as a continuum, ranging from basic nursing practice to advanced nursing practice. The

basic educational preparation of nurses provides a foundation for nurses beginning to practice. Coyne et al. (1999) agreed and also noted that the understanding of pain and pain management needed to begin within the academic setting. All health care provider curricula should reflect a commitment to educate students in pain and the individual experience of pain. Similarly, Kerfoot (2002) talks about a model of nursing practice called the Synergy Model of Nursing Practice, in which she argues that if the competencies of the nurse, matches the needs of the patient, synergy occurs and outcomes are better. When you consider this in the context of pain management, if the nurse's knowledge, of pain assessment and management, matches the needs of the patient, there is a far greater chance of effective pain management practice occurring.

Paediatric nursing is a specialised area of nursing care and in the New Zealand context, nurses wishing to progress along the continuum of clinical practice to the point of offering advanced or specialised nursing care, require additional education, experience, and development of the required specialised skills (Higgins, 1997). Witts (1992) believed that nursing education does not adequately prepare nurses for this advanced role, and that research into paediatric pain management supports this view (Woodrow, 1997). Despite the increased knowledge and awareness of pain management practices, under-treatment of infants and children continues to be a problem. It appears that implementing pain management education programs within the hospital setting is possible and has been shown to successfully increase nurses' knowledge about pain and pain management (Czurylo, Gattuso, Epsom, Ryan, & Stark, 1999; de Rond, de Witt, & van Dam, 2001; Morton & Tarvin, 2001; Wacker & Pawasauakas, 2002). Successful implementation requires a committed, collaborative approach from the multi-disciplinary team, including the children themselves (Carr & Mann, 2000). Furthermore it has been clearly shown that nurses' knowledge and attitudes about pain, as well as how to assess and manage pain, improves as a result of education programs. One program that appears to have met some success is "The Pain Game", designed as a fun way for nurses to share and increase their knowledge about pain assessment, pain management and current policies. Used over a 12 month period this was found to have increased nurses' knowledge and the participants found it an engaging alternative to lectures (Morton & Tarvin, 2001). Clearly education is vital and undoubtedly required to improve clinical practice, but education alone will not improve the management of

post-operative paediatric pain. Most nurses today are more aware of the issues around pain management than they were a decade ago (Carr & Mann, 2000; Collins, 1999).

Research within New Zealand

The limited nursing research carried out in New Zealand has involved nursing students and nurses practicing in tertiary hospitals. The research has been similar to international studies, and has utilised questionnaire survey (Barton, 2001; Murphy, 1998) and focus interviews (Strochnetter, 2000). However, none of this research has focused on Paediatric nursing or nursing in small paediatric units in regional New Zealand.

Using the Nurses' Knowledge and Attitude Survey (NKAS) regarding pain developed by Ferrell and McCaffery in 1987, Murphy (1998) conducted a survey of 240 pre-registered nursing students immediately prior to registration from five polytechnics in the North Island. Her aim was to identify if nursing students, immediately prior to registration, have appropriate knowledge and attitudes for effective pain management practices. She concluded that the results of her study confirmed what she knew and that her results reflected similar issues to those from other international studies. Namely, that these student nurses had a positive understanding of assessment questions and identified that the patient was the expert of their own pain. However when they were presented with a vignette type question results were less positive. The main area of knowledge and attitude deficit, identified by Murphy, focused around pharmaceutical and non-pharmaceutical management of pain.

Also using a survey approach and utilising a 61 item questionnaire previously used by Van Niekerk and Martin (2001), Barton (2001) surveyed 600 nurses and midwives working in a variety of areas in two tertiary level hospitals. Twenty of the items were from an existing tool developed by Ferrell and Leek in 1987, and Barton herself added three items related to the impact of an acute pain service. Results from her study reflected issues that have been found in other studies undertaken overseas. She concluded that although the studies undertaken by herself, Murphy (1998) and Strochnetter (2000) were not similar, all identified that

the knowledge of pain management in nurses working in New Zealand was not as it should be. Like Murphy and Strochnetter, she felt nursing education curricula needed to review the pain component of their programs.

Alternatively, Strochnetter (2000) used a different approach to Murphy (1998) and Barton (2001), she undertook a study using focus group interviews, working with a group of nurses who had proficient knowledge of pain management, to uncover the contextual influences on nurses' pain management practice within institutions. She concluded that nurses must lead the way to improve pain management and that education was the key. Strochnetter also concluded that there was an urgent need to evaluate the pain component of nursing curricula in New Zealand and that further research on pain education, of both under graduate and post graduate nurses, needs to be undertaken.

Pain knowledge and attitude surveys

Survey research into the knowledge and attitudes of nurses, towards pain and pain management, has been appearing in literature for a number of years (Barton, 2001; Brown et al., 1999; Chapman et al., 1987; Chui et al., 2003; Clarke et al., 1996; Ferrell, McGuire, & Donovan, 1993; Furstenberg et al., 1998; Heath, 1998; Kubecka, Simon, & Boettcher, 1996; Lavis et al., 1992; Lebovits et al., 1997; Murphy, 1998; Scott, 1992; Van Niekerk & Martin, 2001; Watt-Watson et al., 2001). However research articles specifically related to knowledge and attitudes of nurses towards paediatric pain have not been as abundant and those detailing survey result are few in number, only appearing over the last decade (Jacob & Puntillo, 1999b; Manworren, 2000; Margolius, Hudson, & Michel, 1995; McInerney et al., 2003; Salantera, 1999). Many of these have utilised survey tools or adaptations of tools developed by McCaffery and/or Ferrell (Brown et al., 1999; Clarke et al., 1996; Hamilton & Edgar, 1992; Heath, 1998; Manworren, 2000, 2001; Van Niekerk & Martin, 2001). Most utilise questionnaires consisting of a set number of closed questions (Brown et al., 1999; Heath, 1998). Surveys utilising closed questions require establishing what an acceptable percent correct score will be, Brown et al. (1999) determined that current practice standards meant that an 80% correct score was acceptable.

Most international surveys into nurses' knowledge and attitude towards post-operative pain are undertaken in large teaching or university hospitals (Clarke et al., 1996; Hamilton & Edgar, 1992) or in multiple settings (Van Niekerk & Martin, 2001). While many of these surveys do not identify if any of their respondents work in a paediatric setting (Clarke et al., 1996; Hamilton & Edgar, 1992; Heath, 1998), those that do, report only small numbers 6.9% (Brown et al., 1999) and 5.9% (Van Niekerk & Martin, 2001). Questionnaires are reported to be distributed either by identified people (Hamilton & Edgar, 1992), or posted out to the identified sample (Van Niekerk & Martin, 2001). Return rates and overall size of the surveys ranged from 26% (n=260) (Brown et al., 1999) to 54.7% (n=318) (Hamilton & Edgar, 1992). However one survey of nurses' knowledge of pain management undertaken closer to New Zealand was the survey of Tasmanian nurses by Van Niekerk and Martin (2000). By adapting the Pain Management Nurses' Knowledge and Attitude survey instrument first developed by Ferrell and Leek in 1987 and revised in 1993, Van Niekerk and Martin surveyed 2710 Tasmanian nurses, receiving a 38% (n=1015) return rate.

The most common finding reported was that of a poor understanding of pharmacology (Brown et al., 1999; Clarke et al., 1996; Hamilton & Edgar, 1992; Heath, 1998; Van Niekerk & Martin, 2001). Specifically in areas of opioid use and opioid addiction (Hamilton & Edgar, 1992; Heath, 1998), equianalgesic dosing (Hamilton & Edgar, 1992), and the difference between acute, chronic and cancer pain management (Clarke et al., 1996; Hamilton & Edgar, 1992). Hamilton and Edgar's survey indicated that educators have probably not provided enough factual information, such as equianalgesic dosing, to students, and proposed that by correcting this information, pain management practices may improve. Involvement in nursing patients with primary diagnosis of cancer was identified as affecting nurses' knowledge in this area (Clarke et al., 1996). This led these authors to conclude that when the primary focus of pain management is not with cancer pain, future modification of the tool, in relation to cancer related questions, would be worthwhile.

Changes in the approach to pain education, within the nursing profession, at the educational, institutional, ward and personal level were identified as areas that required attention (Brown et al., 1999; Heath, 1998). Van Niekerk and Martin

(2000) found that the nurses they surveyed considered the pain education they received had only moderately equipped them with enough knowledge to manage pain effectively. It has also been found that knowledge did not appear to improve with years of experience (Hamilton & Edgar, 1992). Brown et al. found that despite an abundance of improved knowledge available and increased interest in pain management, pain is still an enormously under treated symptom. However, they suggest that education alone is not enough, and that health care settings need to be committed to providing effective pain management as an institutional goal. Further research is needed to establish more effective methods of conveying up to date pain management to nurses in the workplace (Van Niekerk & Martin, 2001).

Knowledge and attitude survey research specific to paediatric nursing

Knowledge and attitude surveys specifically related to paediatric nurses are not as abundant in literature. Most of this research has been undertaken in the northern hemisphere, and in large hospitals (Jacob & Puntillo, 1999b; Manworren, 2000; McInerney et al., 2003), or multiple university hospitals (Salantera, 1999). In these surveys participants who met the research criteria were obtained in a variety of ways. Either from volunteers (McInerney et al., 2003), from lists of all staff, provided by human resource departments, and distributed by identified volunteers (Jacob & Puntillo, 1999a; Manworren, 2000), or mailed to the head nurse for distribution to all staff, at work, at a predetermined time (Salantera, 1999). Response rates and size ranged from 35.7% (n=247) (Manworren, 2000) to 87% (n=269) (Salantera, 1999).

The tool used in each research project varied from being one developed specifically for the research, but based and designed around literature reviewed (Salantera, 1999), to using a tool that had been previously used, such as The Children and Pain Survey developed by Margolius et al. (1995) (Jacob & Puntillo, 1999b). Modifying a well known tool to specifically reflect a paediatric focus was used in one study that specifically looked at knowledge and attitude of paediatric nurses (Manworren, 2000).

Results of these surveys reflected similar results to other pain knowledge and attitude surveys, in that nurses appear to understand that children experience pain,

but may lack the knowledge required to manage that pain. Consequently the practice of nurses may have been contributing to the under medication of pain in the children they were caring for (Jacob & Puntillo, 1999b; McInerney et al., 2003). However, Salantra (1999) reported that although Finnish nurses had similar issues as had been identified in other literature, they indicated were not prepared to accept pain in children. Jacob and Puntillo recommended that nurses examine their practice to determine whether or not it included the latest knowledge of pain management practice. Only one survey reviewed compared results to clinical practice by conducting chart reviews (Jacob & Puntillo, 1999b), although they had no way of knowing if the same nurses were involved in both aspects of the study. The most common findings, reported in these paediatric nurse surveys, was also those of poor understanding of pharmacology, specifically in areas of opioid, addiction, equianalgesic dosing, and the difference between acute, chronic and cancer pain management.

Conclusion

This chapter has presented what is already known in literature about paediatric post-operative pain management that is important to consider in a survey on pain knowledge. Barriers that stand between health care professionals and the effective management of post-operative pain in infants and children are, lack of knowledge (in the nature of pain, how to assess pain and how to manage pain), lack of time, workloads, and fear of causing harm. However, how does this knowledge of barriers to the effective management of post-operative pain in infants and children, situate itself within the New Zealand context?

Research previously undertaken exploring pain within New Zealand hasn't addressed the issues from a paediatric context. And while there have been a number of surveys into knowledge and attitudes towards pain, these have mainly been with nurses in the adult hospital environment or within the context of cancer pain. Much of the research undertaken has utilised questions developed by Ferrell and McCaffery (1997), who have been leaders in the research into nurses' knowledge and attitudes towards pain. Manworren (2001) also used Ferrell and McCaffery's questions to develop and test a questionnaire specifically for use when investigating paediatric nurses knowledge and attitudes towards paediatric pain

management. Results from Manworren's survey reflected similar issues to those surveys undertaken using earlier questions developed by Ferrell and McCaffery, indicating the appropriateness of using these questions in a variety of settings.

Many of the surveys reported in literature have been undertaken in large hospitals and not specifically with the knowledge and attitude of paediatric nurses or have looked at nurses knowledge and attitude towards all causes of pain in hospital settings not just post-operative pain. It is Manworren's tool that forms the base of the questionnaire used in this survey, where the focus is on post-operative pain.

Chapter 4:- Research methodology and study design

Introduction

This study utilised a quantitative survey method, to determine the knowledge and attitudes, related to post-operative paediatric pain, held by nurses working in three small paediatric inpatient wards in small general regional hospitals. The survey was also designed to determine what influences the post-operative paediatric pain management practices of nurses in the areas surveyed.

The purpose of this chapter is to describe the research methodology used, including the detailed processes undertaken in relation to the survey. This includes describing the settings, samples, the instrument, rigour of the instrument, and processes related to how the data was managed and analysed. Ethical and cultural considerations identified throughout the process are also detailed. Nursing research addresses critical issues faced by nurses and seeks to understand problems associated with these.

Methodology

Careful consideration of the various research methodologies available was undertaken before a decision was finalised to utilise a non-experimental, descriptive, correlation survey design. Research extends from what is often referred to as scientific research, such as controlled laboratory experiments and clinical trials, through to social science and ethnographic research, such as case studies. At one end of the continuum the research is conducted in a world totally controlled by the researcher and at the other end research is done in the world as it is, in conditions the researcher has little control over (Reid & Boore, 1987).

Research into nurses' knowledge and attitudes involves people, and therefore fits best into a social science method of research. There are many ways of conducting this type of research. However most of the published research into nurses' knowledge and attitude towards pain has been done by using a survey design, such as questionnaires (Manworren, 2000; McCaffery & Ferrell, 1995), clinical evaluation of documentation (Bennett, 2001; Beyer et al., 1983; Comley & Banks, 2000), or discourse analysis (King, 1999). Using a research design that requires the

gathering and analysis of data is not new to nursing. Florence Nightingale was a pioneer in the use of statistics and she advocated strongly for the use of these when arguing for reforms in health care (Reid & Boore, 1987).

However, surveys that are conducted to advance scientific knowledge have three distinct characteristics (Pinsonneault & Kraemer, 1993). Firstly, the purpose of survey is to produce quantitative descriptions of some aspects of the study population, and requires standardised information, from and/or about, the subjects being studied. Secondly, the main way of collecting information is by asking participants structured and predefined questions, their answers constitute the data to be analysed. Thirdly, information is generally collected about only a fraction of the study population, referred to as a sample, but it is usually collected in such a way as to be able to generalise the findings to the larger study population.

As survey research involves the examination of a phenomenon within a wide variety of natural settings it is most appropriate to use when the central questions of interest about the phenomena are, what is happening and how it happens. And to gain insight as to why it may be happening, although this is by inference rather than cause and effect (Pinsonneault & Kraemer, 1993; Seaman, 1987). Another central component is where control of the independent and dependent variables is not possible or not desirable. Finally where the phenomena of interest must be studied in its natural setting, and where the phenomena of interest occurs in current time or the recent past (Dilman, 2002; Pinsonneault & Kraemer, 1993).

Survey research can be used for exploration, description, and explanation purposes or a combination of these (Pinsonneault & Kraemer, 1993). The purpose of survey research in *exploration* is to become more familiar with a topic. An exploratory survey focuses on determining what concepts there are to measure and how to measure them best. Exploratory surveys should be used as the basis for developing concepts and methods for more detailed, systematic descriptive or explanatory surveys (Chui et al., 2003; Pederson & Bjerke, 1999). Therefore, the whole purpose of an exploratory survey is to elicit a wide variety of responses from individuals with varying viewpoints, in a loosely structured manner, as the basis for design of a more careful survey.

In contrast, the purpose of survey research in *description* is to find out what situations, events, attitudes or opinions are occurring in a population (Clarke et al., 1996; Lavis et al., 1992; Manworren, 2000; Van Niekerk & Martin, 2001). A researcher's concern is simply to describe a distribution, or to make comparisons between distributions (Pinsonneault & Kraemer, 1993; Seaman, 1987). The purpose of this research is to explore and describe what knowledge and attitudes, related to paediatric post-operative pain, are held by the respondents of the questionnaire. Analysis stimulated by descriptive questions is meant to ascertain facts, not to test theory. Whereas the purpose of survey research in *explanation* is to test theory and causal relations. Survey research aimed at explanation asks about the relationships between variables. It does so from theoretically grounded expectations about how and why the variables ought to be related (Pinsonneault & Kraemer, 1993; Seaman, 1987).

Therefore survey research is a method of gathering information / data from a sample of individuals, and is done to describe, compare, explain and predict knowledge, attitudes and behaviour. A survey can be conducted in a variety of ways, including via the telephone, by mail (commonly referred to as postal), Internet or in person. Surveys can also be classified in many ways, by size and type of sample, or by the means of data collection. However, for a survey to be successful, attention must be given to the planning and development of the tool and in choosing the sample.

The choice of data collection method, such as mail questionnaire, telephone interviews, or face-to-face interviews, is an important consideration because it can affect both the quality and cost of the data collected. For example, postal questionnaires are very good for gathering factual data, but they are less effective when sensitive data and complex data are needed. In general, quality and cost are highest with face-to-face interviews or telephone interviews whereas quality and cost are lower with mail questionnaires. Postal surveys can have limitations. There is no guarantee that the respondent is actually the one completing the questionnaire. The percentage of returns is often a limiting factor. The smaller the percentage of returns the less reliability can be placed in the analysis of data as being representative of the study population. Low response rates may introduce bias (Seaman, 1987). However, strategies can be put in to encourage respondents to

return questionnaires. As this survey was quite small a greater than 65% return rate was chosen as the target for analysis of data. The decision to use survey methodology was made from both a personal perspective and because although this type of research, into nurses' attitudes and knowledge of pain management has been done before, it hadn't been done in the context presented in this thesis.

As the Clinical Nurse Leader (CNL) in one of the small paediatric wards surveyed, I wanted to undertake a project that was relevant to my area. I hope to utilise the information gained in this research to help inform me in my educational planning for local staff. However, given my role it was important that participants felt safe to take part in this without any fear of coercion or repercussions. If I had been surveying an area where the participants did not know me, I could have chosen to use interviews as a means to gain information. In addition, I chose to use a questionnaire, as the tool for the survey, as this method provided me with a speedy and economical means of determining facts about people's knowledge, attitudes, beliefs, expectations, and behaviours. Questionnaires are a useful tool to collect this type of information from participants, as it also allows anonymity and if well designed the relevant information is collected and the risk of interviewer bias is avoided (Dilman, 2002; Janes, 1999, 2001; Pinsonneault & Kraemer, 1993).

Survey questionnaires can have open and closed questions. Open questions are those that require the respondent to use their own words to answer a question. Therefore open questions allow for unanticipated responses and provide data that can be difficult to interpret and analyse. Whereas closed questions require the participant to choose from the answer provided. Closed questions were used in this survey as they produce standardised data that could be analysed statistically. The response to closed questions may take several forms, nominal or categorical, ordinal and numerical scale or continuous. In addition questionnaires usually include questions to gain demographic data.

By using a questionnaire, information is collected by means of a standardised procedure, so that every individual is asked the same questions in the same way. The intent is not to describe the particular individual participant, but to obtain a composite profile of the population being studied. The standard for all quality surveys is that the individual respondent, should never be identified in the reporting

of the survey findings (Fink, 1995b). As the CNL in one of the clinical areas surveyed, and known to some of the other intended participants, using a questionnaire also allowed confidentiality for the participants.

Setting

This research was undertaken in three small paediatric inpatient wards, within three small regional secondary service hospitals. The choice of which areas to approach was based on the number of beds, geographical isolation from tertiary centres and for convenience for the researcher. Working full-time precluded the researcher from having the time to physically approach other areas in person. The areas surveyed each had from 5 – 12 paediatric inpatient beds and were isolated by land and/or sea from a tertiary centre.

Sampling

A major feature of any survey is that information is obtained from a sample of subjects, who are selected from a study population and then, on the basis of the information gained, assumptions about the whole study population may be described. Therefore the first problem for any researcher is how to select a sample, which will represent the population under study. A sample is representative of a target population if important characteristics are distributed evenly throughout the population. For example age, qualifications, experience. A system of selection is needed to ensure that the researcher and factors extraneous to the research have no influence on the selection process. Sampling methods are usually divided into two types, probability and non-probability (Fink, 1995a). Probability involves the use of random selection to eliminate subjectivity in choosing a sample. Non probability samples are chosen based on their characteristics, and the needs of the survey.

One type of non-probability sampling is that of convenience sampling. A convenience sample consists of a group of individuals that are ready and available (Fink, 1995a, 1995b; Reid & Boore, 1987). Because the sample is opportunistic and voluntary, participants may be unlike most of the target population. The target population for this research was a convenience sample of all staff working in the

areas that were surveyed. Given that there is no way of defining the characteristics of who are paediatric nurses', working in other paediatric settings through out New Zealand, the results of this research were not intended to be representative of the larger New Zealand population.

Determining the size of the survey

Inclusion criteria for a sample refers to those that are eligible for participation, and the exclusion criteria consists of those characteristics that rule out certain people. It is important to note that the more boundaries that are set for the sample, the more you limit the generalisability of the finding (Fink, 1995b). Nevertheless, setting inclusion and exclusion criteria is an efficient way of focusing the survey on just those people from whom you are likely to get the most accurate information.

There are many types of sample design that incorporate the principles of random selection. However, as the research for this thesis was conducted in small general paediatric wards, to ensure that appropriate information was collected and analysed, a convenience sample of all registered nurses, full-time and part-time, working in the defined areas were approached to participate. Registered nurses regularly working in these areas on a casual basis were also invited to participate, as these nurses are required to assess and managed the pain of children allocated to their care. As the number of enrolled nurses working in these areas is very small, making them more identifiable, and their pain management decision process is done in consultation with the registered nurse they were excluded. Paediatric nurses working in these areas are a subgroup of both those working in all areas of the hospitals chosen, and of the total population of nurses working in child health in New Zealand. The final decision on size became a compromise between cost, time and the ability to produce some subgroup data analysis.

Subjects

The participants / subjects for this research were hospital-based registered nurses practicing in small general paediatric wards, 42 registered nurses working in these areas were identified as eligible, and were approached to take part.

Table 4.1 Number of nurses by area

	Number of staff eligible for selection
Hospital A	22
Hospital B	12
Hospital C	8
Total	42

The tool

The tool used for this research was a questionnaire formulated by the researcher, but utilising existing questionnaires (Appendix 1). One of these was the “Paediatric Nurses’ Knowledge and Attitudes Survey Regarding Pain” (PNKAS), an instrument developed by Manworren (2001), for use in surveying nurses working paediatric settings. Manworren developed this tool from an adaptation of the “Nurses’ Knowledge and Attitudes Survey Regarding Pain” (NKAS), first developed by Ferrell and McCaffery (1997). The original tool, developed by Ferrell and McCaffery for use in the adult setting, has been used extensively within the United States of America. The development of the Paediatric version, the PNKAS, grew out of an increasing need to get a better sense of what was happening in the paediatric setting.

Permission to use the PNKAS questionnaire was obtained from the original developers and the City of Hope Pain research group, where the tool was accessed (Appendix 2). Modifications to the original questionnaire to ensure relevance to the New Zealand setting resulted in changes to two of the existing questions. The wording in question thirty-eight (38), was altered by replacing the word United States, with New Zealand. And in question sixteen (16) of section two, the word Acetaminophen was altered to Paracetamol, to reflect New Zealand prescribing terminology. Following the recommendations expressed by Clarke et al. (1996) questions in the original tool specifically directed at cancer pain were deleted, as the focus of this survey was on post-operative pain knowledge and attitude.

Two case scenario situations were presented in the questionnaire, Andrew and Robert, both aged 14 years and both first day post abdominal surgery. In question 43A, Andrew rates his pain as 8 out of 10 from a scale of 1 - 10, he smiles and is

talking and joking with his visitor. In question 44A Robert also rates his pain as 8 out of 10 from a scale of 1 – 10, he is lying quietly in bed and grimaces as he turns in bed. The age of the patient in these questions were dropped from 16 to 14 as this reflected the admission age limit, used in most paediatric units in New Zealand.

In addition seven questions (Q. 3, 4, 5, 6, 7, 30, 31) were added. Whedon (1995) had previously used these questions in a survey designed to identify post-operative management needs of nurses. These questions were used to establish how nurses working in the areas surveyed, get their paediatric post-operative pain management knowledge, and how this knowledge is updated. And also to identify what influences the paediatric post-operative pain management practices, of the nurses surveyed. Permission to use these was given by the original developer (Appendix 3).

The final questionnaire consisted of five sections.

- Section One consisted of eight (8) questions related to level of control and preparedness participants felt they have within their organisation to manage Paediatric pain. Participants were required to tick the box that best reflected this for them.
- Section Two consisted of twenty-five (25) questions about pain knowledge and attitudes. These required a simple true or false response.
- Section Three consisted of nine (9) questions about pain and pain management in multi-choice format. Participants were asked to choose the appropriate answer from 3–4 choices.
- Section Four consisted of two (2) case studies, related to post-operative assessment/analgesia. Both were identical with the exception of patient behaviour. Participants needed to read these, then answer the two questions that followed each one.
- Section Five consisted of eight (8) questions related to demographic data such as age, employment, and education. Participants were asked to complete all of these questions, as they were vital in the final analysis.

The questions required varied responses, nominal or categorical, including true/false, multiple choice, and ordinal as in rating scales and circling on a linear analogue scale. The questionnaire was designed to be simple and user friendly. It was felt that participants would be more inclined to complete the questionnaire, and return it, if it did not have the appearance of a test.

Reliability and validity of the tool

Questions for this survey tool are derived from pre-existing pain survey tools that have been developed and tested over many years. A team of pain experts has previously established reliability and validity for the original NKAS tool, developed by McCaffery and Ferrrell, extensive test - retest has also occurred (Manworren, 2001). Manworren modified the NKAS and developed the PNKAS. Content of the PNKAS reflects the standards for paediatric pain management. A panel of five nurses, expert in paediatric pain established content validity for the PNKAS. Test – retest reliability was determined using 12 participants ($r=0.67$). Internal consistency was tested twice, with two different groups of participants, results were consistent and indicated that all items contributed to the tool (Manworren, 2001).

The reliability and validity of the questionnaire used was not re-tested, rather I relied on previous studies for this. However, prior to distributing the tool, the layout, content and length of the questionnaire was checked, for language and relevance for the population to be surveyed. This was done by asking two registered nurses who had recent experience in acute paediatric care, and a pain nurse specialist to complete it. Following this, minor alteration to the wording and format of the tool was made to enhance clarity for. Two questions about whether respondents wanted to be more involved in pain assessment and management were deleted, as these were felt not to add anything to the result, and one that asked for gender of the participant was removed. Given the small numbers working in the areas surveyed it was felt that gathering information related to gender would have resulted in compromising the anonymity of respondents.

Distribution of the tool

In my role as CNL, I already knew the number of staff to be approached in one area. However because of my position in the ward I needed to be aware of issues of coercion and confidentiality.

Therefore I developed a pack containing;

- A letter informing them of my research project and what I hope to achieve from it (Appendix 4),
- A coloured entry sheet for lucky prize draw (one for each clinical setting),
- A request to complete the questionnaire without seeking assistance and return it along, with the entry for the lucky prize, by a nominated date,
- Instructions on how to complete the questionnaire, advising participants that this was not a test, and that I needed them to fill it out individually so that the information analysed would be accurate and the results believable,
- A copy of the questionnaire (Appendix 1) and,
- A stamped addressed envelope in which to return the questionnaire, and the prize entry sheet, to an intermediary person.

For the other two areas I initially made phone contact with the CNL in each area so that I could to gain their support, inform them of what I was doing and why, and what I hoped to achieve using the results, and to explain what was required of them. They were then asked to inform the researcher how many nurses they had in their respective areas, including themselves and casual staff they regularly use. This gave the intended number of questionnaires that needed to be distributed. This initial contact was followed up with a letter outlining what had verbally been discussed with them.

Each Clinical Leader was then sent the number of required packs, plus two extra copies, and was asked to distribute them to the staff that we had identified as eligible. I was never given the names of these staff, and all areas were treated the same from this point. All participants were asked to complete the questionnaire without seeking help and return it within a specified time frame. Completing the

questionnaire should have taken participants no longer than 20 – 30 minutes. As an incentive to encourage participation, all returns had an entry sheet to complete, entering the participant into a draw for a prize voucher. There was one for each clinical area. This was removed prior to the researcher accessing the return questionnaire, and the prize winners were drawn by a third person to remove any bias.

The responses were returned, in the stamped addressed envelope, to an intermediary so that the questionnaire could be separated from the lucky prize entry prior to the researcher having access to them. The person receiving the returned questionnaires signed a confidentiality form to ensure she understood and agreed to keep the information she read in the course of separating the prize sheet page confidential (Appendix 5). This was done to ensure confidentiality and anonymity for the participants. The entry sheets were coloured so that the researcher could track the number of returns and non-returns from each area, but there were no identifiable numbers or marks on the survey questionnaire itself. A reminder poster was sent two weeks after the survey packs were circulated and one week before the nominated date for return. This was done to encourage participation and a greater return rate.

Data management

The return questionnaires from all areas were treated in the same manner. Data was entered into the Statistical Package for Social Sciences (SPSS version 11.5) database program and then cleaned, the cleaning involved manually checking all data entered onto the computer against each respondent's original questionnaire to ensure accuracy of data entry. Original copies of the returned questionnaires were locked in a filing cabinet.

Statistical analysis

As the numbers are relatively small the results were initially analysed as one data set rather than divided by area. Some further individual and area analysis was done to identify if results were indicative of individuals, or of the area. Demographic characteristic data, age, ethnicity, term of employment, duration in current setting,

years nursing, years working with post-surgical children, highest education, and frequency involved in managing children's pain was tallied and reported as percentages, then analysed using measures of central tendency (mean, median, mode), measurement of dispersion (frequencies, standard deviation). In Section 2 and 3 of the questionnaire missing data were analysed as incorrect.

The original developer of the PNKAS has previously identified that knowledge and attitudes are difficult to differentiate between, and separation is not always helpful (Manworren, 2001). Therefore data analysis for questions that measured both attitude and knowledge, questions nine to 42, was completed in terms of total score, that is percentages of complete score correct versus incorrect, as well as in terms of individuals. In analysing Sections 2 and 3, the top ten correctly answered questions were identified and listed, also the ten most frequently answered incorrectly were identified and listed. To identify any areas of strengths and weaknesses, relationships between total top score correct in Section 2 and 3 and variables identified in questions 45 - 52 were examined. Further standard statistical test analysis, such as correlations, was not possible due to the small numbers in the various groups. The relationship between the answers of question 43a and 44a, and questions which were specifically related to knowledge and attitude of specifically pain behaviour were explored. Also the relationship between 43b and 44b and questions which were specifically related to knowledge and attitude of narcotic usage were examined.

For analysis and discussion purpose 80%, was set as an acceptable score to achieve for the answers to Section 2 and 3. This was based on previous survey results carried out by previous researchers (Brown et al., 1999; McCaffery & Robinson, 2002).

Cultural safety considerations

Nurses' practicing in New Zealand are required to practice in a culturally safe manner. Culturally safe practice is the effective nursing of children and their family by a nurse who has reflected on his/her cultural identity (Ramsden, 1993). Cultural values are known to influence pain perception and pain expression (Miller, 1994; Price, 1990; Waddie, 1996). However, nurses first need to reflect on their

own attitudes and beliefs regarding pain as both nurses, and the children and families they work with, have their own cultural perspectives with regard to pain and pain management. Recognising their own attitudes and beliefs should help nurses in the awareness of the implications of these in clinical practice. Disseminating the results of this research, and the correct answers to questions in Section 2 and 3, so that the participants are able to reflect on the results is one way for the participants to become aware of their own attitudes and beliefs and the implication of this on their clinical practice.

This research aimed at exploring what the current knowledge, attitudes and needs, of nurses working in small paediatric wards, are in relation to paediatric post-operative pain management. However whilst the survey asked for the ethnicity of the nurses and question 30 addresses a cultural approach to pain management, it didn't address the cultural perspective of the nurse, or the children and family. Further research would need to be done in this area. Local Maori health workers would need to be involved if information from this research were to be used in the development of a nursing education strategy, to improve the experiences and outcomes for the children in our care (Manworren, 2001).

Ethical Considerations

This study required ethical approval from the Victoria University of Wellington Human Ethics Committee (Appendix 6). Although ethical approval was not required from the individual hospitals, approval for conducting the survey was sought and gained from each of the Directors of Nursing from the three hospitals. Ethical issues identified and addressed as part of developing and completing this research included establishing a recruitment process that placed the identified registered nurses under no obligation to participate. It was felt that by using a methodology that removed researcher bias and risk of coercion was important as conflict of interest may occur when conducting research in one's own work area. Therefore the researcher needed to create a data gathering and analysis process that protected the participant's identity and confidentiality. To ensure no issues of bias or corruption of process, collection of entries for prize draw and draw of prize were conducted by intermediary person. An intermediary who had no personal or professional involvement in the research process was recruited to help with this. In

any research it is important to ensure protection of data. The ethics application advised that data be kept locked in a file, which only the researcher has access to.

Conclusion

This chapter has presented the complexities of planning and executing a research project using a survey approach, and utilising a questionnaire as the tool. Research into knowledge and attitudes is not *scientific* research, it involves people, what they know and believe at the time of the survey. Survey research has been found to provide valuable insight into nursing knowledge and attitudes towards pain and pain management. The rationale for using this approach, the various processes and procedures for data collection and analysis, have been outlined. All of the results are detailed in Chapter 5, and have been presented in completely anonymous summaries, such as statistical tables and charts.

Chapter 5:- Results

Introduction

The results of data collection and analysis as outlined in Chapter 4 are presented in this chapter. Data was analysed using the Statistical Package for Social Sciences (SPSS, Version 11.5). Firstly, descriptive demographic data is presented, followed by analysis of respondent's education and experience, pain educational experience and respondent's involvement in the management of paediatric pain.

This is followed by analysis of finding related to factors that influence nurses when undertaking paediatric pain assessment and management. The final data presented is that which is related to nurses' knowledge and attitude towards paediatric pain management. Due to the size of this survey data analysis using standard statistical tests proved to be problematic.

Descriptive results from survey

Of the 42 questionnaires sent out to nurses who were identified as being eligible to participate, 33 (79%) were returned. This met the 65% response rate that was aimed for analysis to continue. Table 5.1 details the number and percent of returns from each area surveyed and the percentage of total returns analysed.

Table 5.1 *Percent of returns from each area surveyed*

Area surveyed	Number of questionnaires sent	Number of questionnaires returned	Percentage of returns	Percentage of total returns
A	22	19	86.0%	57.6%
B	12	8	67.0%	24.2%
C	8	6	75.0%	18.2%
<u>Total</u>	<u>42</u>	<u>33</u>	<u>79.0%</u>	<u>100.0%</u>

All returned questionnaires were able to be used in the analysis, however six respondents missed completing either one question, or part of a response, and two respondents missed completing two questions, or parts of a response. All other respondents completed all the questions in each section. Although not all questions were answered by everyone, all returns were valid. Missing data in Section 2 and 3

was recorded as incorrect in the analysis. This was done as it was felt that the cause of questions not being answered was more likely to be from lack of knowledge, than because of not understanding the question and therefore needed to be counted in the analysis as incorrect. Data missing in Section 1 was recorded as missing in the analysis.

Demographic data of respondents

Demographic data collected consisted of respondents' age, ethnicity, type of employment, and duration of employment in their current setting, total years nursing, years of experience working with post surgical children, highest level of nursing education, and frequency they are involved in the management of children in pain. No details are known about those nurses who were invited to participate but did not respond in the survey.

Ten (30%) of those who responded were aged between 40 and 44, 10 (30%) were under 40, and 13 (40%) were over 45. These figures are comparable to those released by New Zealand Nursing Council, 2003, as shown by Table 5.2. Of the 33 respondents, 28 (84.8%) identified themselves as New Zealand (NZ) Pakeha / European. The other five (15%) identified that their ethnicity was one of the following, NZ Maori, Pacific people, Asian, United Kingdom, European, and other, without specifying what.

Table 5.2 Age of participants and Nursing Council profile of N.Z. registered nurses

<u>Age</u>	<u>No. & (%)</u>	<u>Nursing Council</u>
	<u>survey</u>	<u>Results 2003*</u>
	<u>Respondents</u>	<u>%</u>
20-24	0 (0%)	2.4
25-29	3 (9.1%)	6.5
30-34	3 (9.1%)	12.3
35-39	4 (12.1%)	13.6
40-44	10 (30.3%)	17.8
45-49	6 (18.2%)	17.5
50-54	4(12.1%)	12.4
55 and over	3 (9.1%)	16.9
Not reported	-	0.7
<u>Total</u>	<u>33 (100.0%)</u>	<u>100.0%</u>

★ Source Nursing Council of New Zealand, 2003

Twenty three (69.7%) respondents were employed part-time, four (12.1%) were employed on a casual basis, and only six (18.2 %) were employed full-time. Figure 5.1 shows how many part-time, full-time and casual nurses responded, by area surveyed. Sixteen (82.6%) of all part-time nurses who responded, were employed in area A, while half of the full-time respondents were employed in area C, the smallest area surveyed.

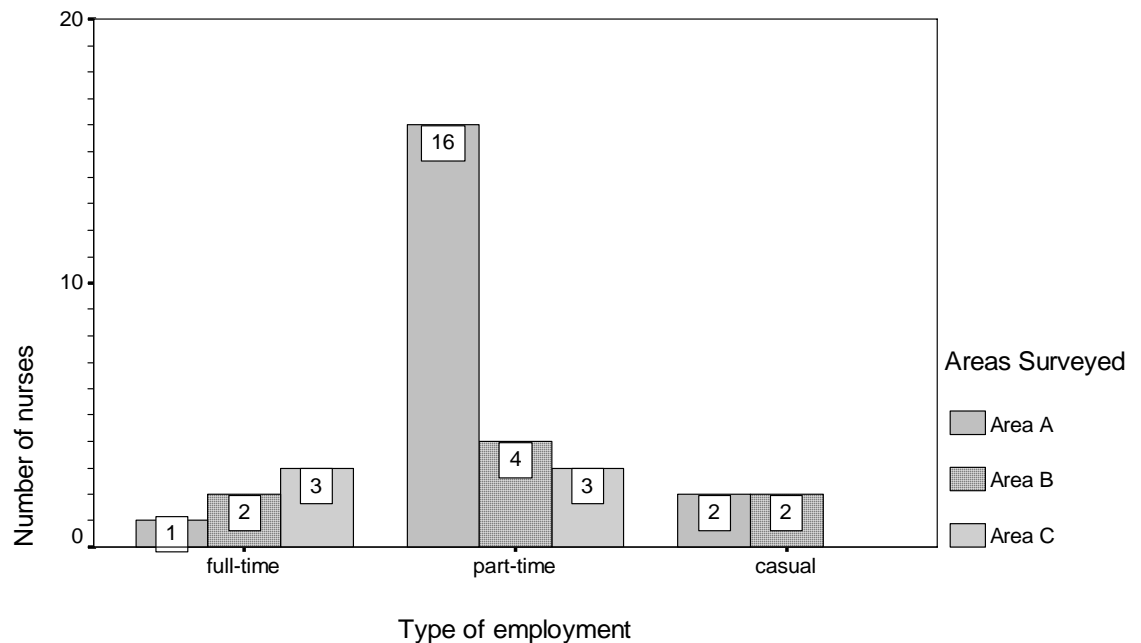


Figure 5.1. Type of employment by area

Analysis revealed that 19 (57.5%) respondents, not only worked part-time, but had also worked in their current setting for less than five years. Table 5.3 illustrates that 26 (78.8%) respondents had been employed in their current setting for less than five years, with a total of 30 (90.9%) having been employed in their current setting for less than 10 years. Table 5.3 also demonstrates that only 6 (18.2%) respondents had been working as a nurse for less than 10 years, while 16 (48.5%) had been nursing for more than 21 years.

Respondents' involvement in the management of paediatric pain

Twenty-seven (84.4%) respondents had been nursing for more than 10 years, however only 12 (36.4%) had been working with post-surgical children for the same period of time. Of the 26 (78.8%) respondents who had been working in their current setting for less than 5 years, only 15 (57.6%) indicated they had less than

five years with post-surgical children. Four of these had also been nursing for less than five years. While four had been nursing less than five years, Table 5.3 details the number of years with which all respondents felt they had been involved in managing children's pain post surgery, in relation to the total number of years nursing and the number of years working in their current setting. Table 5.4 details the time in current setting by type of employment.

Table 5.3 Respondents' nursing experience

Type of Nursing	Number of years					Missing
	0 – 5	6 – 10	11 - 15	16 - 20	21 and over	
Nursing generally	4 (12.1%)	2 (6.1%)	4 (12.1%)	7 (21.2%)	16 (18.2%)	
Current setting	26 (78.8%)	4 (12.1%)	0 (0.0%)	2 (6.1%)	1 (3.0%)	
Managing pain in children post surgery	15 (45.5%)	5 (15.2%)	7 (21.2%)	2 (6.1%)	3 (9.1%)	1 (3.0%)

Education qualification and experience of the respondents

Only six (18.2%) respondents indicated that they were hospital certificated, which was the main way nurses qualified until the late 1970's, the majority, (60.6% n=20), were either diploma or degree graduates. Seven (21.2%) indicated they had undertaken post-graduate qualifications. Table 5.4 shows that of the four casual nurses who responded none indicated they had a degree qualification, or had completed post-graduate studies.

Twenty-five (70%) respondents indicated that they were involved with pain management in post-operative children more than several times a week and two reported they were almost never involved. Table 5.4 details the frequency respondents are involved with the management of pain in children post surgery by the type of employment.

Table 5.4 Length of time, educational qualification and frequency in managing pain in children post surgery

Type of employment		Number of nurses n-33 (100%)		
		Full-time	Part-time	Casual
Employment status		6 (18.2%)	23 (69.7%)	4 (12.1%)
Time in current area	0 – 5 years	4 (12.1%)	19 (57.6%)	3 (9.1%)
	6 – 10 years	1 (3.0%)	3 (9.1%)	0 (0%)
	11 – 15 years	0 (0%)	0 (0%)	0 (0%)
	16 – 20 years	1 (3.0%)	0 (0%)	1 (3.0%)
	21 years and over	0 (0%)	1 (3.0%)	0 (0%)
Highest educational qualification	Hospital certificate	1 (3.0%)	3 (9.1%)	2 (6.1%)
	Diploma	2 (6.1%)	7 (21.2%)	2 (6.1%)
	Degree	2 (6.1%)	7 (21.2%)	0 (0%)
	Post-graduate certificate	1 (3.0%)	6 (18.2%)	0 (0%)
Frequency involved with managing pain in children post surgery	Almost never	0 (0%)	2 (6.1%)	0 (0%)
	Less than once a week	1 (3.0%)	3 (9.1%)	2 (6.1%)
	Several times a week	4 (12.1%)	13 (39.4%)	2 (6.1%)
	Daily	1 (3.0%)	2 (6.1%)	0 (0%)
	More than once a day	0 (0%)	3 (9.1%)	0 (0%)

Respondents were asked to identify how often they made decisions related to pain and the administration of pain medication. Fifteen (45.5%) felt they were constantly deciding whether or not an infant / child has pain post surgery, however only 12 (36.4%) felt they were constantly needing to decide on what medication to administer. Table 5.5 presents all data related to this question.

Table 5.5 Frequency of decision making related to infant pain assessment and medication administration

Involvement in activities related to pain management or education	Consistently	Frequently	Occasionally	Infrequently	Never
Deciding whether or not an Infant or child has pain post surgery	15 (45.5%)	13 (39.4%)	4 (12.1%)	1 (3.0%)	-
Deciding what medication to administer to an infant post surgery	12 (36.4%)	10 (30.3%)	8 (24.2%)	3 (9.1%)	-

Pain educational experience of the respondents

The first questions in Section One related to how much education the nurses perceived they had received in pain and pain management, both prior to working in a paediatric setting and since commencing work in a paediatric setting. Twenty-one (63.6%) respondents indicated they felt they had received some education in anatomy/physiology of pain, pain assessment, non-pharmacological interventions, with 26 (78.8%) indicating they had received education in pharmacological interventions. However, 27 (81.8%) indicated they had not received any formal certification in pain management prior to working with children and 28 (84.8%) had not received any formal certification since commencing work in their current setting as shown in Table 5.6. In contrast, only 11 (33.3%) of the respondents indicated they had received or participated in education sessions related to anatomy/physiology of pain, and 14 (42.4%) indicated they had received or participated in education sessions related to pain assessment since commencing work in a paediatric setting.

While most respondents indicated they had received some type of pain education since registering, there were 14 who indicated that since commencing in their current setting they had received no pain education. And one respondent indicated they had not received any pain education either before or since commencing work in their current setting. Two respondents were unsure if they had received any education in pain assessment prior to working in their current setting and another respondent was unsure if they had received any since commencing work in their current setting.

Table 5.6 Type of pain education

Form of pain education	Timing of education			
	Education prior to working in a paediatric setting		Education since commencing work in paediatrics	
	Yes	No	Yes	No
Education in anatomy/physiology of pain	21 (63.6%)	12 (36.4%)	11 (33.3%)	22 (66.7%)
Education in pain assessment	21 (63.6%)	10 (30.3%)	14 (42.4%)	18 (54.5%)
Education in non-pharmacological interventions	21 (63.6%)	12 (36.4%)	10 (30.3%)	22 (66.7%)
Education in pharmacological interventions	26 (78.8%)	6 (18.2%)	13 (39.4%)	19 (57.6%)
Certification in pain management	5 (15.2%)	27 (81.8%)	5 (15.2%)	28 (84.8%)

Respondents were asked how often they accessed or took part in learning opportunities related to pain management. Ten (30.4%) respondents indicated that they had never, or infrequently taken part in any multi-disciplinary discussions related to pain assessment or management, while another ten (30.4%) indicated they constantly or frequently did this. More than a third (n=13) indicating this was something they only occasionally took part in.

Eight (24.2%) indicated they had never, or infrequently read journal articles, or pain literature on the Internet, related to paediatric pain, while seven (21.2%) indicated they constantly or frequently undertook these activities. More than half (n=18) indicated this was something they only occasionally took part in.

Only one respondent identified they consistently discussed pain management with the pain team or nurse leader. Less than 25% of the respondents felt they were constantly or frequently taking part in any of these activities. Table 5.7 details the frequency of accessing learning opportunities of all respondents.

Table 5.7 Frequency of accessing learning opportunities

Education activity	Consistently	Frequently	Occasionally	Infrequently	Never
Taken part in multi-disciplinary discussions related to pain assessment or management	2 (6.1%)	8 (24.2%)	13 (39.4%)	5 (15.2%)	5 (15.2%)
Attended in-service related to pain	0 (0.0%)	0 (0.0%)	7 (21.2%)	12 (36.4%)	14 (42.4%)
Read journal articles or pain literature on the Internet related to paediatric pain	1 (3.0%)	6 (18.2%)	18 (54.5%)	4 (12.1%)	4 (12.1%)
Received any education on paediatric pain assessment / management	0 (0.0%)	3 (9.1%)	14 (42.4%)	9 (27.3%)	7 (21.2%)
Discussed pain management with the Pain Team or Nurse Leader	1 (3.0%)	8 (24.2%)	16 (48.5%)	6 (18.2%)	2 (6.1%)

Factors influencing nurses' skills, and paediatric pain knowledge

Personal experience

Table 5.8 illustrates that more than half of the respondents considered both self and family experiences with pain had a moderate to great influence on their pain management decisions.

Table 5.8 Personal experiences influence on pain management

Type of experience	No influence	Small influence	Moderate influence	Great influence
Personal experiences with pain – Self	3 (9.1%)	13 (39.4%)	8 (24.2%)	9 (27.3%)
Personal experiences with pain – Family	4 (12.1%)	12 (36.4%)	6 (18.2%)	11 (33.3%)

Nurses' comfort levels with undertaking paediatric pain assessment and management

Three respondents felt very uncomfortable with nursing an infant with a morphine infusion, and a further five indicated that they were not comfortable, this equates to a total of eight (24.3%) of those who responded to the survey. Also five (15.2%) were not comfortable with managing opioid titration or side effects, and seven (21.2%) were not comfortable programming and managing a Patient Controlled Analgesic pump.

Physiology of pain was another area that eight (24.2%) respondents indicated they were not comfortable with. However, the majority indicated they were either very comfortable or comfortable with all other aspects of pain management listed. Table 5.9 details results of question 8, which asked nurses to indicate their comfort with the listed aspects of pain management.

Table 5.9 Nurses' comfort level related to aspects of pain management

Comfort level with Pain management activities	Very comfortable	Comfortable	Not comfortable	Very uncomfortable
Basic Pain assessment	13 (39.4%)	20 (60.6%)	0 (0.0%)	0 (0.0%)
Assessment of pain in preverbal infants/children	8 (24.2%)	20 (60.6%)	5 (15.2%)	0 (0.0%)
Opioid titration	6 (18.2%)	21 (63.6%)	5 (15.2%)	0 (0.0%)
Recognising respiratory depression	13 (39.4%)	19 (57.6%)	1 (3.0%)	0 (0.0%)
Managing opioid side effects	8 (24.2%)	20 (60.6%)	5 (15.2%)	0 (0.0%)
Programming and managing a PCA pump	8 (24.2%)	18 (54.5%)	7 (21.2%)	0 (0.0%)
Nursing care of an infant with a morphine infusion	7 (21.2%)	18 (54.5%)	5 (15.2%)	3 (9.1%)
Using non-pharmacological management measures	9 (27.3%)	17 (51.5%)	7 (21.2%)	0 (0.0%)
Physiology of pain	5 (15.2%)	20 (60.6%)	8 (24.2%)	0 (0.0%)

Influence of knowledge on pain management practice

A personal lack of knowledge was only seen to be a constant or frequent problem for five (15.1%) respondents, 18 (54.6%) indicated this was infrequently or never a problem, and 10 (30.3%) indicated that this was an occasional problem. Two respondents indicated that a lack of knowledge of drugs was a great influence in inhibiting them from administering narcotic analgesia, both also indicated they were involved in pain management several times each week. Figure 5.2 shows that lack of personal knowledge was only of concern to two, full-time employed respondents and no casual employed respondent.

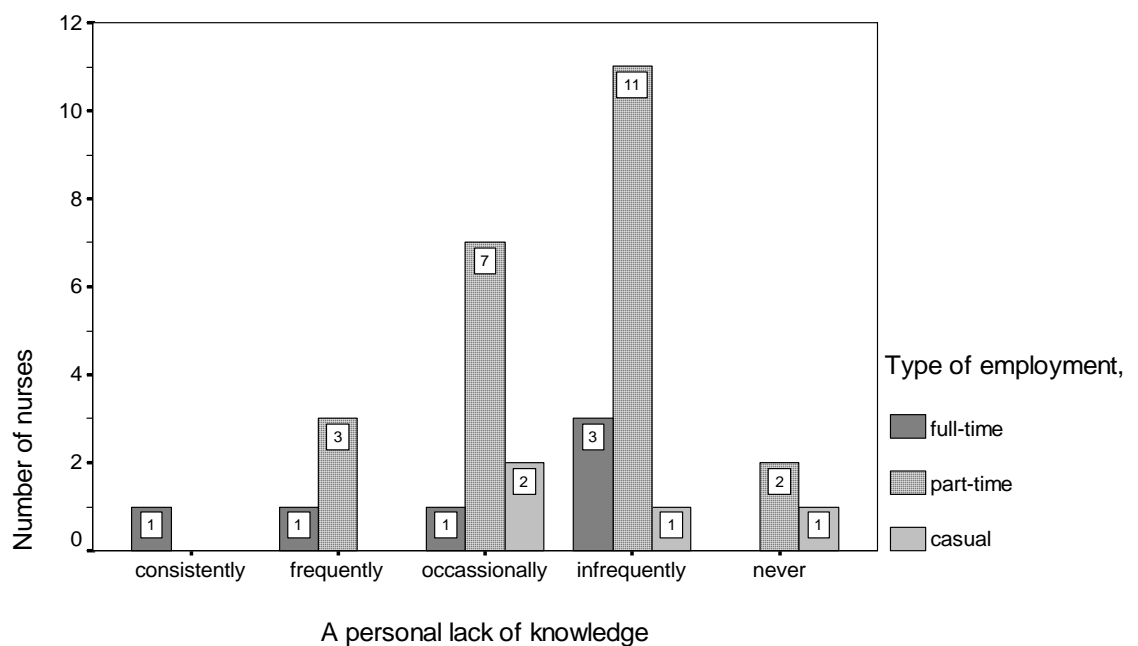


Figure 5.2. Personal lack of knowledge by type of employment

While the majority of respondents (n=22, 63.6%) felt workload had no influence on their ability to administer narcotics, ten (33.0%) felt the reluctance of medical staff to order narcotics inhibited them from administering narcotic analgesia. Thirty (90.9%) respondents felt fear of opioid addiction had no influence on their decision to administer narcotic analgesia. Also while 15 (45.4%) felt lack of knowledge had no influence on their decision to administer narcotic analgesia, a further 13 (39.4%) felt the lack of knowledge had only a small influence. Table 5.10 details these results further. Thirty two (97%) indicated that children/adolescents should be individually assessed to determine cultural influences on pain.

Table 5.10 What inhibits nurse's administration of narcotics

Factors that inhibits narcotic administration	No Influence	Small influence	Moderate influence	Great influence
Too busy with other patients or duties	21 (63.6%)	9 (27.3%)	2 (6.1%)	1 (3.0%)
Reluctance of medical staff To order narcotic	8 (24.2%)	15 (45.5%)	9 (27.3%)	1 (3.0%)
Fear of opioid addiction	30 (90.9%)	3 (9.1%)	0 (0.0%)	0 (0.0%)
Lack of knowledge of drugs	15 (45.5%)	13 (39.4%)	3 (9.1%)	2 (6.1%)
Lack of assessment skills	17 (51.5%)	13 (39.4%)	1 (3.0%)	2 (6.1%)

Patient responses

More than 50% of the respondents reported that they are greatly influenced by facial expression (n=20), vital signs (n=17), family report of an infants/child's discomfort (n=20), or the child's own report of pain using a pain rating tool (n=22). Table 5.11 shows that 26 correctly indicated that the statement "if the infant/child/adolescent can be distracted from his pain this usually means that he/he is not experiencing a high level of pain" (Q.11) was false. The majority also reported that they are moderately or greatly influenced by all the patient/family responses listed in.

Table 5.11 Patient responses that influence nurses' decisions to provide interventions for pain relief

Patient responses	No influence	Small influence	Moderate influence	Great influence
Facial expression	0 (0.0%)	2 (6.1%)	11 (33.3%)	20 (60.6%)
Sleeping	3 (9.1%)	12 (36.4%)	9 (27.3%)	9 (27.3%)
Vital signs	1 (3.0%)	2 (6.1%)	13 (39.4%)	17 (51.5%)
Increased motor movements	2 (6.1%)	9 (27.3%)	14 (42.4%)	8 (24.2%)
Decreased motor movements	1 (3.0%)	3 (9.1%)	17 (51.5%)	12 (36.4%)
Family report of infant / child discomfort	0 (0.0%)	0 (0.0%)	13 (39.4%)	20 (60.6%)
Child's report using a pain measurement tool	0 (0.0%)	1 (3.0%)	9 (27.3%)	23 (69.7%)

Twenty-eight (84.8%) indicated they knew that children may sleep in spite of pain, and 29 (87.95%) confirmed that observable changes in vital signs were not needed to verify a patients report of pain. The same number indicated that comparable stimuli resulted in different intensities of pain. Thirty-two (97%) indicated that the most likely explanation for why a child/adolescent with pain would request increased doses of pain medication is because they were experiencing more pain.

Twenty-one (63.7%) respondents felt insufficient knowledge of the doctor and 18 (54.5%) also felt that insufficient knowledge of other nursing staff was a frequent or consistent problem for them when trying to provide optimum pain relief. Nineteen respondents indicated that they found insufficient knowledge of the patient or family to be an occasional problem and 23 (69.7%) found the infant/child/adolescents co-operation also to be an occasional problem, with six indicating this was a frequent barrier or problem. Table 5.12 details the results of this section further.

Table 5.12 Barriers or problems related to being able to provide optimum pain relief

Barriers or problems affecting optimum pain relief	Consistently	Frequently	Occasionally	Infrequently	Never
Insufficient knowledge about the patient or family	1 (3.0%)	5 (15.2%)	19 (57.6%)	5 (15.2%)	3 (9.1%)
Insufficient knowledge of the doctor	0 (0.0%)	2 (6.1%)	19 (57.6%)	10 (30.3%)	2 (6.1%)
Insufficient knowledge Of other nursing staff	0 (0.0%)	4 (12.1%)	14 (42.4%)	12 (36.4%)	3 (9.1%)
Insufficient co-operation by the doctor in relation to your suggestions	1 (3.0%)	5 (15.2%)	20 (60.6%)	5 (15.2%)	2 (6.1%)
Inadequate prescribing of pain relief	2 (6.1%)	11 (33.3%)	15 (45.5%)	5 (15.2%)	0 (0.0%)
Patient to nurse ratio	1 (3.0%)	9 (27.3%)	12 (36.4%)	11 (33.3%)	0 (0.0%)
A personal lack of knowledge	1 (3.0%)	4 (12.1%)	10 (30.3%)	15 (45.5%)	3 (9.1%)
Infant / child / adolescents co-operation taking medication	0 (0.0%)	6 (18.2%)	23 (69.7%)	4 (12.1%)	0 (0.0%)
Doctors knowledge and Perception of pain	2 (6.1%)	3 (9.1%)	19 (57.6%)	8 (24.2%)	1 (3.0%)

No respondents indicated that nurse patient ratios were never a barrier or problem when providing optimum pain relief, however 12 (36.47%) felt this was an occasional problem, with a further nine (27.3%), indicating it was a frequent problem and for one respondent it was a constant problem.

Nurses' knowledge and attitudes

General knowledge and attitudes

Respondents were asked to complete 25 true/false questions (Q's. 9 – 33) related to nurses' knowledge and attitude towards pain and pain management in children. These questions related to pain assessment, patient variables, pharmacology, and non-pharmacology and addiction knowledge. As these questions can relate to both knowledge and attitude they are not separated into knowledge or attitude for analysis. No respondent achieved 100% correct response, the highest score was 24 (n=1), and the lowest score 15 (n=1) as shown in Figure 5.3. The mean score was 20.15, the median 20.00, and the mode 22, and the standard deviation was 2.138. Respondents needed to get 20 correct to gain an 80% correct rating, Figure 5.3 demonstrates that 80% or greater was achieved by 21 (63%) of the participants.

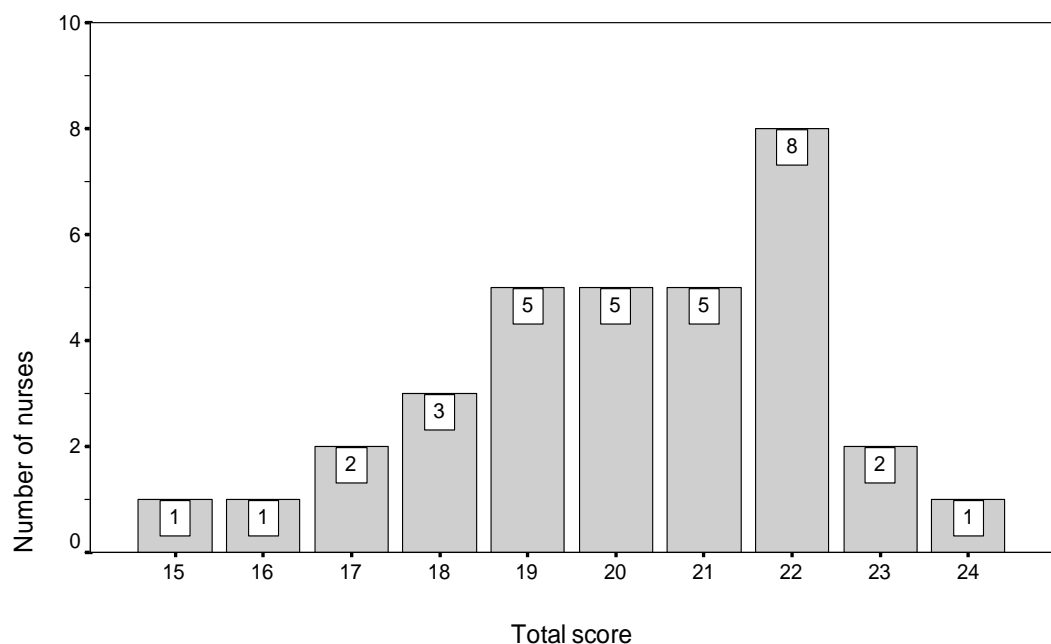


Figure 5.3. Total score results for correct answers on pain knowledge and attitude question in Section Two

Respondents were also asked to complete nine multiple choice questions (Q. 34 – 42) in Section 3 that were designed to investigate nurses' knowledge and attitude towards pain assessment, patient variables, pharmacology, non-pharmacology and addiction knowledge. These questions were not completely answered by all respondents. Two respondents did not answer the question about equivalent intravenous/oral morphine doses (Q. 34) and one did not answer the question about the goal of giving narcotics in the first 48 hours (Q. 39). The questions not answered were recorded as incorrect in the analysis. Only three respondents correctly answered all nine questions. The mean score was 7.24, the median, the mode 7, and the standard deviation was 1.091. Three respondents achieved 100% correct response, and one achieved the lowest score of 4. A score of seven was needed to gain an 80% correct score, 80% or greater was achieved by 27 (81.8%) as shown in Figure 5.4.

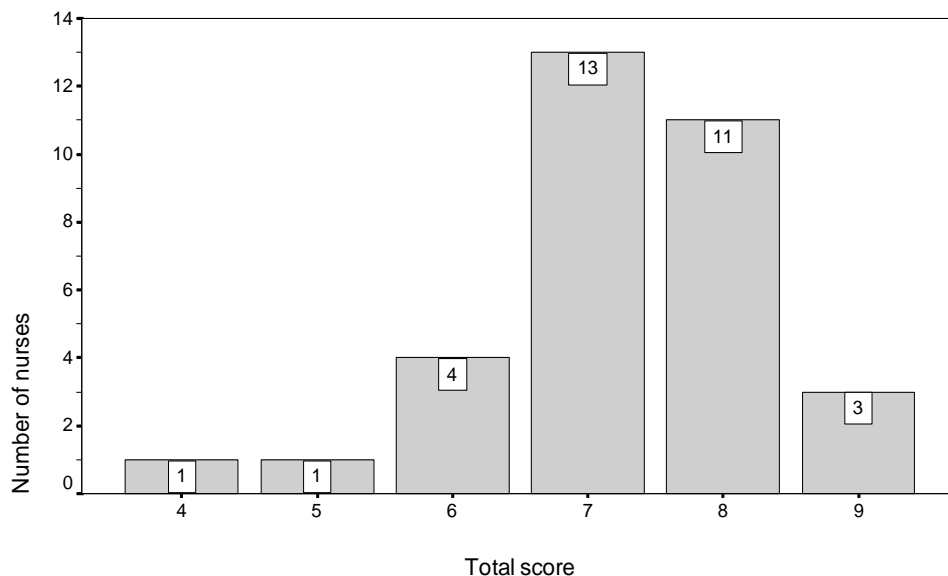


Figure 5.4. Total score results for correct answers on pain knowledge and attitude question in Section Three

When adding the scores, of Section 2 and 3 together, the total score attainable became 33. No respondent achieved this, the highest score attained was 32 (n=2), the lowest score was 23 (n=5) as shown in Figure 5.5. A score of 27 was needed to gain an 80% correct rating. The mean score was 27.39, the median 28, the mode 29, and the standard deviation 2.7. Figure 5.5 reports the total number of nurses by

final total scores. Twenty-one (63.6%) achieved a total of 27 or more resulting in greater than 80% correct response.

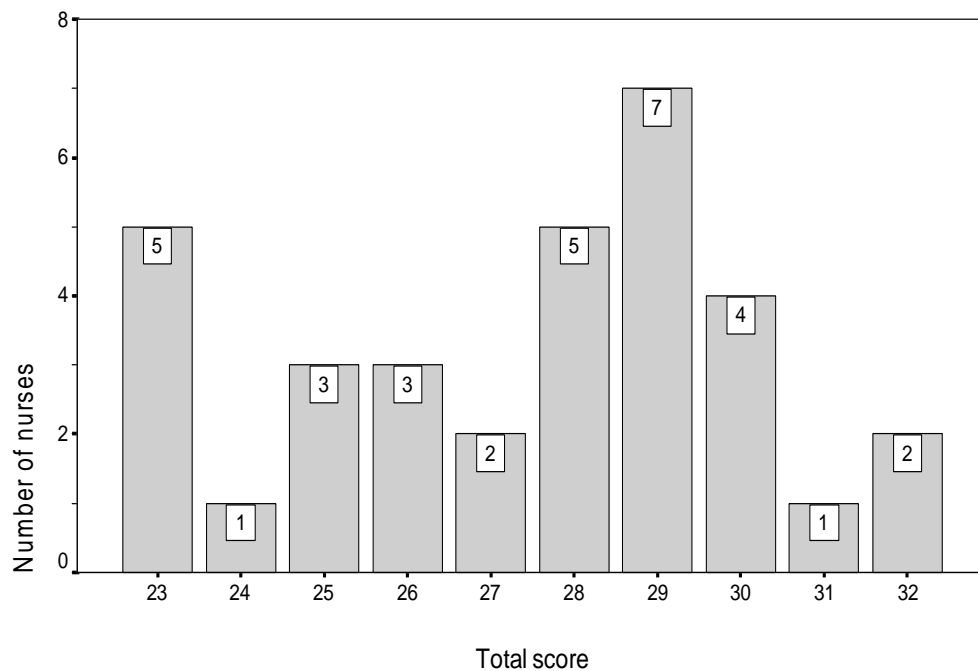


Figure 5.5. Total scores for Section Two and Three

Further analysis of Section 2 and 3 together revealed that only five questions were answered correctly by all respondents (Q. 20, 24, 28, 29 and 40). Table 5.13 lists the ten questions most frequently answered **correctly**. Of these, eight were related to pain assessment, patient variables, and non pharmacological knowledge and attitudes. Thirteen items out of the 33 were identified as areas that demonstrated the respondent's lack of knowledge or poor pain attitude by scoring < 80% (Q. 11, 14, 16, 18, 19, 22, 26, 27, 30, 33, 34, 37, and 39). Four of these were answered incorrectly by 15 or more respondents (Q.14, 16, 27, and 34).

Table 5.13 Questions most frequently answered correctly in Section 2 & 3

	Correct answer	N (%) Correct
20 Parents should not be present during painful procedures.	F	33 (100%)
24 The child / adolescent with pain should be encouraged to endure as much pain as possible before resorting to a pain relief measure.	F	33 (100%)
28 After the initial recommended dose of opioid analgesic, subsequent doses should be adjusted in accordance with the individual patient's response.	T	33 (100%)
29 The child / adolescent should be advised to use non-drug techniques alone rather than concurrently with pain medications.	F	33 (100%)
40 The recommended route of administration of opioid analgesics to patients with brief, <u>severe pain of sudden onset</u> , e.g. trauma or post-operative pain is? A. Intravenous B. Intramuscular C. Subcutaneous D. Oral	A	33 (100%)
36 The <u>most likely</u> explanation for why a child / adolescent with pain would request increased doses of pain medication is? A. The child / adolescent is experiencing increased pain B. The child / adolescent is experiencing increased anxiety or depression C. The child / adolescent is requesting more staff attention D. The child's / adolescent's requests are related to addiction	A	32 (97%)
38 Which of the following describes the best approach for cultural considerations in caring for an infant / child / adolescent in pain? A. Because of the diverse and mixed cultures in New Zealand there are no longer cultural influences on the pain B. Nurses should use knowledge that has defined clearly the influences of pain on culture (e.g. Asians are generally stoic, Italians are expressive and exaggerate their pain etc) C. Children / adolescents should be individually assessed to determine cultural influences on pain	C	32 (97%)
25 Children less than 8 years cannot reliably report pain intensity and therefore, the nurse should rely on the parents' assessment of the child's pain intensity.	F	31 (93.9%)
31 Giving Panadol or non-steroidal anti-inflammatory agents, along with other narcotics is a logical method of increasing pain relief.	T	31 (93.9%)
32 The potency of pain relief measures selected for the infant / child / adolescent, should be determined based on the type of surgery rather than on the child's / adolescent's report of pain intensity.	F	31 (93.9%)

There were no questions that were incorrectly answered by all respondents. Of the ten questions most frequently answered incorrectly, nine were related to

pharmacological knowledge or attitudes. Table 5.14 lists the ten questions most frequently answered **incorrectly**.

Table 5.14 Questions *most frequently answered in-correctly in Section 2 & 3*

		Correct response	N (%) Correct
14	Non-drug interventions (e.g. heat, music, imagery, etc.) are very effective for mild-moderate pain control but are rarely helpful for more severe pain.	F	8 (24.2%)
16	Paracetamol 650mg PO is approximately equal in analgesic effect to codeine 32mg PO.	T	12 (36.4%)
34	Which of the following IV doses of morphine when administered would be equivalent to 15 mg of oral morphine? A. Morphine 3 mg IV. B. Morphine 5 mg IV. C. Morphine 10 mg IV. D. Morphine 15 mg IV	B	16 (48.5%)
27	Anxiolytics, sedatives, and barbituates are appropriate medications for the relief of pain during painful procedures.	F	18 (54.5%)
39	The goal of giving narcotic analgesics during the first 48 hours post-operative is to? A. Relieve the pain completely. B. Relieve as much pain as possible. C. Relieve enough pain for the patient to function. D. Relieve pain to a level at which the patient can just tolerate it.	B	20 (60.6%)
37	What do you think is the percentage of patients who over report the amount of pain they have? Circle the number closest to what you consider the correct answer. 0 10 20 30 40 50 60 70 80 90 100%	0 or 10%	22 (66.6%)
18	The usual duration of analgesia of Morphine IV is 4 – 5 hours.	F	23 (69.7%)
30	The most common side effect of morphine is respiratory distress.	F	23 (69.7%)
19	Research shows that promethazine (Phenergan) is a reliable potentiator of opioid analgesia.	F	24 (72.7%)
22	Beyond a certain dosage of morphine increases in dosage will NOT provide increased pain relief.	F	24 (72.7%)

Pharmacological and addiction knowledge and attitudes

Three of the 10 questions that were answered correctly the most, listed in Table 5.11, were related to pharmacology and addiction knowledge and attitude of the respondent (Q. 28, 31, 40). Whereas, eight of the 10 questions, that were answered incorrectly the most, listed in Table 5.12, were related to pharmacology and addiction knowledge and attitude of the respondent (Q. 16, 18, 19, 22, 27, 30, 34, 39). Of these, question 16 which stated, “Paracetamol 650mg PO is approximately equal in analgesic effect to codeine 32mg PO”, was answered incorrectly by 21 (63.6%) respondents. And question 27 which stated, "Anxiolytics, sedatives, and barbiturates are appropriate medications for the relief of pain during painful procedures", was answered incorrectly by 15 (45.5%) respondents.

Questions directed at narcotic knowledge or attitudes were also poorly answered. Question 18, which stated that “the usual duration of morphine IV is 4 – 5 hours”, and question 30 which stated that “the most common side effect of morphine is respiratory distress”, were both answered incorrectly by 10 (30.3%) respondents. While 17 (51.5%) respondents answered question 34 incorrectly. This question asked respondents to identify which intravenous doses of morphine would be “equivalent to 15mg of oral morphine?” Seven of those answering incorrectly indicated they understood that oral and IV morphine are equivalent in dose.

Question 42 related to addiction knowledge and attitude, asked respondents to read a definition and indicate how likely opioid addiction could result if treating pain with opioid analgesia, was answered incorrectly by five respondents. Twenty-seven (81.8%) of the nurses who responded, correctly indicated < 1%.

Assessment and management of pain knowledge and attitudes

Of the 10 most correctly answered questions, four were related to knowledge and attitude towards pain assessment (Q. 25, 32, 36, 38). Twenty-eight respondents correctly indicated that the most accurate judge of pain is the child/adolescent. Figure 5.6 details the response of the other five respondents.

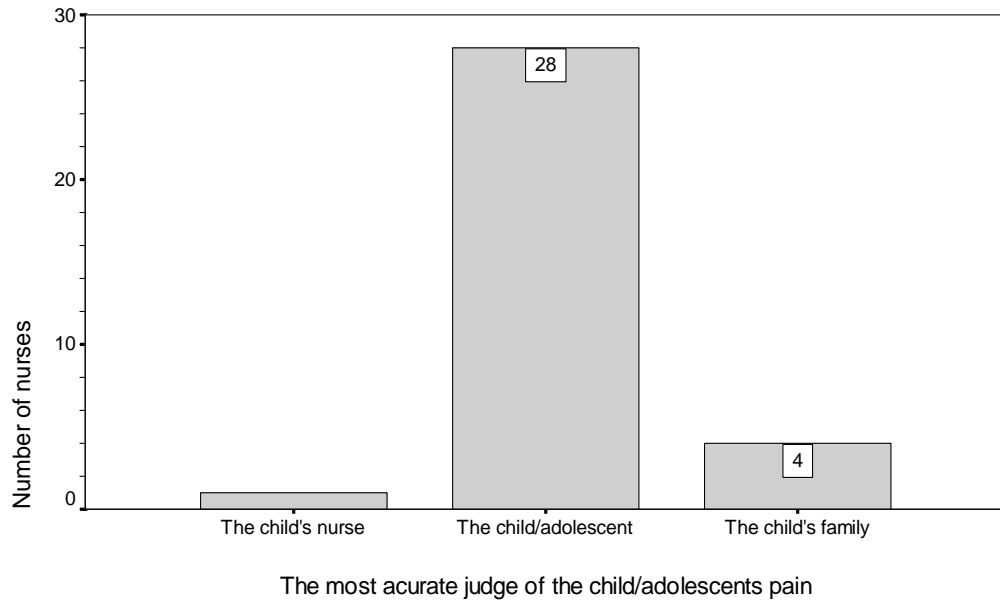


Figure 5.6. The most accurate judge of pain

While 22 (66.6%) correctly answered question 37, which asked nurses to indicate the number of patients who over report pain, the correct response being 0% or 10%, of these 14 (42.4%) who indicated they felt 10% of patients over report pain. Eight (24.2%) indicated they believed up to 30% of patients over report pain, and a further three nurses indicated that they believe 50% (n=1) or 60% (n=2) of their patients over report pain.

Case scenarios

Two case scenario situations were presented in the questionnaire, Andrew and Robert, both aged 14 years and both first day post abdominal surgery. In question 43A, Andrew rates his pain as 8, he smiles and is talking and joking with his visitor. In question 44A Robert also rates his pain as 8, he is lying quietly in bed and grimaces as he turns in bed. The correct response by the respondents, for both Andrew and Robert, should have been 8.

Only 10 (30%) of the respondents rated Andrew's pain as 8, 17 (51.5%) rated his pain as 5 or below. The range was from 3 to 8, from an available range of 1-10. Of the 33 respondents, 22 (66.7%) rated Robert's pain as 8, while three (9.1%) rated his pain as greater than eight, the range was from 6 to 106. Figure 5.7 details the range in scores from both scenarios.

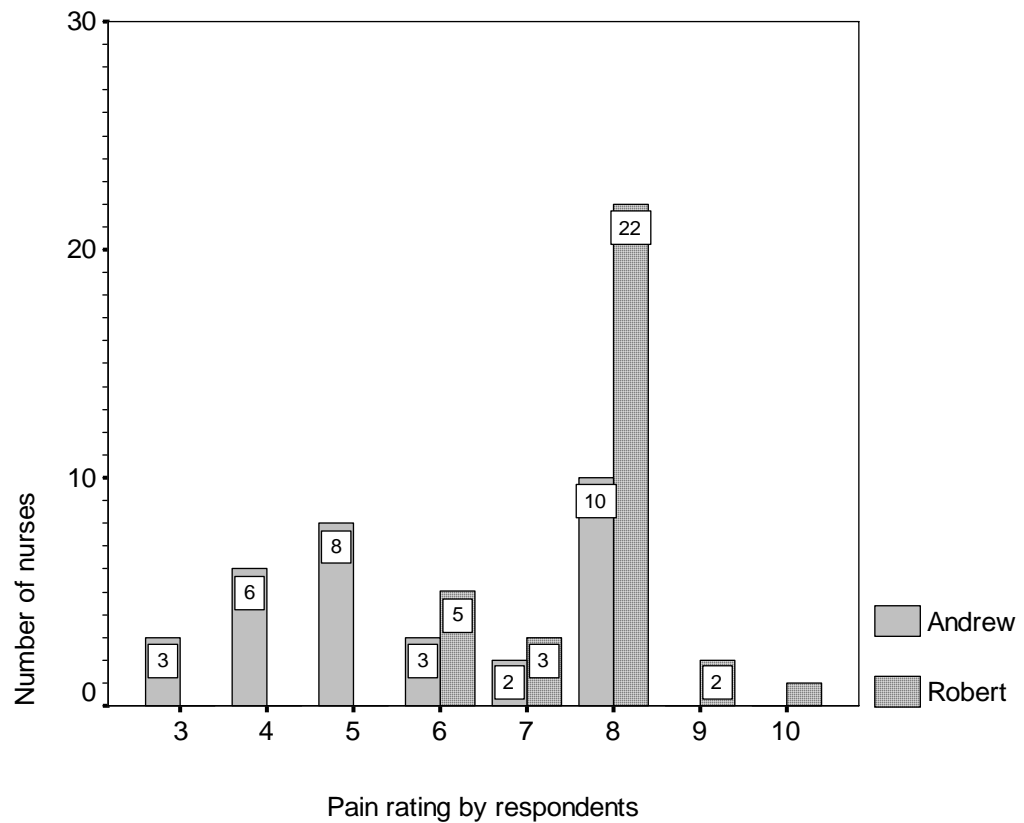


Figure 5.7. Nurses' assessment of Robert' and Andrew's pain

Only nine of the respondent's believed both Andrew's and Robert's own assessment of eight on the pain scale. Of these nine only one incorrectly answered question 41, which asked who was the most accurate judge of the intensity of the child's pain. The range in total correct score of Section 2 and 3 for these nine respondents was 25 to 32. Of the other respondents, eight under scored both Andrew's and Robert's pain, the range in scores being from 3 to 7. Two respondents under scored Andrew while over scoring Robert.

Respondents who had worked for less than 5 years in their current setting were more likely to underestimate Andrew's pain and not believe his pain rating, whereas they were more likely to believe Roberts own pain rating as shown in Figure 5.8 and 5.9.

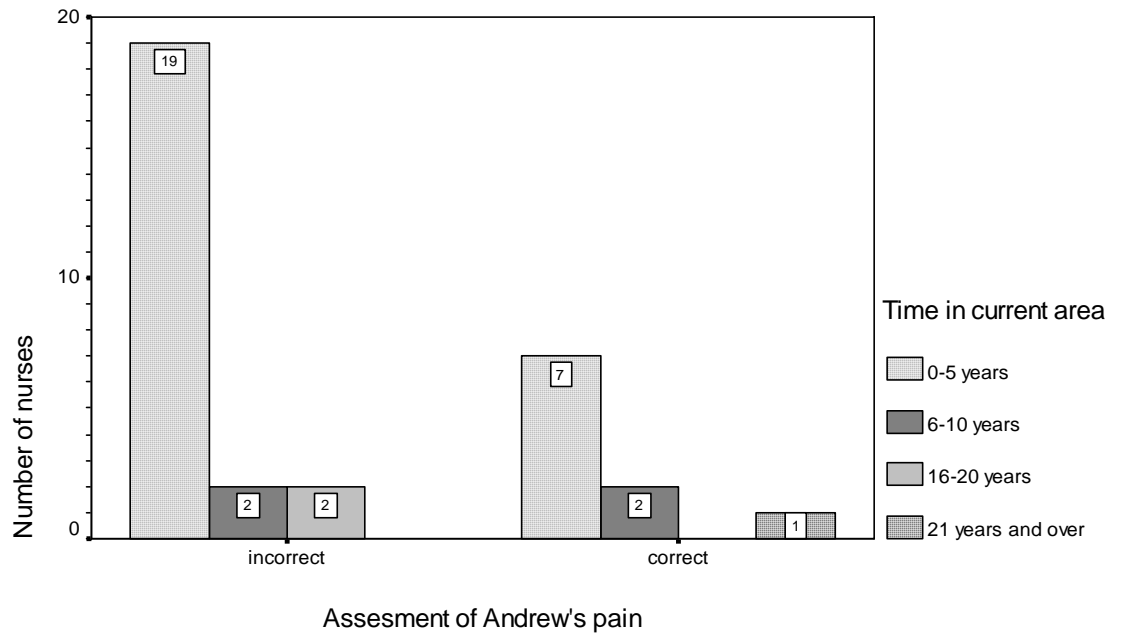


Figure 5.8. Nurses' assessment of Andrew's pain related to time in area

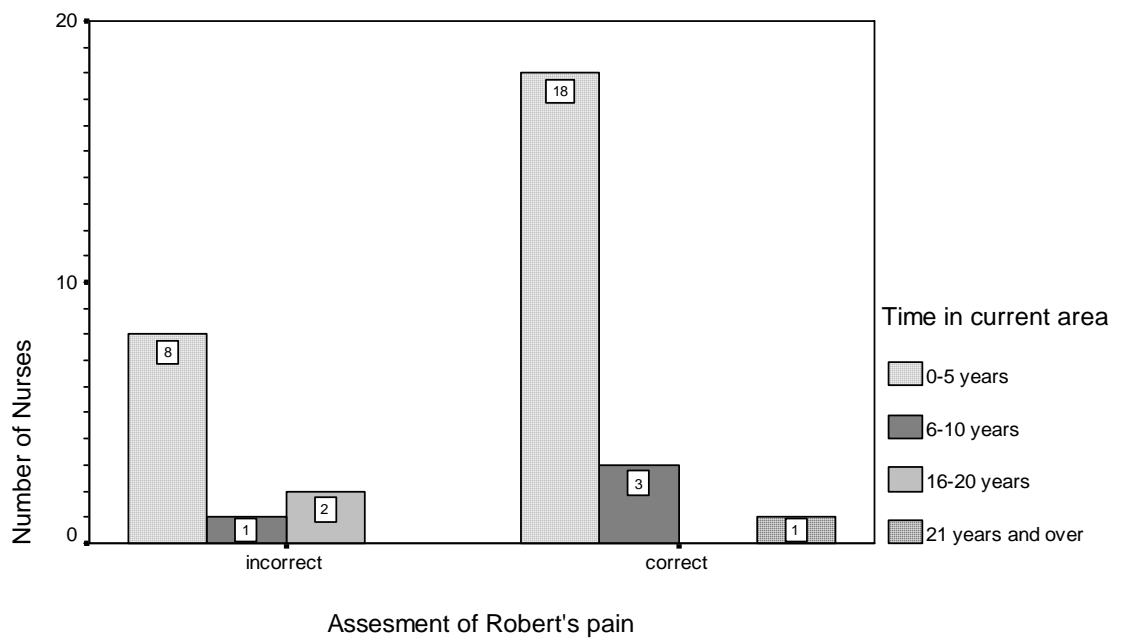


Figure 5.9. Nurses' assessment of Robert's pain related to time in area

The length of years nursing made very little difference to the assessment of Andrew's pain with 23 indicating a wrong pain rating for Andrew, and 11 for Robert. Figure 5.10 illustrates that of those who incorrectly assessed Andrew's pain, 10 had been nursing for more than 21 years, while Figure 5.11 details results for Robert, and shows seven had been nursing for more than 21 years.

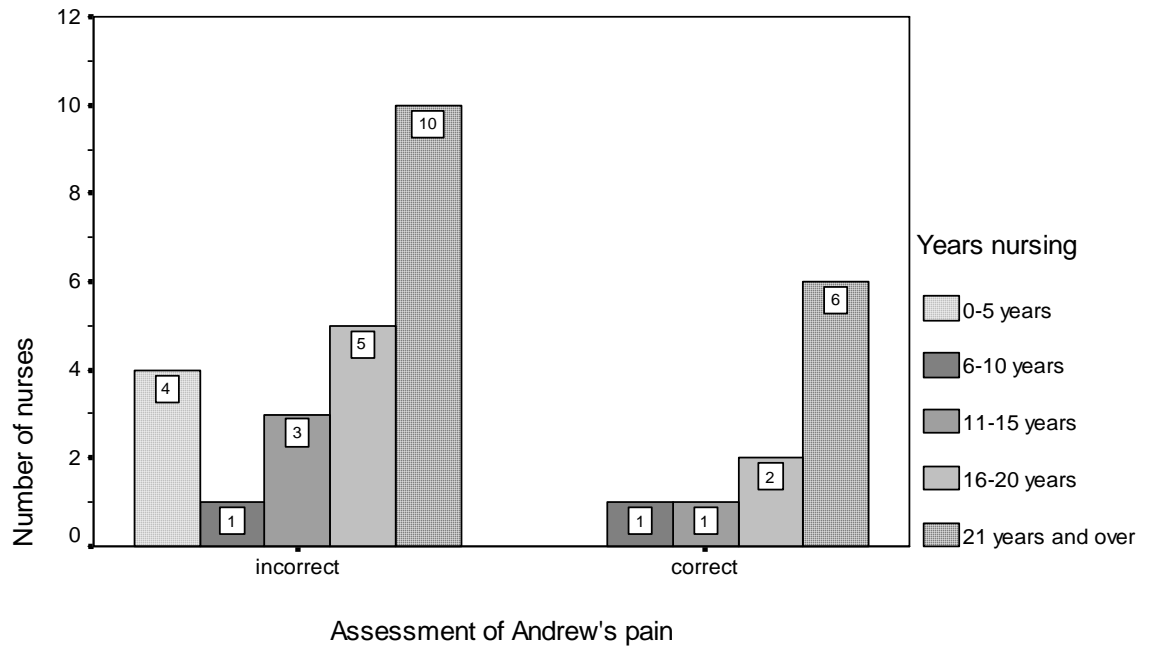


Figure 5.10. Nurses' assessment of Andrew's pain related to years nursing



Figure 5.11. Nurse's assessment of Robert's pain related to years nursing

Table 5.15 shows that when choosing what morphine dose to administer for Andrew's pain, 11 (33.3%) chose 3mg, the maximum dose available, where as for Robert, 20 (60.6%) chose the maximum morphine dose available. Four respondents (12.1%) would have offered Andrew no morphine; and one would have offered Robert no morphine either. However nine (27.3%) would have offered Andrew 2mg of morphine, compared to 12 (36.4%) who would have

offered Robert 2mg of morphine. Nine (27.3%) would have offered Andrew 1mg of morphine, this option was not chosen by any of the respondents for Robert.

Of the nine respondents who had indicated they would believe Andrew's and Robert's own pain assessment, only six would have offered the maximum dose of morphine available to both Andrew and Robert. The other three would have offered Andrew the lesser dose of 2mg of morphine, and one would have offered Robert the lesser dose of 2mg of morphine.

Table 5.15 Medication dosage chosen by respondents

Action that would have been taken by respondents	N (%) Andrew	N (%) Robert
No Morphine	4 (12.1%)	1 (3.0%)
1mg Morphine	9 (27.3%)	0 (0.0%)
2mg Morphine	9 (27.3%)	12 (36.4%)
3mg Morphine	11 (33.3%)	20 (60.6%)

Conclusion

This chapter presented the results of the descriptive analysis of data collected in the Paediatric Nurses' Knowledge and Attitudes Survey. Standard statistical tests to examine relationships between variables, such as demographic variables and total scores, done to determine if any significant differences occur were not undertaken, as cell size was often insufficient for such statistical analysis. However, this does not detract from the relevance of the results presented in this chapter and discussed in the following chapter.

Chapter 6:- Discussion

Introduction

The aim of this study was to determine the level of knowledge and attitudes, regarding paediatric post-operative pain, of registered nurses working in small regional paediatric units. And to explore how nurses working in these areas gained their knowledge and skills, and if they felt they were able to implement their knowledge within their clinical setting. Research into pain management, reported in the literature is abundant and most report similar areas of concern, that of the knowledge and attitudes of nurses in relation to various aspects of pain management. Most of the research relates to adult nursing, and was undertaken in large tertiary hospitals in the Northern Hemisphere. This study sought to understand issues for nurses in paediatric settings within small New Zealand regional hospitals.

Knowledge deficit and poor attitude towards pain can lead to bad pain management practices of nurses, and as a consequence unnecessary suffering of children in their care. If the same instrument used in other research studies, had been used in this study, a more direct comparison could have been undertaken. However as many of the items in Section 2 and 3, for example questions 9 – 29, 34 - 38 and 40 – 42, were exactly the same as Manworren (2000), some comparisons can be made. Other studies have also utilised similar questions developed by McCaffery and Ferrell (1997) therefore some comparison with these research studies can also be made. The findings of this study support the concern that inadequate knowledge and poor attitudes exist towards paediatric pain management.

By analysing individual items that were most frequently answered incorrect in Chapter 5, areas that require further input were identified. Firstly discussion of the research process will be presented, followed by what the findings of this study mean for the clinical practice and education of nurses. These are presented under the headings of the three questions identified in Chapter 1. The limitations of the study will also be presented in this chapter.

Research process

To encourage potential respondents to take part in this survey, contact with the clinical leaders in each area was commenced well before the actual survey was undertaken, and a reminder poster was sent two weeks after the survey packs were circulated and one week before the nominated date for return. This may have resulted in the high response rate. The response may have also been high because respondents were interested in the topic, felt confident about the topic and could see that by participating they were highlighting issues for improvement within their practice. On the other hand, it may have been the timing of the survey, before winter workload, or the incentive of a prize that was offered, that encouraged the nurses to respond.

Response to the survey

Achieving a worthwhile response to any mail survey can be difficult, low response rates (< 50%) are not uncommon and can be improved by sending reminders, offering incentives or providing a topic that is of interest to the target population (Fink, 1995a). The smaller the survey, the higher the response rate needs to be. As the target response rate for this survey had been determined as 65%, the final response rate was considered very good, at 78.6% (n=33), and was considerably better than that achieved in other similar research. Manworren (2000) achieved a response rate of 35.7% (n=247) in her survey of paediatric nurses, while Brown, Bowman and Eason (1999) a rate of 26% (n=260), and Barton 48% (n=287), whereas McCaffery (2002) achieved 3,282 returns from a survey published in *Nursing2002* and on their web site.

However, a non-response rate of 21.4% (n=9), of the sample group, may have introduced bias in the results, as nothing is known about those who didn't respond or why they didn't respond. They may have not responded because the format of the questionnaire was too difficult or they may have felt they did not have the knowledge required to complete it confidently. The demographic details of non-respondents were not known and therefore could not be compared with those who responded. Information of non-respondents that would have been useful includes some demographic and nursing background, such as length of time in an area.

Future studies should consider collecting such information from areas prior to commencing the actual study.

Knowledge and attitude towards paediatric pain management

Demographic influences on knowledge and attitude

The total scores of Section 2 and 3 were studied, in relation to specific demographic characteristics, to establish if they contributed in any way to pain knowledge and attitudes. No observable differences in total score based on age, term of employment, duration of employment in current setting, total years nursing, years of experience working with post surgical children, highest level of nursing education, and frequency involved in the management of children in pain were apparent.

While previous research has identified that inexperience and part-time work has the potential to decrease effective pain management practice (Burokas, 1985; Coyne et al., 1999), no evidence was established in this study. While it was interesting to note that the largest area surveyed had the most part-time and least number of full-time employees (see Figure 5.1), this did not appear to impact on results and due to the size of the survey cannot be tested for statistical significance. The majority of nurses were employed part-time and had been in their current setting for less than five years. This may reflect dissatisfaction within the area or be a reflection of an increasing occurrence of high turn over of nursing staff, as is currently the trend both nationally and internationally (Robinson & Pinkerton, 2004; Upenieks, 2003). Although it has been suggested that experience is helpful when working with patients in pain and that passed experience with pain increases overall knowledge and attitude scores (Barton, 2001; Van Niekerk & Martin, 2001), no evidence of this was identified in this study.

Age distribution of the sample was generally reflective of that for all of New Zealand nurses and midwives (see Table 5.2), and is similar to that reported by Barton (2001). However, in this survey, there was a higher representation of nurses in the 40 – 44 (30.3%), age group and a lower representation in the 55 and over age group (9.1%), than reported in the national figures. As the numbers were small,

this can not be deemed representative of the wider population of nurses working in small paediatric units. Also for the same reason no significance was placed in the data related to ethnicity, and no further analysis was undertaken related to ethnicity.

Knowledge and attitudes scores

The original authors of both the Nurses' Knowledge and Attitudes Survey Regarding Pain (NKAS), and the Paediatric Nurses' Knowledge and Attitudes Survey Regarding Pain (PNKAS), recommend using total scores rather than attempting to break the results into knowledge or attitude (Manworren, 2001; McCaffery & Ferrell, 1997). No predetermined acceptable score had been selected by these developers, however most other researchers have identified 80%, or higher, as acceptable (Brown et al., 1999; McCaffery & Robinson, 2002). Therefore when Section 2 and 3 were analysed together, a score of 27, or more, was identified as the score required to achieve a total score greater than 80%.

In the total score results for Section 2 and 3, 21% (n=7) scored over 90% correct, with the majority (n=21) achieving 80% or more correct. The range in scores for this survey (69.7% to 96.9%) was not as wide as has been reported in similar research. McCaffery (2002) didn't report the range of total score results but did state 42.2% of her respondents achieved a total score of 80% or more. Manworren (2000) reported a range of 31% to 97.6%. While the results appear very positive for the areas surveyed in this research, they can not be considered a reflection of an increase in pain knowledge and/or an improved attitude towards pain across other paediatric settings in New Zealand.

Some areas of knowledge and attitudes scored significantly better, others scored significantly poorer. Seven of the top ten questions answered correctly in this study were the same as those in the top ten correct results documented by Manworren (2000). These questions were all related to aspects of pain assessment. Overall this would indicate that the respondents had a good understanding of pain assessment. These results are also consistent with other studies, and while the other studies are not exactly the same as this one, they are very similar (Brown et al., 1999; Hamilton & Edgar, 1992; Manworren, 2000; McCaffery & Robinson, 2002).

Six of the ten questions in this study, that were most frequently answered incorrect, were the same as those in the top ten questions most frequently answered incorrect, reported in Manworren's (2000) study. The most significant observation being that they were all related to the pharmacological management of pain. In Manworren's study the other four questions, in the top ten questions most frequently answered incorrect, were related to cancer pain and those questions had been deleted from this survey. Both McCaffery (2002) and Brown et al. (1999) noted similar results, in their questions related to pharmacology, as was found in this study. In this study four of the 33 questions, were incorrectly answered by 15 or more respondents. Brown et al. reported 10 of 35 items being answered incorrectly by more than half of their respondent's, unfortunately Manworren's study, using the same tool that was the base for this study, did not report on this.

Knowledge and attitude of pain assessment

Overall, the respondents scored well on the true/false and multi-choice questions that were related to pain assessment. This survey produced similar results as other studies (Barton, 2001; Comley & Banks, 2000; Hamilton & Edgar, 1992; McCaffery & Ferrell, 1996; McCaffery & Ferrell, 1997). Knowledge and attitude questions related to patient variables also scored well, identifying that there was an understanding by these nurses that the best judge of pain is the patient and that if a patient asks for more analgesia it is because they are experiencing more pain.

Results also reflects similar findings to that of Van Niekerk and Martin (2001) and this does raise questions about nurses' understanding related to the difference in individual pain perception. Furthermore, while results in this survey were good, with 84.8% (n = 28) correctly indicating that the most accurate judge of pain is the child / adolescent, this belief was not shown to be carried through to the clinical scenario questions. This may be a reflection of lack of clinical experience or possibly a reflection of the "theory-practice gap" (Conway, 1994; Harriss, 2004; Landers, 2000; Upton, 1999). When nurses were asked, in the given scenarios, to rate a patient's pain, results reflected that it maybe more common for nurses to believe the patient self report, when there are also observable factors such as grimacing and elevated vital signs, than when these were absent.

In this study more than two thirds (n=23) had underrated Andrew's pain. It was Andrew who displayed no behavioural indications of distress, and was smiling and talking to friends, whereas for the scenario in which the patient (Robert) displayed behavioural indicators of pain, two thirds (n=22) believed Robert's own rating. It appears from these results, and similar research literature that some characteristics of the child, mainly verbal and facial expression, influence nurses' pain assessment practices more than others, (Hammers et al., 1994). When a nurse is faced with observations that are inconsistent with patient verbalisation, what part does the nurse's own belief in the pain experience have in their decision making? Do some believe patients should "grin and bear it (pain)"? Do they believe patients should "expect" pain after surgery? Nurses reliance on nonverbal behaviour when assessing pain has been reported in literature and may be an important barrier to the effective management of pain (Schafheutle, Cantrill, & Noyce, 2001; Zalon, 1995). My observations, from practice, are that the loud, noisy, crying, complaining child receives pain management interventions far more frequently than the child who lays quiet and still, rarely complaining.

However, a second explanation may be that these results indicate that a child's behaviour and demeanour are significant to how a nurse manages an individual's pain. Indicating that the personal beliefs and attitudes, of the respondents of this study, may be influencing their pain management practice. Nurses caring for adolescents need to consider developmental and cultural influences. The behaviour Andrew displayed may have been due to not wanting to appear weak in front of friends (Schechter, 1989), or may be a reflection of cultural influences on behaviour and expectations (Adams & Field, 2001; Craig et al., 1996). Older children are at just as greater risk of poorly managed pain, as infants and preverbal children, as they tend to show greater physical control and fewer emotional reactions, whereas younger children express their responses in a more intense, overt and movement oriented way. This is possibly because younger children are less inhibited, and have less understanding about the whole experience than an older child.

Because pain is subjective, and only the person experiencing it can know the intensity of it, all health care professional should know to rely on self report (Watt-Watson & Donovan, 1992). It was pleasing to observe that the majority of

respondents knew that observable signs were not needed to verify a child's self report of pain. Only one respondent was not aware that each child should be individually assessed to determine cultural influences on pain. Stages of growth and development also influence the physiological, psychological and experimental components of pain (Eland & Anderson, 1977). Just because the boys in the given scenarios were the same age doesn't mean they were at the same stage of growth and development.

Behaviour, vital signs, type of surgery and the length of time post surgery are not indicators of the intensity of pain and are no substitute for self report (Hammers et al., 1994; Reyes, 2003). Children may appear to tolerate pain better simply because they cannot or do not pursue pain relief as well as adults, most assuming that the nurse taking care of them will know when they hurt and what they need (McCaffery & Beebe, 1994). However, from my observations, I think nurses often rely on parents to guide them in their pain assessment, especially in younger children. This can in fact lead to many children experiencing increased pain. Parents also have attitudes about pain that contribute to poorly managed pain. Nurses need to be aware of this so they can provide parents with the right knowledge, so that parents can truly contribute accurately, without bias, to the assessment of their child.

There can be discrepancies in self report and nurses' assessment of pain. However an underlying principle of pain assessment is to first believe what the person experiencing the pain states (McCaffery & Beebe, 1994). Self report being the gold standard of pain assessment (Bishop-Kurylo, 2002). If nurses don't believe "self report" does this mean they believe patients over report pain? Over reporting pain has been cited as an area which nurses have had a knowledge deficit and poor attitude towards (Comley & Banks, 2000; Manworren, 2000). Results of this study (Table 5.4) did indicate that knowledge and attitude related to the over report of pain are better than those reported elsewhere. Manworren reported that only 11.1% of her respondents knew that less than 10% over report pain, 89.9% of her respondents having answered incorrectly, however she didn't report the details of this. Comely and Bank's results were slightly better, although they reported that there were still only 43% who knew the correct response. This may have occurred

because this was a multi-disciplinary study where nurses made up 72% of the respondents.

Although it was pleasing to find two thirds of the sample did know that the true number of patients that over report pain is less than 10%. It was however, alarming to discover that one third (n=11), indicated that they believe that more than 10% of their patients over report pain. While results appear to show an improvement, it was distressing to note that there were three nurses who indicated that they believe that more than 50% of their patients over report pain. This research did not explore the actual clinical practice of the nurses who responded, or audit patient charts at the time of the survey, so the results may not be an indication of the actual pain management practices of the respondents. However nurses who believe patients over report pain are not likely to advocate for their patients who are in pain. Also if a nurse doesn't believe a patient who reports pain, then how well, overall, do they manage pain assessment, what do they base their assessment on, and what is their goal in pain management? Children and their families rely heavily on the nurse to advocate for them and protect them from unnecessary pain. It is unlikely that a nurse, who believes patients over report pain, will choose maximum doses of analgesia for patients who state they have pain. This certainly appeared to be the case in the clinical scenarios presented in this survey, with five respondents choosing the lowest dose of morphine available to administer and two indicating they would administer no morphine at all. It is impossible to know what degree of "narcotic phobia" influenced these nurses, or what their pain management goal was.

Knowledge and attitude towards the goal of pain management

The goal of post-operative pain relief, in the first 48 hours, is an area that has two schools of thought. One school of thought is that, the continuous complete relief of pain, is unrealistic, and therefore the correct response, identified by the developer of question 39 (Whedon 1995), was to relieve as much pain as possible. However, many others believe that although completely relieving pain may be unrealistic in many situations, nurses who have complete relief of pain as a goal are more likely to medicate for acute post-operative pain and choose the maximum medication doses available (Burokas, 1985). Nurses who have complete relief of pain as a

goal, are also reported to advocate more strongly for pain relief for their patients (McCaffery & Robinson, 2002).

Respondents reflected this division, with nearly a third (n=10) indicating their goal was to relieve pain completely, and almost two thirds (n=20) indicating their goal was to relieve as much pain as possible. This is comparable to other studies that asked similar questions (Burokas, 1985; Schafheutle et al., 2001). Alarming, two respondents were only going to relieve pain enough for the patient to function and one failed to answer. These results may indicate that some nurses believe patients, including children, should expect some pain as a result of undergoing surgery.

Knowledge and attitude towards pharmacological interventions

Pharmacology of medications

The respondents demonstrated deficits in many areas of basic pharmacological knowledge related to drug dosing, drug action, dose intervals, with the most apparent being knowledge related to equianalgesic dosing. This is congruent with results from other survey research undertaken into nurses' knowledge and attitude (Brown et al., 1999; Coyne et al., 1999; Hamilton & Edgar, 1992; Manworren, 2000; McCaffery & Ferrell, 1995; McCaffery & Robinson, 2002). Eight of the top ten questions, most frequently answered incorrect, in this study were related to pharmacological knowledge. This is consistent with results from other survey studies, both adult and paediatric. Manworren also reported that eight of the questions, most commonly answered incorrect, were related to pharmacological knowledge and attitude, six of these were the same as in this research. Although questions used by Hamilton and Edgar were slightly different to Manworren, similar results were reported.

In this study, nursing knowledge related to promethazine demonstrated an increase in knowledge compared to previous studies. Nearly three quarters (n=24) correctly indicated that promethazine is NOT a reliable potentiator of opioid analgesia. Manworren (2000) reported that 24.7% knew this, and Comley and Banks (2000) also reported 24%, with Brown et al. (1999) reporting less than 20% of nurses, were aware that promethazine is NOT a reliable potentiator of opioid analgesia. It is unclear why nearly three quarters answered correctly in this study compared to

less than one quarter in previous studies. Although the majority of nurses who participated in this study had only been in the current setting for less than five years many had been nursing for more than 15 years. What impact this experience had on these results is unclear. The danger of giving promethazine is that it is very sedating and a nurse may equate sedation with pain relief. The sedative effects of promethazine may also limit the amount of opioid that can be given safely, especially in opioid naive children, therefore contributing further to the under treatment of pain. Promethazine has also been found to increase the perceived intensity of pain, increase respiratory depression, and increase the sedative and hypotensive effects of narcotics (Brown et al., 1999).

It was disturbing to note that almost half (n=15) indicated that anxiolytics, sedatives, and barbiturates are appropriate medications for *pain* relief during painful procedures. Procedural pain can and should be anticipated and managed with analgesics. The American Academy of Paediatrics (AAP) has publicised a position statement related to paediatric acute pain that clearly states that the treatment of pain should be multi-modal and be adjusted to meet individual needs (AAP, 2001). The use of anxiolytics, sedatives, and barbiturates alone do not provide analgesia, when it is necessary to use such medications, pain relief should not be forgotten. This survey did not question respondents about other pain relief measures that they use when undertaking painful procedures. Clinical experience indicates to the researcher that simple analgesia and local analgesia are utilised most of the time when the child is over one year. However, clinical experience also indicates that sometimes children under one still frequently undergo painful procedures without any pain reducing interventions at all. Some nursing staff appear to be of the opinion that older children should be able to cope with procedural pain without any pain reducing interventions. Nurses need to advocate for these infants and children and also challenge other nurses and doctors regarding this practice.

Equianalgesic dosing

The majority of respondents scored the two questions that explored knowledge and attitude towards equianalgesic dosing very poorly. Results imply a lack of knowledge related to equivalent intravenous (IV) morphine doses. Only 48.5% (n=16) correctly indicated that 5mg of IV morphine was the equivalent to 15mg of

oral (PO) morphine, with 21.2% (n=7) incorrectly indicating 15mg PO was the same as 15mg IV. Brown et al. (1999) found a similar lack of knowledge, with only 43% correctly indicating the equianalgesic dose of oral to intravenous morphine, and Manworren reported that 35.6% correctly answered this question. These results are also very similar to studies by Comely and Banks (2000), and Hamilton and Edgar (1992), although the question in their study related to intramuscular not intravenous analgesia. For the effective management of pain, especially when changing a child from intravenous to oral analgesia, nurses must have accurate equianalgesic dosing knowledge. If nurses are not aware of equianalgesic dosing, miscalculations in prescribing may go unchallenged, increasing the potential for pain to be unresolved, or for under or overdosing to occur, in children in their care.

In the other equianalgesic dosing question, only 36.4% (n=12) were aware that Paracetamol 650mg PO was approximately equal in analgesic effect to codeine 32mg PO, whilst 63.6% (n=21) indicated they were not aware of this. This was an improvement on Manworren (2000), Brown et al. (1999) and Hamilton and Edgar (1992), who all found that less than a quarter of their participants were aware that Paracetamol 650mg PO was approximately equal in analgesic effect to codeine. While knowledge of equianalgesic dosing is important for effective pain management, nurses working in paediatric settings also need a good knowledge of dose per weight prescribing so they can ensure adequate and safe doses are prescribed. However, the questionnaire used in this research did not address knowledge levels in this area.

Knowledge and attitudes related to narcotics, side effects and addiction

All respondents correctly identified that subsequent doses of opioid medication should be adjusted according to individual responses, however clinical application of this wasn't as apparent in the clinical scenarios, which may indicate that this is also lacking in practice. Although, while 30.3% (n=10) correctly rated Andrew's pain and 66.7% (n=22) correctly rated Robert's pain, it was noted with concern that 66.7% (n=22) would have given Andrew less than the maximum dose of morphine available. What's more, 39.4% (n=13) would have given Robert less than the maximum dose of morphine available. Knowledge deficits in the pharmacokinetics and pharmacodynamics of morphine may have contributed to this action by the

respondents, and is an area that has been highlighted to be in need of some improvement (Lavis et al., 1992).

When given the statement, “beyond a certain dose of morphine increases in dosage will NOT provide increased pain relief”, 72.2% (n=24) correctly indicated that this statement was false. This was also an improvement on earlier results, for example Comley and Banks (2000) reported that 55%, and McCaffery (2002) reported 42.8% incorrectly responded to a similar statement they had made about ceiling dosages of strong opioids, such as morphine.

In the clinical scenario question, many respondents chose a lower dose of morphine, rather than the maximum dose available. Only adverse effects should limit how high the dose of morphine can be, and morphine doses should be titrated for effect. In the questionnaire nurses were told that both boys had indicated two was an acceptable level of pain, and even though they had received 2mg of morphine two hours before, their pain ratings every half hour since had been between 6 and 8. Appropriate dosing would have been to increase the dose, by 25%, 50% or 100%, and or the frequency, until relief of pain was achieved.

It is hard to know why the nurses chose a lesser dose. Was it only because they didn't believe the boys own pain rating, or was it their own personal narcotic phobia or fear of addiction that prompted their response? Ninety percent of the nurses who responded indicated that fear of addiction did not inhibit them from administering opioid analgesia. However up to 21.2% did indicate some degree of discomfort with managing various aspects of opioid management. Nevertheless 82% (n=27) correctly indicated that less than one percent of patients will develop opioid addiction as a result of treating pain with opioid analgesics. While this is a similar result to that documented by Van Niekerk and Martin (2001), these results are vastly better than some previous studies (Barton, 2001; Brown et al., 1999; Hamilton & Edgar, 1992; Heath, 1998). Only four respondents in this study would not give an adolescent with a history of substance abuse an opioid, this is a much better result than Barton's research, also undertaken in New Zealand, who had almost a quarter of respondents indicating this. Regardless of age, patients in pain are entitled to opioid analgesia for acute post-operative pain. Results of this survey also indicated that 75.8% (n=25) understood “clock watchers” were not likely to be

addicted if this behaviour occurred for more than a few days. It is not clear why knowledge in the area of addiction, was better in this study, than what other studies have reported. One reason may be that as nurses in smaller units don't have as much nursing or medical support, they have educated themselves more in this area, so they feel confident in administering IV narcotics on the ward and have a better understanding of addiction because of this.

Narcotics are commonly used in the initial management of paediatric post-operative pain. Therefore nurses undertaking this should have a high degree of knowledge, related to all aspects of managing these drugs in children to ensure safe, timely and appropriate use. Thirty percent of the respondents indicated that they understood respiratory depression is the most common side effect of morphine. This indicates there is still a knowledge deficit related to narcotic use that may be continuing to contribute to the under management of post-operative pain in children. Studies show that children and infants, when given appropriate dosages of narcotics, have no greater risk of respiratory depression than adults (Carter, 1998; Eland, 1990).

Knowledge and attitudes related to non-pharmacological interventions

This survey did not set out to differentiate between pharmacological and non-pharmacological knowledge and attitudes related to the management of paediatric post-operative pain. While it is well documented that acute pain is best initially managed pharmacologically, non-pharmacological strategies also have an important role to play. It was pleasing to note that the majority of respondents understood that if a child can be distracted this did not mean they were not experiencing a high level of pain. In spite of this, it was noted with concern that the majority felt distraction was rarely helpful in more severe pain. Distraction should be utilised as part of, not instead of, all pain management strategies for children in pain. Many variables will affect whether distraction is going to be effective or not. However that should not prevent distraction being used.

The limited number of non-pharmacological questions in the tool accessed from Manworren (2000) maybe a reflection of the lack of knowledge and utilisation of these techniques as options in acute post-operative pain management. Or it may be a reflection on the limited use of these in the inpatient paediatric care setting. It is my experience that they are used, to a limited degree, for procedural and mild pain

but are not often considered for moderate or severe pain. It is my belief that there are many reasons for this, such as lack of knowledge, clinical skills, workload, staffing levels and poor attitude of some medical and management staff, but further research needs to be done in this area, within the New Zealand context.

Organisational barriers

Nurse patient ratios were reported to be a frequent or constant problem for 30.3% (n=10) of the nurses surveyed. Workload and time constraints have been identified as affecting pain management practices of nurses (Ely, 2001; Schafheutle et al., 2001). Workload often means not enough time to get to know children and their family and what the pain experience means for them. Because of patient variables, such as the developmental and cognitive age of the child, faced by nurses in a paediatric setting, time is required to effectively assess and manage a child's pain. As nurses working in small provincial settings are frequently faced with working alone, or in pairs, and are often constrained by time and workload, the knowledge of each and every nurse is vitally important.

Not only do the children and families they provide care for rely on the nurse being the “expert”, especially with pharmacological management of pain, so do inexperienced doctors, nurses and other health professionals. In this study only three nurses identified that being busy with other patients had a moderate influence on administration of narcotics. Because the question was specific to narcotics it is unclear if the numbers would have been greater had the question been related to all pharmacological interventions and if the same would have been indicated for non-pharmacological interventions.

Barton (2001) alleged that attitudes towards pain and pain management are slow to change and that an effective way to speed up attitudinal change was to influence it at an organisational level. Documenting pain assessment on a regular basis is essential, and needs to be encouraged and supported by adequate forms, policies and procedures, standards of practice, and a robust quality improvement audit process. However, to effect a cultural change within the hospital or organisation towards the approach to pain management, multi-disciplinary involvement is essential. This requires the involvement of not only nurses, but also doctors,

pharmacists and other allied health professionals as well as the patients and the community at large. The educational needs of all these people would need to be addressed.

Education however, is only the first of many steps. While health care organisations continue to ignore the implications of unrelieved paediatric pain, and have no way of formally measuring or auditing it, change is unlikely. Organisational systems, standards, policy and protocol must ensure that all health care providers, not just nurses, are accountable for prioritising pain, and are accountable for using effective pain reducing measures. Institutional commitment, goals and processes (Brown et al., 1999), and national initiatives (Hamilton & Edgar, 1992) are vital for effective practice.

Prescribing patterns

Inadequate prescribing of pain relief was indicated as a frequent or constant problem by 39.4% (n=13) while insufficient knowledge of the doctor was a frequent or constant problem for 63.7% (n=21). Knowledge deficits of doctors, have also been identified in literature as being a barrier to effective pain management and the results of this survey are congruent with what has already been reported (Czurylo et al., 1999; Ely, 2001). Another issue that is frequently reported is insufficient co-operation of the doctor. This was reported as a frequent or constant problem for six nurses. While nurses depend on doctors to prescribe pain medication, it is usually only by communicating with them, when the medications are ineffective, that a doctor is aware of the need to make changes, both for that patient, and the ongoing prescribing patterns of the doctor concerned. Nurses are in an excellent position to educate new doctors, and doctors inexperienced in paediatric care, in appropriate prescribing patterns (Czurylo et al., 1999) and medication requirements of children in pain.

Most nurses cannot take responsibility for doctors prescribing behaviour. However, if nurses are going to make a difference and improve the pain management practices of new and experienced doctors, it is important that they have the knowledge to know when and what to advise these doctors. In my clinical experience, many nurses have identified that the inability to prescribe analgesic

medication themselves significantly affects their pain management practices. Some find this extremely frustrating, especially in regard to simple over the counter analgesics, which the families themselves can purchase and administer independent of any medical or nursing involvement. Standing orders or "dependent prescribing" is one way of meeting the needs of nurses and patients.

Source of paediatric pain management knowledge, and how it is updated

While 63.6% (n=21) of the respondents indicated that they had received education in pain anatomy/physiology, pain assessment, and non-pharmacological interventions for pain, prior to working in a paediatric setting, more respondents indicated they had received education in pharmacological interventions (78.8%, n=26). This was not reflected in the results of the knowledge and attitude questions of the questionnaire. Education previously experienced by these nurses may have entirely focused on adult drugs and dosages. The age and length of time nursing of respondents, indicates a wide educational background; some were hospital trained while others were educated in a tertiary educational setting.

Education needs of nurses and knowledge related to pain has evolved and changed over time. Therefore what we teach and how we manage pain should also evolve and change. However, do those involved in developing nursing curricula, and in providing nursing education related to pain, have sufficient knowledge and attitude to do this? Research indicates that the knowledge of those concerned is far from sufficient and is an area of ongoing concern (Chui et al., 2003; Ferrell et al., 1993; Manias & Bullock, 2002; Murphy, 1998; Zalon, 1995). Many of the respondents indicated that from their perception they received no education in pain anatomy/physiology, pain assessment, non-pharmacological and pharmacological interventions since commencing work in their current setting. This may be true of formal in-service programs. Nevertheless nurses are accountable for their own practice and therefore have some responsibility to ensure they have the knowledge required to practice within the setting they have chosen to work in.

Nurses who took part in this study indicated that they were not often involved in activities related to increasing pain knowledge. Many indicated that they infrequently or never took part in any multi-disciplinary discussions related to pain

(30.4%, n=10). More than two thirds had infrequently or never attended in-services related to pain (n=26). A quarter had infrequently or never read literature related to pain (n=8), or discussed pain management with a Pain Team or Nurse Leader (n=8). While almost half had infrequently or never received any education in paediatric pain assessment or management (n=16). Yet the majority (n=28) indicated they consistently or frequently were required to decide if a child has pain, and two thirds (n=22) indicated they consistently or frequently were required to decide what medication to administer. Surely every time a nurse is required to decide whether a child has pain, or whether to administer medication, is in itself a learning opportunity and should be treated as such.

All respondents had access to a clinical nurse leader and in one area this researcher is aware of access to a specific pain team. In spite of this results indicated that these were used infrequently by the majority of respondents. This may have been due to the fact that over half of those who responded did not identify that personal lack of knowledge was a concern for them, although they did indicate that a lack of knowledge of other nursing staff was occasionally or frequently a problem. This would indicate that reflection on practice and case reviews may increase individual nurses' awareness of pain issues. All respondents would also have had access to a library and pharmacist, which they could use to increase their knowledge.

A small number of nurses indicated that they had received certification in pain management, some before and some after commencing work in their current setting. The questionnaire failed to define if this was a unit, hospital or national certification. This researcher is aware that there are some departmental and hospital certification programs in some aspects of pain management available, but is not aware of any New Zealand recognised certification. Also while 21.2% (n=7) indicated they had post graduate certificates or diplomas, there was no way of knowing if these were in paediatric papers or had anything to do with pain either adult or paediatric.

This study did not ask enough specific questions to really establish how nurses, working in the areas surveyed get their paediatric pain management knowledge and how it is updated. To identify frequency, respondents were asked to choose between consistently, frequently, occasionally, infrequently and never, with no

actual time frame being identified. This allowed for individual interpretation of these terms. A more accurate idea of how often nurses access pain management learning opportunities may have been to ask respondents how often, for example in the last month or six weeks, had they accessed the listed learning opportunities. Also, it would have been useful to ask respondents to rank which learning opportunities were beneficial to them and ask how they would prefer to gain paediatric pain management knowledge and what knowledge they saw as being required and important to them. Learning the clinical management of pain has to occur in the clinical setting. While the academic setting can teach the theoretical knowledge and principles that underpin practice, the context of the individual situation can not be learnt in the classroom. Education alone is not enough (Brown et al., 1999). Nurses also need experience and organisational structures to support their pain management practices.

Influences on paediatric post-operative pain management practice

Many of the influences identified by the respondents were consistent with findings of previous research. More than half indicated that they were moderately or greatly affected by personal experience of pain, although they were not asked to identify if this was acute post-operative, trauma or chronic. There was also no way of quantifying what the respondent's definition of recent was. Personal experience of pain is one area that the nurse must reflect upon, as they need to be aware of any personal biases when assessing pain or making pain related decision for children in their care. Burokas (1985) found that having offspring who had previously had a painful experience significantly influenced nurses to medicate post-operative children more frequently. This study was unable to ascertain this from the question asked and this would be an area for further research.

Ten respondents (30%) indicated that the reluctance of medical staff to prescribe narcotics had a moderate to great influence in inhibiting them when they administered narcotic analgesia, while a further 45.5% indicated this was a small influence. Respondents needed to establish what is it that causes a nurse to be put off pursuing medical staff to prescribe narcotic analgesia? This may be due to a lack of knowledge of appropriate pain medications, or personal attitudes towards the use of narcotics in children, of the nurse. Or it may be due to the lack of

confidence, training, or lack of experience of the nurse or attitude of the doctor. It may however be due to the paternalistic environment of the organisation where, for some nurses, the doctor is viewed as the person in authority, whose decisions must not be questioned. Whatever the reason, it will only be improved if nurses reflect both on their practice, and that of others, and prioritise improving pain assessment and pain management.

Nurses were also asked to indicate, from a given list, what patient responses influenced their decisions to provide interventions for pain relief. While most respondents indicated that the factors listed were a moderate or great influence, the question did not ascertain if this was a positive or negative influence in the decision to provide interventions for pain relief. Effective care cannot be achieved while the nurse has a knowledge deficit or is influenced by attitudinal barriers (Copp, 1993; Kachoyeanos & Zollo, 1995). In this study behavioral factors appeared to influence some of the respondents in their decision making with Andrew and Robert.

There was no question in this survey asking nurses how confident they were in their knowledge of pain management, rather respondents were asked to state how comfortable they were with basic pain assessment and assessment of pain in pre-verbal infant / child. In previous research when nurses have been asked to rate how confident they are in their own knowledge, many who indicated that they are very confident actually performed poorly in knowledge and attitude questions. Given that all respondents were either very comfortable (n=13) or comfortable (n=20) with basic pain assessment, it is a concern that in the clinical scenario, Andrew's own pain rating was not accepted. Individual coping mechanisms do mean that patients will exhibit different behavioral signs of pain. As the first rule of assessment is to believe what the person expressing pain says, to discover that respondents appeared to be influenced more by behavior, is a concern.

When asked about their comfort level with assessment of pain in the pre-verbal infant / child, results also indicate that 39.4% (n=13) were very comfortable and 60.6% (n=20) were comfortable. Given that infants and preverbal children are more difficult to assess for pain and in light of the knowledge and attitude scores, this result seems to indicate an overly high level of confidence.

Limitations of this study

Any survey research utilising a questionnaire as a tool has inherent strengths and weaknesses. The use of closed questions, such as true / false and multi-choice may have limited the results in this survey. By providing the answers, respondents may have answered by guesswork rather than true knowledge. The study method and tool used did not provide for individual answers, explanations and comments that dialogue or open questions would have allowed. It is impossible to know if questions were actually understood by the respondents as intended, as answers were limited to the choices given. While the questions that made up the tool have been used before, they were developed and tested for an American context. The case scenarios used in this survey were the same as those that were tested by McCaffery (2002) and Manworren (2001) and used by Barton (2001) and Murphy (1998) except that the age of the adolescent was dropped from 16 years to 14 years. Future studies should consider using a younger child (8 – 12 years), as this is the age more frequently encountered in the areas surveyed.

A major limitation to any postal survey, is that the researcher has no way of knowing who actually completes the questionnaire, and if the response is indicative of what respondents would actually do or what they think they would do. In a postal survey there is also no way of knowing if respondents have been influenced by recent literature, which they had not actually translated into their clinical practice. This study did not explore the actual clinical practice of those nurses who responded, and therefore it cannot be correlated to the actual pain management practices of these nurses. Time, cost and geographical isolation of the researcher determined sample size for this survey, and while the response rate was good, actual numbers meant that advanced analysis was unable to be undertaken, and to some extent this limited comparison to other surveys.

Given that numbers for this survey were small, respondents can not be deemed representative of the wider population of nurses, working in small paediatric units. A major limitation of this study was size, and consequently no statistical significance can be placed in the results. However, the results from this research do provide good descriptive data to expand the body of knowledge related to paediatric pain management within the New Zealand context, of small paediatric inpatient wards in regional hospitals. Due to the numbers of nurses working in

these areas, further study involving more small paediatric units would need to be undertaken for results to have statistical significance. Although the data from this survey may not be generalisable to all other small regional paediatric wards, this thesis should stimulate discussion amongst nurses.

Also the context of the environment nurses' practice in was not addressed in this study. This is an important aspect that may affect pain management practice. Many nurses working in small paediatric units, in New Zealand, are either on their own for much of the time, or are working with a single colleague who may or may not be a registered nurse. Working within this context requires greater reliance on individual knowledge and skills and may explain the positive results of this survey. This relative isolation in clinical practice may impact on pain management practice and knowledge, and is an area that would be worthy of further research.

Another limitation of this survey was that the question used to establish prior education did not define if this education was pre or post nursing registration. In addition, a number of important organisational barriers were not addressed in the questionnaire. These relate to identifying if there was a structure that allowed for formal patient assessment and documentation of pain before or on admission, and then in ongoing regular intervals? Are responses to pain relieving interventions documented? Do nurses have standard age appropriate tools to assess pain? Are there paediatric policies related to narcotic use and patient controlled analgesia? What ongoing education programs, specific to paediatric pain assessment and management, exist in each area? Are there any age and developmentally appropriate patient education material available? Do these organisations have specific paediatric pain policies and standards of care? Are children and their families satisfied with how their pain is managed? Providing answers to all these questions was beyond the scope of this study. However I would speculate that pain documentation could be improved, and that no specific paediatric pain assessment forms exist in the areas surveyed. This is another area that requires further research.

Looking retrospectively at the research aims of this study, a different approach may have obtained superior findings. While the method and results were comparable to similar research undertaken both in New Zealand and overseas, and confirmed what

the researcher was already aware of, it did not clearly answer how nurses get their knowledge or what influences their ability to put this knowledge into practice. Three main aims were identified in this research and in hindsight it may have been better to have focused on only one, and have surveyed more widely. As education appears to be the key, working on the assumption that issues of knowledge and attitude are similar to those already identified in literature, education would have been a worthwhile area to focus on. Focusing on how nurses gain their paediatric post-operative pain management knowledge could have provided those involved in nurses' undergraduate and ongoing education with a valuable insight on which to base further education plans.

Conclusion

Knowledge deficit is a major contributing factor in the under medicating of infants and children and is an area requiring some attention. Results of this research indicate that while in some areas knowledge and attitudes are improving, there are still some basic concepts and principles missing. For example knowledge and attitude towards equianalgesic dosing, duration of action of analgesia, both of which need improving, and emphasises the need for further education related to the subjective experience of pain in children, and pharmacology aspects of managing pain in children. Both Murphy (1998) and Strochnetter (2000) recommended increased education at the undergraduate and post-graduate level. However increased nursing knowledge, by itself, may be insufficient to achieve substantial practice changes.

Respondents in this survey were given two very similar clinical scenarios, where both adolescents indicated they were in a substantial degree of pain. Many respondents appeared influenced by their own observations, more than by the self-report of the adolescents. This indicates a degree of knowledge deficit related to the experience of pain. Nurses need to understand that paediatric pain, like adult pain, is a very personal, variable, and subjective experience (Carr & Mann, 2000; Sofaer, 1992) and therefore the person best able to rate their pain is the child or adolescent themselves.

Results of this survey were consistent with previous research undertaken both in New Zealand and internationally (Barton, 2001; Brown et al., 1999; Burokas, 1985; Manworren, 2000; McCaffery & Robinson, 2002; Murphy, 1998; Van Niekerk & Martin, 2001). Nurses, and all health care professionals, require further pain education, not only in ways of treating pain, but also in the understanding of the nature of pain and the social context of pain. How this may be achieved will be addressed in the next chapter.

Chapter 7:- Conclusion

Introduction

This small study examined nurses' knowledge and attitudes towards paediatric post-operative pain management, how this knowledge is obtained and what influences pain management practices in the context of small regional paediatric wards in New Zealand. The findings provided in this thesis are important, in relation to the areas surveyed, and in the context of New Zealand paediatric pain management. Results of this research used in conjunction with other published research, raises implications for nursing education, both at the undergraduate and post-graduate level, and within nursing practice and highlight areas for further research. These insights and recommendations for further development of paediatric pain management knowledge, for both education and practice, are presented in this final chapter.

Background literature review

The literature on paediatric knowledge and attitude cited in this thesis clearly indicates that knowledge deficits and poor attitudes towards pain, of nurses and other health care providers, results in poorly managed pain experiences for children. Literature reviewed also supports the position that paediatric post-operative pain is just like adult pain, and if not treated may lead to worsening conditions. Children may have longer stays in hospital, have higher readmission rates, and more frequent outpatient visits. Unrelieved or poorly managed post-operative pain delays healing, alters immune function and increases the levels of stress and anxiety of the child and their family. It can also have profound long lasting consequences, and may increase emotional and behavioural responses during future painful events. Effective post-operative pain management has numerous benefits, not only lessening the child's pain but also leading to faster post-operative recovery, improved sleep, increased mobility, and increased parental satisfaction. This in turn leads to shorter hospital stays, fewer readmissions to hospital, and decreased need for post discharge support.

This requires health professionals to be knowledgeable about the behaviours children exhibit to express pain and to appreciate that parental opinions and

assessment of pain should be sought when assessing children's pain. And most importantly, all health professionals should be aware of their own perceptions, beliefs, attitudes and knowledge levels related to pain and pain management, and how these influence their practice.

The knowledge and attitude of the 33 nurses who completed the questionnaire were similar in many areas to knowledge and attitude results reported in other studies. The findings of this study are comparable to findings of similar studies undertaken both in New Zealand and internationally, with either adult or paediatric nurses. This study found that nurses' knowledge was often limited when it came to various pharmacological aspects of pain management such as equianalgesic dosing.

Role of education in paediatric post-operative pain management

Education appears both from this study, and many others, to be central to optimal pain management practices. While the nursing profession is the cornerstone to improving effective pain management, many nurses seem to be somewhat unprepared to respond appropriately to the pain experienced by the children they care for. Until educators make pain management a priority in all aspects of clinical practice, effective pain management practices are unlikely to change. Education in pain assessment and management is essential to nursing practice and is a core skill not an "add on" or a "nice to know" skill. Paediatric pain education can be incorporated into all aspects of the nursing curricula, without involving too much change to the curricula. Post-graduate papers, especially those providing advanced certificates in paediatric specialties, should have, as part of their content, a focus on paediatric pain management in the clinical setting. Nurses undertaking these papers have the context and experience to use for reflection, and as experienced nurses, they are better able to influence change in the clinical setting.

Nurses working in small paediatric settings, away from tertiary centres and universities who provide post-graduate education, face the daily ongoing challenge of keeping up to date with contemporary practice, current literature and research related to paediatric post-operative pain management. Everyone learns in different ways, therefore continuing education within the clinical setting needs to be creative and multi-dimensional to meet the various needs of all team members. Education

programs need to not only focus on the nurses role in pain management, but also in educating nurses' on how to facilitate a work environment with other disciplines, where the whole team is working towards achieving a pain free environment. All pain education must focus on a nurse's ethical responsibility to be accountable for effective pain assessment and management.

Children and their families also need to have access to learning opportunities to increase their knowledge of pain, pain assessment and pain management. Any institution providing paediatric surgical services must provide pre-operative assessment, including education in pain, for all children and their families. Nurses have an ethical and professional responsibility to ensure this becomes a priority, both for their individual practice and within the organisation in which they are employed.

Recommendations for practice

The main areas of practice identified in this research, requiring some improvement, are similar to those that have been identified in previous research. Whilst further research with the same nurses would be required to determine if their actual clinical practice is affected by their level of knowledge and attitudes, areas of knowledge deficit identified in this study can be addressed now. Information gained from this research helps to identify areas of strengths and weaknesses in all the areas surveyed. Knowing these will help me, in my role as Clinical Nurse Leader, in planning and developing pain in-service education for least one of the areas surveyed. The goal being to improve the outcomes for the children experiencing pain related to surgery. Any ideas and in-service programs that I develop will be shared with the other areas surveyed.

A number of strategies will be needed to change the knowledge and attitudes of both children/families and health professionals. However, while effective pain management is best achieved by using a team approach, nurses need to take responsibility and accountability for improving pain assessment and management. Senior nurses need to role model expert pain management practice. Clinical Nurse Leaders and Pain Nurse Specialists need to take responsibility, not just in role modelling appropriate pain management practices, they also need to consciously

provide learning opportunities for the nurses in the area for which they are responsible. One way of doing this is to make additional information about analgesics available. Shift hand-over is a time that can be utilised in clinical practice, as this time can provide the opportunity to remind and update nurses' knowledge, for example by focusing on the practice around a particular drug.

Specific paediatric policies and protocols, if they do not already exist, also need to be developed. Previous research has established that when there is no system for clear documentation of pain, pain management practice remains invisible and those who have responsibility for ensuring it is managed appropriately remain unaccountable. Therefore, each institution needs to develop systems and documentation to ensure that the assessment of pain and the effect of interventions, are undertaken regularly and documented. And that those who are responsible for pain assessment and management are held accountable.

Recommendations for future research

While there were some areas of improved knowledge, results of this survey indicate that nurses do continue to have knowledge deficits and poor attitudes towards some aspects of pain management. However without auditing clinical records and talking with these nurses, it is impossible to conclude exactly what it is that prevents nurses from increasing their knowledge and developing improved attitudes towards the paediatric pain experience and management of paediatric post-operative pain. Further research, incorporating chart review and utilisation of either open questions and/or interviews, or group discussions would provide far more information on which to base recommendations for practice on. Research involving small provincial and tertiary hospitals in the New Zealand context is also needed to establish how many have specific paediatric pain policies and protocols related to pain documentation, assessment and management.

Research into the knowledge and attitude of nurses providing education in the academic setting and into the content of the curricula in relation to paediatric pain is also required. Management of pain is a multi-disciplinary responsibility so any future research should include all those involved in teaching, assessing and managing pain, and not just nurses. Further research also needs to be undertaken

with nurses in the clinical setting, to establish how they gain knowledge, what stops them from increasing knowledge, and to find out the best way of providing ongoing learning opportunities.

Lack of adequate pharmacological knowledge in relation to pain medications is a re-occurring theme in published paediatric pain research. Given that the pharmacological knowledge of practicing nurses, in relation to pain medication, is an area of concern, this also raises questions about the level of pharmacological knowledge in relation to all other drugs administered to patients. Further research into other aspects of pharmacological knowledge, for example post-operative anti-emetics, should be undertaken.

Significance of this research

Whilst this research is small and cannot be generalised to other areas it is significant to the areas surveyed, and is indicative of a possible need for concern in the wider sphere. Many children in New Zealand are cared for by nurses in similar settings to those surveyed in this research project. Therefore these results will be useful to help inform practice for nurses and nurse educators in these areas. A copy of this thesis will be provided to the three areas involved. It is hoped that by reading it, the nurses working in these areas will develop a greater understanding of the complexities of post-operative pain management and their own personal level of knowledge and attitude towards children in pain.

Children must have their post-operative pain appropriately assessed and managed and paediatric nurses are uniquely positioned to facilitate this. The importance of providing effective pain management cannot be overemphasised. Effective paediatric pain management is reliant on nurses' accurately assessing pain, implementing strategies to resolve pain and then assessing the effectiveness of the strategies. Clinical knowledge is the cornerstone for the effective management of post-operative paediatric pain, therefore, nurses providing this care, should have the necessary skills and knowledge.

Ample knowledge about paediatric post-operative pain exists, and multiple sources of this information are available. Nurses have an important role in ensuring their

knowledge and practice regarding paediatric pain management is such that children do not experience post-operative pain needlessly, or are put at risk of adverse affects from poor post-operative pain management. The results from this research indicate that some nurses working in paediatric wards in regional hospitals do not have this knowledge and as a consequence some children in their care may not have their pain managed well post-operatively. Results of this study will assist in developing pain education for nurses working in the areas where this research was located. Such education will be a positive step forward in the development of nurses' knowledge and attitudes towards paediatric pain, thereby improving pain experiences and outcomes of the children whom they care for.

Appendices

Appendix 1. Paediatric Nurses' Pain Knowledge and Attitudes Survey

Paediatric Nurses' Pain Knowledge and Attitudes Survey

Instructions for completing the questionnaire

Thank you for taking the time to help me with this aspect of my Masters studies. Your input may well help to improve the understanding and management of paediatric pain in New Zealand.

The attached questionnaire is divided into five (5) parts. All parts must be completed for it to be valid for my study. It is anticipated that the completion of this questionnaire should take approximately 20 minutes. This is not a test, but it is very important that you answer the questions individually so that the information analysed will be accurate and believable.

Part One consists of Ten (10) questions related to level of control and preparedness' you have within your organisation to manage Paediatric pain. Please tick (✓) the box that best reflects this for you.

Part Two consists of Twenty-five (25) questions about pain and pain management. You are asked to score each statement as true or false.

Part Three Consists of Nine (9) questions about pain and pain management in multi-choice format. You are asked to choose the appropriate answer from 3 – 4 choices.

Part Four consists of two (2) case studies related to post-operative analgesia that you will need to read, then answer the two questions that follow.

Part Five consists of Eight (8) questions related to demographic data such as age, education. Please complete all of these questions, as they are vital in the final analysis.

Please do not identify yourself on the questionnaire.

Please return the lucky prize entry sheet with your details in the same envelope as the questionnaire.

The front lucky prize entry sheet will be removed from the questionnaire before the researcher has access to the questionnaire.

Prize-winners will be notified immediately.



Thank you for your support.

Please return before _____

Paediatric Nurses' Pain Knowledge and Attitudes Survey

Section One - Level of control within your clinical setting

Place a tick (✓) by the correct answer.

1. **Prior to working in a Paediatric setting did you receive or participate in any of the following:-**

	Yes	No	Not sure
A. Education in Anatomy / physiology of pain.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
B. Education in Pain assessment.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
C. Education in Non-pharmacological interventions.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
D. Education in Pharmacological interventions.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
E. Certification in Pain management.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>

2. **Since commencing work in a Paediatric setting have you receive or participate in any of the following:-**

	Yes	No	Not Sure
A. In-service education in Anatomy / physiology of pain.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
B. In-service education in Pain assessment.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
C. In-service education in Non-pharmacological interventions.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
D. In-service education in Pharmacological interventions.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
E. Certification in Pain management.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>

3. **Please indicate the frequency with which you access or experience the following: -**

	Consistently	Frequently	Occasionally	Infrequently	Never
A. Taken part in multi-disciplinary discussions related to pain assessment or management.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
B. Attend in-services related to pain.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C. Read journal articles or pain literature on the Internet, related to paediatric pain.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
D. Received any education on paediatric pain assessment / management.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
E. Discussed pain management with the Pain Team or Nurse Leader.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
F. Deciding whether or not an infant / child has pain post surgery.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
G. Deciding what medication to administer to an infant post surgery.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

4.	To what degree has a recent experience with pain: self, family influenced your nursing decisions about pain management:-	No Influence	Small Influence	Moderate Influence	Great Influence
	A. Personal experience with pain – self.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	B. Personal experience with pain – family.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
5.	To what degree do the following inhibit you from administering narcotic analgesia:-	No Influence	Small Influence	Moderate Influence	Great Influence
	A. Too busy with other patients or duties.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	B. Reluctance of medical staff to order narcotic.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	C. Fear of opioid addiction.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	Lack of information related to pain management				
	D. Lack of knowledge of drugs.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	E. Lack of assessment skills.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
6.	Which of the following patient responses influences your decisions to provide interventions for pain relief:-	No Influence	Small Influence	Moderate Influence	Great Influence
	A. Facial expression.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	B. Sleeping.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	C. Vital Signs.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	D. Increased motor movements.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	E. Decreased motor movements.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	F. Family report of infant / child discomfort.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	G. Child's report of pain using a pain measurement tool.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
7.	Please indicate your comfort level on the following : -	Very Comfortable	Comfortable	Not Comfortable	Very Uncomfortable
	A. Basic pain assessment.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	B. Assessment of pain in pre-verbal infants / children.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	C. Opioid titration.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	D. Recognising respiratory depression.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	E. Managing opioid side effects.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	F. Programming and managing a PCA pump.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	G. Nursing care of an infant with a morphine infusion.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	H. Using non-pharmacological pain management measures.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	I. Physiology of pain.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>

8. Please indicate the frequency with which you consider the following to be barriers or problems related to nursing staff being able to provide optimum pain relief:-

	Consistently	Frequently	Occasionally	Infrequently	Never
A. Insufficient knowledge about the patient or family.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
B. Insufficient knowledge of the doctor.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
C. Insufficient knowledge of other nursing staff.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
D. Insufficient co-operation by the doctor in relation to your suggestions.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
E. Inadequate prescribing of pain relief.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
F. Patient to nurse ratio (i.e. insufficient time to spend with individual patients).	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
G. A personal lack of knowledge.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
H. Infant / child's / adolescent's co-operation taking medication.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
I. Doctor's knowledge and perception of pain.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Section Two - True and False

True/False – Circle the one which you consider is the correct statement.

- | | | | |
|-----|---|----------|----------|
| 9. | Observable changes in vital signs must be relied upon to verify a child's / adolescent's statement that he/she has severe pain. | T | F |
| 10. | Because of an underdeveloped neurological system, children under 2 years of age have decreased pain sensitivity and limited memory of painful experiences. | T | F |
| 11. | If the infant/ child/ adolescent can be distracted from his pain this usually means that he /she is not experiencing a high level of pain. | T | F |
| 12. | Infants/ children/ adolescents may sleep in spite of severe pain. | T | F |
| 13. | Comparable stimuli in different people produce the same intensity of pain. | T | F |
| 14. | Non-drug interventions (e.g. heat, music, imagery, etc.) are very effective for mild-moderate pain control but are rarely helpful for more severe pain. | T | F |
| 15. | Children who will require repeated painful procedures (i.e. daily blood draws) should receive maximum treatment for the pain and anxiety of the first procedure to minimise the development of anticipatory anxiety before subsequent procedures. | T | F |
| 16. | Paracetamol 650mg PO is approximately equal in analgesic effect to codeine 32mg PO. | T | F |
| 17. | The World Health Organisation (WHO) pain ladder suggests using single analgesic agents rather than combining classes of drugs (e.g. combining an opioid with a non-steroidal agent). | T | F |
| 18. | The usual duration of analgesia of Morphine IV is 4 – 5 hours. | T | F |
| 19. | Research shows that promethazine (Phenergan) is a reliable potentiator of opioid analgesia. | T | F |
| 20. | Parents should not be present during painful procedures. | T | F |
| 21. | Adolescents with a history of substance abuse should not be given opioids for pain because they are at high risk for repeated addiction. | T | F |
| 22. | Beyond a certain dosage of morphine increases in dosage will NOT provide increased pain relief. | T | F |
| 23. | Young infants, less than 6 months of age, cannot tolerate opioids for pain relief. | T | F |
| 24. | The child / adolescent with pain should be encouraged to endure as much pain as possible before resorting to a pain relief measure. | T | F |
| 25. | Children less than 8 years cannot reliably report pain intensity and therefore, the nurse should rely on the parents' assessment of the child's pain intensity. | T | F |
| 26. | Based on one's religious beliefs a child / adolescent may think that pain and suffering is necessary. | T | F |
| 27. | Anxiolytics, sedatives, and barbiturates are appropriate medications for the relief of pain during painful procedures. | T | F |

- | | | | |
|-----|---|----------|----------|
| 28. | After the initial recommended dose of opioid analgesic, subsequent doses should be adjusted in accordance with the individual patient's response. | T | F |
| 29. | The child / adolescent should be advised to use non-drug techniques alone rather than concurrently with pain medications. | T | F |
| 30. | The most common side effect of morphine is respiratory distress. | T | F |
| 31. | Giving Panadol or non-steroidal anti-inflammatory agents, along with other narcotics is a logical method of increasing pain relief. | T | F |
| 32. | The potency of pain relief measures selected for the infant / child / adolescent, should be determined based on the type of surgery rather than on the child's / adolescent's report of pain intensity. | T | F |
| 33. | If a patient is a clock-watcher and asks for his/her medication each time he/she knows its due, after several days of this behaviour, he/she may be addicted. | T | F |

Section Three - Multiple Choice

Place a tick (**✓**) by the correct answer.

- | | | | | |
|---|----------------------------|----------------------------|----------------------------|----------------------------|
| | A | B | C | D |
| 34. Which of the following IV doses of morphine when administered would be equivalent to 15 mg of oral morphine?
A. Morphine 3 mg IV.
B. Morphine 5 mg IV.
C. Morphine 10 mg IV.
D. Morphine 15 mg IV. | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> | 4 <input type="checkbox"/> |
| | A | B | C | D |
| 35. Analgesics for post-operative pain should initially be given?
A. Around the clock on a fixed schedule.
B. Only when the child/ adolescent asks for the medication.
C. Only when the nurse determines that the infant / child/ adolescent has moderate or greater discomfort.
D. Only as ordered by the surgery resident. | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> | 4 <input type="checkbox"/> |
| | A | B | C | D |
| 36. The <u>most likely</u> explanation for why a child / adolescent with pain would request increased doses of pain medication is?
A. The child / adolescent is experiencing increased pain.
B. The child / adolescent is experiencing increased anxiety or depression.
C. The child / adolescent is requesting more staff attention.
D. The child's / adolescent's requests are related to addiction. | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> | 4 <input type="checkbox"/> |
| 37. What do you think is the percentage of patients who over report the amount of pain they have? | | | | |

Circle the number closest to what you consider the correct answer.

0 10 20 30 40 50 60 70 80 90 100%

A B C

38. Which of the following describes the best approach for cultural considerations in caring for an infant / child / adolescent in pain? 1 ☐ 2 ☐ 3 ☐
- Because of the diverse and mixed cultures in New Zealand there are no longer cultural influences on the pain.
 - Nurses should use knowledge that has defined clearly the influences of pain on culture (e.g. Asians are generally stoic, Italians are expressive and exaggerate their pain etc.)
 - Children / adolescent's should be individually assessed to determine cultural influences on pain.
39. The goal of giving narcotic analgesics during the first 48 hours post-operative is to? A B C D
1 ☐ 2 ☐ 3 ☐ 4 ☐
- Relieve the pain completely.
 - Relieve as much pain as possible.
 - Relieve enough pain for the patient to function.
 - Relieve pain to a level at which the patient can just tolerate it.
40. The recommended route of administration of opioid analgesics to patients with brief, severe pain of sudden onset, e.g. trauma or post-operative pain is? A B C D
1 ☐ 2 ☐ 3 ☐ 4 ☐
- Intravenous.
 - Intramuscular.
 - Subcutaneous.
 - Oral.
41. The most accurate judge of the intensity of the child / adolescent's pain is? A B C D
1 ☐ 2 ☐ 3 ☐ 4 ☐
- The treating physician.
 - The child / adolescent's primary nurse.
 - The child / adolescent.
 - The child / adolescent's family.

Narcotic/opioid addiction is defined as psychological dependence accompanied by overwhelming concern with obtaining and using narcotics for psychic effect, not for medical reasons. It may occur with or without the physiological changes of tolerance to analgesia and physical dependence (withdrawal).

42. Using this definition, how likely is it that opioid addiction will occur as a result if treating pain with opioid analgesics?

Circle the number closest to what you consider the correct answer.

< 1% 5% 25% 50% 75% 100%

Section Four - Case Studies

Two patient case studies are presented. For each patient you are asked to make decisions about pain and medication

Directions: Please select one answer for each question.

- 43.** Patient A: Andrew is 14 years old and this is his first day following abdominal surgery. As you enter his room, he smiles at you and continues talking and joking with his visitor.

Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort), he rates his pain as 8.

- A. By using the scale below, circle the number that represents **your** assessment of Andrew's pain.

No Pain / Discomfort	0	1	2	3	4	5	6	7	8	9	10	Worst Pain/ Discomfort
<hr/>												

Your assessment, above, is made two hours after he received morphine 2 mg IV. After he received the morphine, his pain ratings every half-hour ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects.

He has identified 2 as an acceptable level of pain relief.

His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief."

- B. Tick the action you will take at this time:

	1	2	3	4
Administer no morphine at this time.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
Administer morphine 1 mg IV now.				
Administer morphine 2 mg IV now.				
Administer morphine 3 mg IV now.				

44. Patient B: Robert is 14 years old and this is his first day following abdominal surgery. As you enter his room, he is lying quietly in bed and grimaces as he turns in bed.

Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8.

- A. By using the scale below, circle the number that represents **your** assessment of Andrew's pain.

No Pain / Discomfort	0	1	2	3	4	5	6	7	8	9	10	Worst Pain/ Discomfort
<hr/>												

Your assessment, above, is made two hours after he received morphine 2 mg IV. After he received the morphine, his pain ratings every half hour ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side-effects.

He has identified 2 as an acceptable level of pain relief. His physician's order for analgesia is "morphine IV 1-3 mg q1h PRN pain relief."

- B. Tick the action you will take at this time:

	1	2	3	4
Administer no morphine at this time.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
Administer morphine 1 mg IV now.				
Administer morphine 2 mg IV now.				
Administer morphine 3 mg IV now.				

Section Five – Demographic Information

45. Age.

- 1 ☐ 20 – 24 2 ☐ 25 – 29 3 ☐ 30 – 34 4 ☐ 35 – 39
5 ☐ 40 – 44 6 ☐ 45 – 49 7 ☐ 50 – 54 8 ☐ 55 and over

46. Which ethnic groups do you identify with. (Tick as many as required)

- 1 ☐ N.Z Maori 2 ☐ N.Z. Pakeha/European
3 ☐ Pacific People 4 ☐ Other
Please specify _____

47. Terms of employment.

- 1 ☐ Full-time 2 ☐ Part-time 3 ☐ Casual

48. Duration of employment in current setting.

- 1 ☐ 0 – 5 years 2 ☐ 6 – 10 years 3 ☐ 11 – 15 years 4 ☐ 16 – 20 years
5 ☐ 21 years and over

49. Total years nursing.

- 1 ☐ 0 – 5 years 2 ☐ 6 – 10 years 3 ☐ 11 – 15 years 4 ☐ 16 – 20 years
5 ☐ 21 years and over

50. Years of experience working with post surgical infants / children / adolescents.

- 1 ☐ 0 – 5 years 2 ☐ 6 – 10 years 3 ☐ 11 – 15 years 4 ☐ 16 – 20 years
5 ☐ 21 years and over

51. Highest level of nursing education. (tick one)

- 1 ☐ Hospital certificate / registration 2 ☐ Diploma
3 ☐ Degree 4 ☐ Post Graduate Certificate/Diploma
5 ☐ Masters 6 ☐ PhD

52. How frequently are you involved in the management of pain in children 0 – 14 years post surgery?

- 1 ☐ Almost never
2 ☐ Less than once a week
3 ☐ Several times each week
4 ☐ Daily
5 ☐ More than once a day

Thank you.

Please place the completed questionnaire in the envelope provided.

Appendix 2. Permission from Renee Manworren

Renee Manworren, MS, RN, CNS
Pain Management Clinical Nurse Specialist
Children's Medical Center of Dallas
1935 Motor St, B-505
Dallas, TX 75235
214-456-6041
Renee.Manworren@Childrens.com

Thank you for your request regarding the use of the Pediatric Nurses Knowledge and Attitude Survey Regarding Pain. This e-mail serves as permission to use and duplicate the survey for clinical, educational, and research purposes. Please forward results and statistical analysis to me so I can further refine the tool.

The Pediatric Nurses' Knowledge and Attitudes Survey Regarding Pain (PNKAS) is a modification of Ferrell and McCaffrey's Nurses' Knowledge and Attitudes Survey Regarding Pain (NKAS). The survey was modified for use with pediatric nurses. Following these modifications, five national content experts in pain management rated the relevance of the items to establish content validity. Test-retest reliability of the tool using data from 12 subjects was found to be $r=0.67$, indicating an acceptable level of stability. The Cronbach's alpha was 0.72 from the responses of 247 pediatric nurses working in a large children's hospital and 0.77 using the responses from 88 members of a pediatric nursing specialty organization, indicating an acceptable level of internal consistency.

In addition to your request, permission for use of this tool has been granted to the United States Army and organizations in Park Ridge, IL Indianapolis, IN, Nashville, TN, San Diego, CA Dobbs Ferry NY, Atlanta, GA, Houston, TX, Chicago, IL, Joliet, IL, Delaware, Cincinnati, OH, Des Moines, IA, Norfolk, VA, Suffolk, VA, Miami, FL, Toronato, Canada, Sydney, Australia, Nottingham University, England, Dublin, Ireland, Liverpool Hospital in New Zealand and The Shriner's Hospitals. Pain Consultants Carol Curtiss & Pediatric Pain Consultant, Donna Wong, also have permission to use this tool in their educational programs and research efforts. It has also been translated for use in Shanghai, China.

While most facilities have reported results in % correct responses, I also recommend looking at the top ten items answered correctly, and those answered incorrectly. This allows you to focus future educational and clinical interventions on specific needs. The researcher from England also specifically looked at the items that addressed respiratory depression concerns and addiction concerns to identify inconsistencies in knowledge and attitude.

I am not familiar with the Post-operative Pain Management Needs Assessment tool or M. Whedon, so I am sorry I can't help you with that portion of your study.

Thank you for your interest in this tool and your interest in improving pain management for children. Please do not hesitate to contact me at this e-mail address for further information or to help you analyze results.

Renee

Hi Renee,

I am a Registered nurse in New Zealand undertaking my Masters of nursing studies. As part of this I will be doing a small research project. What I would like to look at is pain knowledge, attitudes and needs of general nurses working in small (5 - 12 bed wards) in small hospitals in the New Zealand context. I would like permission to use your PNKAS survey (1999) I would also like to be able to use some of the questions that are part of the Post-operative Pain Management Needs Assessment developed by M. Whedon (1995). I wondered if you have an email address of M. Whedon so I can get their personal permission. Are you able to give me permission to use your PNKAS survey (1999) How do you analyse data collected from this survey. Looking forward to hearing from you
Sue

Sue Smart
Clinical Nurse Leader

Appendix 3. Permission from Marie Whedon (Bakitas)

From: Marie Bakitas [Marie.Bakitas@Dartmouth.EDU]

Sent: Thursday, 25 September 2003 02:47

To: "Sue Smart"

Subject: Re: Post Operative Pain Management Needs

Hi sue

you have my permission to use whatever you wish. We had the help of a nurse data analyst and she created a data base and did some very simple frequency distributions. One word of advice. remember some questions are knowledge and have a "right" answer. get consensus on what the right answer is before distributing. other questions are "attitudes" and we used these to "diagnose" areas in our institution ripe for change. we did not report a summary score of the total tool. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Regardsz.m

On Wed, 24 Sep 2003 08:22:51 +1200 "Sue Smart"

[REDACTED]

> Post Operative Pain Management Needs

> Hi Marie

>I am a Registered nurse in New Zealand undertaking my Masters of nursing studies. As part of this I will be doing a small research project. What I would like to look at is pain knowledge, attitudes and needs of general nurses working in small (5 - 12 bed wards) in small hospitals within the New Zealand context. I have permission from Renee Manworren to use the PNKAS survey (1999) But I would also like to be able to use some of the questions that are part of the Post-operative Pain Management Needs Assessment developed by yourself (1995). Are you able to give me permission to use your Post-operative Pain Management Needs Assessment. How did you analyse data collected from this survey. Looking forward to hearing from you

> Sue Smart

> Clinical Nurse Leader

> Paediatric Inpatients / Outpatients Services.

[REDACTED]

Appendix 4. Letter of explanation

VICTORIA UNIVERSITY OF WELLINGTON

Te Whare Wānanga o te Ūpoko o te Ika a Māui



Date

Dear

I would like to invite you to participate in a Paediatric pain assessment and management survey, by completing the enclosed questionnaire. This research is being completed as a requirement of my Master of Arts (Applied) in Nursing. I am a graduate student at Victoria University of Wellington; my supervisor is Kathy Nelson (contact details below).

The research project is entitled Paediatric Nurses Assessment and Management of pain in infants and children: A New Zealand provincial view.

As you will be aware pain, and fear of pain, are major concerns for many hospitalised infants and children and of concern to many nurses. Previous research in paediatric pain has primarily occurred in the northern hemisphere and samples nurses with a different training / educational background, and who are usually working in large tertiary hospital settings. Previous New Zealand research on this topic has focused on the adult experience.

Purpose of the study

The purpose of this research is to examine the management of paediatric pain within the New Zealand context of small regional hospitals. This study hopes to address the following areas that I am interested in.

- What is the knowledge and attitude towards paediatric pain management in the areas identified?
- How do nurse's working in these areas get their paediatric pain management knowledge and how is it updated?
- What is it that influences the paediatric post-operative pain management practices of these nurses'?

By participating you will be able be helping to increase the body of nursing knowledge in relation to paediatric pain assessment and management, in the New Zealand context, a make a contribution to the improvement of paediatric pain management practices in New Zealand.

Selection of participants

All nurses working in the Paediatric inpatients areas in three New Zealand regional hospitals of similar size have been asked to participate by completing this survey questionnaire. Ethics approval has been gained from the Victoria University of Wellingtons Human Ethics Committee to carry out this research. It is very important for the success of this study that you complete and return the enclosed questionnaire. Agreement to participate in this study is by completing and returning the questionnaire. By participating you also have a chance to win a

Whitcoulls book voucher valued at \$50 – There will be one for each area participating in the survey.

Anonymity

Please do not identify yourself on the questionnaire. The front information sheet (blue, yellow or pink front page) has a place for you to write your name. This will be used to track the return or non-return percentages and to assist notification of the lucky prizewinner. Please return the information sheet with your details in the same envelope as the questionnaire.

To ensure your anonymity an assistant, who is not connected with the study, will remove the front sheet from the questionnaire before I as the researcher have access to the questionnaire. The separated information sheets will then be placed in a draw for selection of the winners after the final date for return of the questionnaire. Prizewinners will be notified immediately.

Results

Results of this survey will be written up as part of completion of my Master of Arts (Applied). Areas surveyed will not be identified in the results. In the writing of my thesis they will be analysed together and referred to as being from three small regional units. I plan to disseminate the results to the areas surveyed, with copies for the Clinical Nurse Leader and the Director of Nursing of each area. Copies of the thesis will be available through Victoria University of Wellington.

Return Questionnaire by _____ (In the stamped addressed envelope provided)

Please ensure you complete all items of the questionnaire without help, as seeking help will affect **the validity and reliability of any analysis of the data gathered, remember this is NOT a test.**

Incomplete questionnaires may not be able to be used.

Please feel free to contact me with any questions that you may have regarding the survey

Sue Smart
Masters student
Graduate School of Nursing &
Midwifery
Victoria University of Wellington
81 Fairlie Tce
Wellington PO Box 600

Clinical Nurse Leader
Paediatric Department

Contact details of Supervisor;- Kathy Nelson
Lecturer
Graduate School of Nursing and
Midwifery
Victoria University
PO Box 600
Wellington
Phone: 64-04-463 6138
Fax: 64-04-463-5442

Thank you very much for your support

Appendix 5. Confidentiality agreement for receiver of the questionnaires

VICTORIA UNIVERSITY OF WELLINGTON

Te Whare Wānanga o te Ūpoko o te Ika a Māui



Paediatric Nurses assessment and management of pain in infants and children: a New Zealand regional view.

Researcher: Sue Smart

I have read the information letter outlining this study. I have discussed with the researcher the nature of the research and have had any questions that I have had answered to my satisfaction. My role of receiving the questionnaires and removing the prize sheet page has been outlined to me by the researcher.

At all times the information about who returned the questionnaires will be inaccessible to other persons. Following the prize draw for each region all prize sheet pages will be destroyed using incineration.

Most importantly, I understand and agree to keep the information I read in the course of separating the prize sheet page confidential.

Full Name: _____

Signature: _____

Date: _____

Researcher's Signature: _____

Date: _____

Appendix 6. Ethics approval

VICTORIA UNIVERSITY OF WELLINGTON
Te Whare Wananga o te Upoko o te Ika a Maui



MEMORANDUM

DATE: May 27, 2004
TO: Sue Smart
FROM: Dr Allison Kirkman, Convener, Human Ethics Committee
SUBJECT: **APPLICATION FOR ETHICAL APPROVAL: No 35/2004 - Paediatric nurses' assessment and management of pain in infants and children: A New Zealand regional view**

Thank you for your application for ethical approval, which has now been considered by the Standing Committee of the Human Ethics Committee.

Your application has been approved and this approval continues until 28 February 2004. If your data collection is not completed by this date you should apply to the Human Ethics Committee for an extension to this approval.

Best wishes with the research.

A handwritten signature in cursive script, appearing to read 'Allison Kirkman'.

Allison Kirkman
Convener

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