What are the barriers and enablers to Emergency Department Nurses’ management of patients’ pain?

A thesis submitted in partial fulfilment of the requirements for the degree of

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ABSTRACT

Background: Pain is the most common presentation to the Emergency Department (ED) and ranked as the highest reason for seeking emergency care. Patients expect rapid pain relief when presenting to the ED and this expectation is often not met in many EDs worldwide resulting in oligoanalgesia; the phenomenon of failure to recognise or properly treat pain. Despite great improvements in available pain management strategies and tools for pain assessment, it has been noted that there are still barriers to nurses’ pain assessment, pain management, documentation and reassessment of pain. Pain results in a significant cost to the individual and society.

Aims: The aim of this study was to identify ED nurses' perceived enablers and barriers to pain management in New Zealand (NZ). This research also explored ED nurses’ knowledge of pain management principles. The research aims were to provide information regarding educational gaps on pain assessment and pain management of ED nurses, creating an opportunity to enhance and improve the patients’ pain management by nurses in the ED.

Research approach: A quantitative, descriptive and non-experimental study was conducted. An email was sent via the College of Emergency Nurses New Zealand (CENNZ) to all their members inviting them to participate in a research project. An introduction to the researcher and the purpose of the study was given in the email, as well as a link to the Survey Monkey™ questionnaire. The questionnaire had four separate sections. In the first and second section the nurses answered yes or no to possible enablers and barriers and had opportunity to provide other enablers or barriers not mentioned in the study. In the third section the nurses answered questions regarding their general knowledge of pain and pain management. The fourth section requested demographic information. The data were analysed using descriptive statistics.

Results: A total of 172 questionnaires were analyzed. The majority of respondents were: female (92%); NZ European (80%); with more than 15 years nursing experience (66%) and with post graduate qualifications (64%). The majority of respondents (97%) thought that having pain management protocols were important and that pain management courses would be beneficial. It was identified that only a few EDs had a pain management champion and most of the respondents (86%) thought that this would be an enabler to their management of a patient’s pain. The responsibility of caring for acutely ill patients in addition to a patient with pain was identified as the biggest barrier (83%) with lack of time a close second (80%). Although it was identified that the respondents had good (71%) general knowledge they lacked current opioid knowledge
and had a few gaps in their general knowledge. The majority of the respondents (90%) knew that the best judge of pain was the patient.

**Discussion:**

This research identified a few important enablers to pain assessment and management of patients’ pain as perceived by ED nurses and they include the following; nurse initiated analgesic protocols and guidelines; ED pain management champions and on-going education regarding pain management principles. The above enablers have been discussed and supported in previous studies and therefore implementation of these enablers needs to be a priority in all EDs. There were similar barriers identified in this research to previous research studies and include; lack of time, workload and reluctance of clinicians to prescribe analgesia. While the respondents demonstrated good knowledge regarding general pain management principles, gaps were found regarding current knowledge of opioids. This research identified that nurses needed on-going education regarding pain management principles, especially regarding the usage of opioids. It was also identified that nurses need education or possibly a change of attitude regarding the patients’ right to expect total pain relief as a consequence of treatment.

**Conclusion**

Evidence exists that oligoanalgesia is still present in the ED and that ED nurses lack knowledge regarding the use of opioids. Opportunities exist in NZ for nurses to enhance their knowledge and become pain management champions. Raising awareness that oligoanalgesia exists in the ED amongst all nurses is essential. There is an urgent need for action to reduce oligoanalgesia in the ED. ED nurses are in the unique position to become leaders in pain assessment and pain management.
ACKNOWLEDGEMENTS

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TABLE OF CONTENTS

ABSTRACT ....................................................................................................... ii
ACKNOWLEDGEMENTS ............................................................................... iv
TABLE OF CONTENTS ................................................................................. v
LIST OF TABLES ........................................................................................ ix
LIST OF FIGURES ........................................................................................ x
LIST OF ABBREVIATIONS ........................................................................... xii
TERMINOLOGY ........................................................................................... xiii
THESIS OUTLINE ........................................................................................ xiv
Chapter One ...................................................................................................... 1
  INTRODUCTION ........................................................................................ 1
    Introduction ........................................................................................ 2
    Background ....................................................................................... 2
    Significance of this study .................................................................. 2
      What is already known? ................................................................. 2
      What has not been answered? ...................................................... 3
      How my study will contribute to practice? .................................. 3
      Who has an interest in this issue? ............................................ 3
    Research question .......................................................................... 4
    Aim of the research ........................................................................ 4
    The researcher’s Interest .................................................................. 4
Chapter Two ...................................................................................................... 5
  BACKGROUND .......................................................................................... 5
    Emergency Department .................................................................. 6
    Triage ................................................................................................. 6
      Definition of triage .................................................................... 6
      The Australasian triage scale ..................................................... 6
    Pain .................................................................................................... 7
      Definitions of pain ................................................................. 7
      Physiological types of pain ...................................................... 8
      Adverse effects of untreated pain ............................................ 8
    Pain assessment .......................................................................... 9
      Aims of pain assessment .......................................................... 9
      Full pain assessment ............................................................... 10
Pain management ................................................................................. 10
Role of the ED nurse ............................................................................. 10
Documentation ...................................................................................... 11
Analgesia .............................................................................................. 12
Oligoanalgesia ...................................................................................... 13
Chapter Three ................................................................................................. 14
LITERATURE REVIEW ............................................................................ 14
Purpose and focus of the literature review............................................. 15
Search strategy ..................................................................................... 15
Introduction ........................................................................................... 15
Background ........................................................................................... 16
Nursing barriers and enablers need to be identified ......................... 16
Themes ................................................................................................. 17
Oligoanalgesia ................................................................................... 17
Lack of nursing knowledge concerning pain assessment and pain management ........................................................................................................ 22
Underestimation of pain intensity ....................................................... 24
Inadequate pain assessment ............................................................. 25
Inadequate pain management ........................................................... 26
Lack of documentation ....................................................................... 27
Barriers and enablers to pain management in ED............................... 28
Summary............................................................................................... 31
Chapter Four ................................................................................................... 33
METHODOLOGY ..................................................................................... 33
Introduction ........................................................................................... 34
Method .................................................................................................. 34
Purpose of the study ............................................................................. 34
Ethics .................................................................................................... 34
Cultural consideration ........................................................................... 35
Population ............................................................................................. 35
Inclusions criteria ................................................................................ 35
The research tool ................................................................................ 35
Questionnaire ........................................................................................ 36
Questionnaire pilot study ....................................................................... 36
Distributing and collecting the research data ......................................... 37
Data analysis ........................................................................................ 37
Chapter Five .................................................................................................... 38
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendations for nursing practice</td>
<td>83</td>
</tr>
<tr>
<td>Recommendations for further research</td>
<td>85</td>
</tr>
<tr>
<td>Summary</td>
<td>85</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>86</td>
</tr>
<tr>
<td>Appendices</td>
<td>91</td>
</tr>
<tr>
<td>Appendix 1.</td>
<td>93</td>
</tr>
<tr>
<td>EIT Research Ethics and Approvals Committee approval letter</td>
<td>93</td>
</tr>
<tr>
<td>Appendix 2.</td>
<td>94</td>
</tr>
<tr>
<td>Multi-region Ethics Committee approval letter</td>
<td>94</td>
</tr>
<tr>
<td>Appendix 3.</td>
<td>95</td>
</tr>
<tr>
<td>Letter of Approval from Maori Health Services of the HBDHB</td>
<td>95</td>
</tr>
<tr>
<td>Appendix 4.</td>
<td>106</td>
</tr>
<tr>
<td>Invitation to be placed in the CENNZ newsletter</td>
<td>106</td>
</tr>
<tr>
<td>Appendix 5.</td>
<td>96</td>
</tr>
<tr>
<td>Questionnaire placed in Survey Monkey</td>
<td>96</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Caption</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Australasian Triage Scale</td>
</tr>
<tr>
<td>2</td>
<td>Aims of Pain Assessment.</td>
</tr>
<tr>
<td>3</td>
<td>Fundamentals of a Pain History</td>
</tr>
<tr>
<td>4</td>
<td>Comparison of Waiting Times Between Moderate and Severe Pain</td>
</tr>
<tr>
<td>5</td>
<td>Percentage of Correct Answers Between Studies</td>
</tr>
<tr>
<td>6</td>
<td>Most Common Barriers to Pain Management in the ED</td>
</tr>
<tr>
<td>7</td>
<td>Number of Nurses by Years of ED Experience and Age</td>
</tr>
<tr>
<td>8</td>
<td>Questions and Results of Nurse Empowering Enablers</td>
</tr>
<tr>
<td>9</td>
<td>Questions and Results for Pain Assessment Tools</td>
</tr>
<tr>
<td>10</td>
<td>Questions and Results for Workload</td>
</tr>
<tr>
<td>11</td>
<td>Questions and Results for Environmental Barriers</td>
</tr>
<tr>
<td>12</td>
<td>Questions and Results for Patient Related Barriers</td>
</tr>
<tr>
<td>13</td>
<td>Questions and Results for Nurse Related Barriers</td>
</tr>
<tr>
<td>14</td>
<td>General Knowledge Questions and Results Regarding Pain Management</td>
</tr>
<tr>
<td>15</td>
<td>Questions and Results Regarding Opioids</td>
</tr>
<tr>
<td>16</td>
<td>Questions and Results Regarding Myths and Prejudices</td>
</tr>
<tr>
<td>Figure</td>
<td>Caption</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Wolcott's Instant Pain Annihilator.</td>
</tr>
<tr>
<td>2</td>
<td>Advertisement for Perry Davis' Pain Killer</td>
</tr>
<tr>
<td>3</td>
<td>Dalley's Magical Pain Extractor.</td>
</tr>
<tr>
<td>4</td>
<td>Pears, Expressions Pain Toothache Soap.</td>
</tr>
<tr>
<td>5</td>
<td>Perry Davis' Pain Killer</td>
</tr>
<tr>
<td>6</td>
<td>Age</td>
</tr>
<tr>
<td>7</td>
<td>Ethnicity</td>
</tr>
<tr>
<td>8</td>
<td>Years of ED Experience</td>
</tr>
<tr>
<td>9</td>
<td>Years of Nursing Experience</td>
</tr>
<tr>
<td>10</td>
<td>Highest Qualification</td>
</tr>
<tr>
<td>11</td>
<td>Age by ED years of Experience</td>
</tr>
<tr>
<td>12</td>
<td>Years of Nursing Experience and Years of ED Experience</td>
</tr>
<tr>
<td>13</td>
<td>Age and Highest Qualification</td>
</tr>
<tr>
<td>14</td>
<td>Years of ED Experience and Highest Qualification</td>
</tr>
<tr>
<td>15</td>
<td>Do you follow a Protocol to Assess a Patient's Pain? Age vs. Years of ED Experience</td>
</tr>
<tr>
<td>16</td>
<td>Type of Pain Assessment Protocol</td>
</tr>
<tr>
<td>17</td>
<td>Treating Pain as the Fifth Vital Sign</td>
</tr>
<tr>
<td>18</td>
<td>Posters of Pain Score Tools. Respondents who said they did not use posters to assess patients' pain</td>
</tr>
<tr>
<td>19</td>
<td>Impact of Workload: Age verse ED Experience</td>
</tr>
<tr>
<td>20</td>
<td>The Responsibility of Caring for Other Acutely Ill Patients in Addition to a Patient with Pain</td>
</tr>
<tr>
<td>21</td>
<td>Lack of Time to Adequately Assess and Control Pain</td>
</tr>
<tr>
<td>22</td>
<td>Inability to monitor for Side Effects When Patient Leaves the Department for Diagnostic procedures</td>
</tr>
<tr>
<td>23</td>
<td>Are Patients Reluctant To Report Pain? Respondents who answered ‘Yes' by age and years of ED experience</td>
</tr>
<tr>
<td>24</td>
<td>Patient’s Reluctance to Take Opioids</td>
</tr>
<tr>
<td>25</td>
<td>Lack of Intravenous Access as a Barrier</td>
</tr>
<tr>
<td>26</td>
<td>The Reluctance to Give Opioids</td>
</tr>
<tr>
<td>27</td>
<td>Initial Assessment of Pain and Re-assessment of Pain</td>
</tr>
<tr>
<td>28</td>
<td>Sufficient Knowledge of Pain management Principles</td>
</tr>
<tr>
<td>29</td>
<td>The Inability to Treat until a Diagnosis is Made</td>
</tr>
<tr>
<td>30</td>
<td>It is Necessary to Continuously Assess Pain as a Vital Sign</td>
</tr>
<tr>
<td>31</td>
<td>A Patient Should Experience Discomfort Prior to Giving the Next Dose of Pain Medication</td>
</tr>
<tr>
<td>32</td>
<td>It Is A Patient’s Right to Expect Total Pain Relief from Treatment</td>
</tr>
<tr>
<td>33</td>
<td>Patients Receiving Analgesics on a Regular Basis do not Become Drug Addicted</td>
</tr>
<tr>
<td>34</td>
<td>Distraction With Non-Pharmacological Techniques (Music, Imagery) Decreases Pain Perception</td>
</tr>
<tr>
<td>35</td>
<td>Giving Narcotics on a Regular Schedule is Preferred Over as Needed for Continuous Pain</td>
</tr>
<tr>
<td>36</td>
<td>Narcotics Usage in Pediatrics</td>
</tr>
<tr>
<td>37</td>
<td>The Most Common Side Effect of Morphine</td>
</tr>
<tr>
<td>38</td>
<td>Patients With Chronic Pain Need Higher Dosages of Analgesics</td>
</tr>
<tr>
<td>39</td>
<td>Dr. Batty's Asthma Cigarettes</td>
</tr>
<tr>
<td>40</td>
<td>The Best Article in the World</td>
</tr>
</tbody>
</table>
LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CENNZ</td>
<td>College of Emergency Nurses New Zealand</td>
</tr>
<tr>
<td>CINAHL</td>
<td>Cumulative Index for Nursing and Allied Health Literature</td>
</tr>
<tr>
<td>ED</td>
<td>Emergency Department</td>
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<td>EIT</td>
<td>Eastern Institute of Technology</td>
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<td>ENA</td>
<td>Emergency Nurses Association</td>
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<td>IASP</td>
<td>The International Association for the Study of Pain</td>
</tr>
<tr>
<td>HBDHB</td>
<td>Hawke’s Bay District Health Board</td>
</tr>
<tr>
<td>MDT</td>
<td>Multi-Disciplinary Team</td>
</tr>
<tr>
<td>MEC</td>
<td>Multi-region Ethics Committee</td>
</tr>
<tr>
<td>NSAIDs</td>
<td>Nonsteroidal Anti-Inflammatory Drugs</td>
</tr>
<tr>
<td>NZ</td>
<td>New Zealand</td>
</tr>
<tr>
<td>NZNO</td>
<td>New Zealand Nurses Organization</td>
</tr>
<tr>
<td>PGDip/Cert</td>
<td>Postgraduate Diploma and Certificate</td>
</tr>
<tr>
<td>prn</td>
<td>Pro re nata</td>
</tr>
<tr>
<td>Q</td>
<td>Question</td>
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<td>ROI</td>
<td>Republic of Ireland</td>
</tr>
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<td>RN</td>
<td>Registered Nurse</td>
</tr>
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<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
</tr>
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<td>USA</td>
<td>United States of America</td>
</tr>
<tr>
<td>VAS</td>
<td>Visual Acuity Score</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
TERMINOLOGY

**Analgesia:** The absence of the sense of pain while remaining conscious.

**Analgesic:** A pharmacological agent to relieve pain.

**Australasian Triage Scale:** This scale has five triage categories; triage categories 1 are patients who need very urgent treatment, while triage categories 5 are patients who need less urgent treatment. Each triage category has a specified maximum clinically appropriate time within which medical assessment and treatment should commence.

**Oligoanalgesia:** The under-treatment, ineffectual treatment, or lack of treatment of pain.

**Pain:** Physical suffering or discomfort caused by illness or injury.

**Pain Assessment:** The evaluation of pain reported by a patient and the factors that alleviate or exacerbate it, as well as the response to treatment of pain.

**Triage:** The assignment of degrees of urgency to wounds or illnesses to decide the order of treatment of a large number of patients or casualties.
This proposed research will look at the perceived enablers and barriers of the ED nurses’ management of a patient’s pain and explore the ED nurses’ knowledge of pain management principles, creating an opportunity to enhance and improve pain management in the EDs of NZ.

Chapter One: Introduction
This chapter is an introduction to pain and the management of patients’ pain in the ED. The research question and the significance of the topic are presented. The aims are discussed and the researcher’s interest on this subject is shared.

Chapter Two: Background
This chapter provides a background to processes in the ED regarding triage, pain assessment and pain management, the role of the ED nurse, documentation, analgesia and oligoanalgesia. An overview of pain and the different types of pain will also be described.

Chapter Three: Literature Review
This chapter provides a comprehensive review of international and national literature related to pain management in the ED. The literature has been drawn from relevant published documents, journals and databases. The literature included in this review further supports the background and relevance of this study.

Chapter Four: Methodology
The research methodology is described in terms of the method and designs used. Participant selection and recruitment are presented along with both data collection and data analysis procedures. Ethical considerations including gaining approval from the Multi-region Ethics Committee (MEC); EIT Research Ethics and Approvals Committee and from the Maori Health Services of the Hawke’s Bay District Health Board (HBDHB) are discussed.

Chapter Five: Results
This chapter presents the findings from the analysis of the data. The research findings are related to the research question and aims.

Chapter Six: Discussion
The research findings are discussed in detail in relation to each of the sections; enablers; barriers; nursing knowledge and themes identified from the qualitative
questions. Previous research and identified literature are discussed in support and in contrast to the research question.

Chapter Seven: *Conclusions and Recommendations*

This chapter presents the conclusions of this research and recommendations for nursing education, practice and further research.
Chapter One

INTRODUCTION

The greatest evil is physical pain.

St Augustine 345-430 AD

Figure 1. Wolcott's Instant Pain Annihilator (from Wolcott's Instant Pain Annihilator [Advertisement]. 1867)
Introduction

There is much in poetry and poem to applaud pain (Curtis & Morrell, 2006). Athletes remember pain as the gateway to excellence. Musicians use pain as an inspiration, while lovers cling to it as a dream or memory. That may be all great, but that is not a true reflection of life in the Emergency Department (ED). In the ED pain is almost infinite. Almost every disease is accompanied by pain, and it can present in either acute or chronic form. While poets and athletes embrace it real people flee from it to the ED (Curtis & Morrell, 2006).

Background

Pain is the most common presentation to the ED and it has been well established in previous studies that more than 70% of patients present with pain as their main symptom (Ducharme et al., 2008; Lewén, Gardulf, & Nilsson, 2010; Motov, 2012; Puntillo, Neighbor, O'Neil, & Nixon, 2003). Studies have shown that 60-80% of patients in pain are frequently under treated (Curtis & Morrell, 2006; Decosterd et al., 2007; Pines & Hollander, 2008; Stalnikowicz, Mahamid, Kaspi, & Brezis, 2005). Pain is the third most common healthcare problem and has proved to be more debilitating than both heart disease and cancer (Downey & Zun, 2010).

Pain assessment and the administration of analgesics and other pain relief is the professional responsibility of the nurse, however they are not able to independently prescribe analgesia and their concerns about a patient’s pain may be affected by their relationship with doctors (Blondal & Halldorsdottir, 2009). Failing to control a patient’s pain can lead to deterioration in their physical, mental and social health (Modanloo et al., 2010). Studies have shown that uncontrolled pain can lead to other problems like increased analgesic treatment, disease complications and treatment complications. These problems may possibly result in decreased concentration, decreased appetite, decreased physical activity, poor social communication, sleep disorders and a reduced quality of life (Modanloo et al., 2010).

Significance of this study

What is already known?

Acute pain is one of the most frequent complaints in the ED. Oligoanalgesia, the under treatment of pain, in the ED is a common phenomenon, resulting in a serious clinical problem for ED patients. Doctors and nurses are responsible for patients’ pain control, but nurses play a critical role in the assessment and management of a patient’s pain. Several types of barriers to pain assessment and management have been reported in a
variety of hospital settings and have been grouped into four themes: patient-related barriers, nurse-related barriers, physician-related barriers, and system-related barriers. Previous studies have also revealed that a lack of knowledge, inadequate pain assessment and reluctance to administer opioids were the most important barriers for health care professionals providing optimal pain management (Decosterd et al., 2007; Elcigil, Maltepe, Esrefgil, & Mutafoglu, 2011; Modanloo et al., 2010; Todd et al., 2007).

**What has not been answered?**

Despite the fact that ED nurses are in a frontline position there is limited data on ED nurses’ perceived barriers and enablers to optimal pain management both nationally and internationally (Elcigil et al., 2011). Therefore it is important to gain an understanding of what are barriers or enablers to the ED nurses’ ability to provide optimal pain management for their patients.

**How my study will contribute to practice?**

This study aims to define ED nurses’ perceived barriers and enablers to pain management in NZ and explore their knowledge of basic pain management principles. It will also determine possible nursing knowledge gaps regarding pain management principles and may provide information for future educational sessions. The results of this study will benefit patients and nursing by improving nursing knowledge, highlighting barriers and outlining enablers to improve pain assessment and pain management in the ED.

**Who has an interest in this issue?**

Patients, nurses and doctors are all concerned about pain and the management of pain. The World Health Organisation (WHO), New Zealand Nursing Organisation (NZNO), College of Emergency Nurses New Zealand (CENNZ), acute pain management services and the New Zealand Ministry of Health all have a keen interest in improving the management of patients’ pain. The New Zealand Ministry of Health has set a target for 2012/2013 that 95% of patients will be admitted, discharged or transferred from an ED within six hours. The length of stay in the ED is an important measure of the quality of acute care in our public hospitals. EDs are designed to provide urgent and acute health care. The timeliness of treatment delivery is important and any time spent waiting is by definition important for patients. Long stays in EDs are linked to overcrowding of the ED and literature has linked both long stays and overcrowding in EDs with negative clinical outcomes for patients such as increased mortality and longer inpatient lengths of stay (New Zealand Ministry of Health, 2011).
Research question

What are the barriers and enablers to Emergency Department nurses’ management of patients’ pain?

Aims of the research

The aims of this study were to identify ED nurses’ perceived barriers and enablers to pain management in NZ and to identify existing knowledge among ED nurses regarding pain management principles. This study will allow respondents to indicate what they perceive as barriers or enablers and respondents will be able to share perceived barriers/enablers to pain management not identified by the author. This study may lead to identification of specific pain management barriers or enablers among ED nurses leading to the improvement of pain management of patients in the EDs of NZ.

The researcher’s interest

The researcher’s son has severe haemophilia and pain has been a frequent relentless companion for most part of his young life. It has been very difficult to treat his pain due to the limitation of simple analgesics he is able to take. He is unable to take any kind of anti-inflammatories due to their blood thinning potential. Paracetamol is therefore the first safe choice, but it can become very frustrating to see your child in pain and the reluctance of doctors to prescribe stronger analgesia. Similarly in the researcher’s workplace the researcher becomes very frustrated when she sees a patient in severe pain and has to waste time in finding a doctor to prescribe analgesia.

Initially the researcher believed that the nurses were managing patients’ pain adequately in their ED until the researcher started reviewing the literature on this topic. The researcher then discovered that the management of patients’ pain in EDs worldwide was undertreated resulting in the phenomena of oligoanalgesia. This discovery was very disappointing to the researcher. As a Registered Nurse (RN) and therefore the patients’ advocate, the researcher is now determined to discover what the barriers and enablers to the management of patients’ pain are in the ED.
Chapter Two

BACKGROUND

It is easier to find men who will volunteer to die, than to find those who are willing to endure pain with patience.

Julius Caesar 102/100 BC.

Figure 2. Advertisement for Perry Davis' Pain Killer (from Donaldson Brothers, 1891)
Emergency Department

The ED is a unique environment where a diversity of patients with serious illness or injury are managed; many of these conditions are associated with anxiety and most result in significant pain, which makes the management of pain a primary concern for the ED team (Calil, de Mattos Pimenta, & Birolini, 2007). There are about one million presentations to EDs in NZ every year (New Zealand Ministry of Health, 2011).

Triage

When patients arrive at an ED in NZ the majority of them are first seen by a triage nurse who assesses their illness or injury (Bergman, 2012; New Zealand Ministry of Health, 2011). The nurse then decides how quickly the patient needs to be examined by a clinician and how urgent it is for the patient to be treated (Bergman, 2012; New Zealand Ministry of Health, 2011). Patients are not seen in order of arrival but in order of the seriousness of their condition and this process is called triage (New Zealand Ministry of Health, 2011).

Definition of triage

Triage is a process of prioritizing patients based on the severity of their condition so as to treat as many as possible when resources are insufficient for all to be treated immediately. The term comes from the French verb trier, meaning to separate, sort, sift or select (New Zealand Ministry of Health, 2011).

The Australasian triage scale

The Australasian triage scale is used in EDs in NZ. This scale has five triage categories; triage category 1 are patients who need very urgent treatment, while triage category 5 are patients who need less urgent treatment. Each triage category has a specified maximum clinically appropriate time within which medical assessment and treatment should commence, but because of fluctuations in patient numbers, the seriousness of their conditions, and other pressures on hospital resources, these times cannot always be met. In acknowledgement of this, benchmarks are set that indicate the acceptable percentage of patients who will start treatment within the allocated triage time (see Table 1).
Table 1: The Australasian Triage Scale

<table>
<thead>
<tr>
<th>Triage Category</th>
<th>Description</th>
<th>Maximum Clinically Appropriate Triage Time</th>
<th>Performance benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Immediately life-threatening,</td>
<td>Immediate simultaneous triage and treatment</td>
<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>Imminently life-threatening, or important time-critical</td>
<td>10 minutes</td>
<td>80%</td>
</tr>
<tr>
<td>3</td>
<td>Potentially life-threatening, potential adverse outcomes from delay &gt; 30 min, or severe discomfort or distress</td>
<td>30 minutes</td>
<td>75%</td>
</tr>
<tr>
<td>4</td>
<td>Potentially serious, or potential adverse outcomes from delay &gt; 60 min, or significant complexity or severity, or discomfort or distress</td>
<td>60 minutes</td>
<td>70%</td>
</tr>
<tr>
<td>5</td>
<td>Less urgent, or dealing with administrative issues only</td>
<td>120 minutes</td>
<td>70%</td>
</tr>
</tbody>
</table>


Pain

Pain is subjective, complex and a unique emotional experience for the individual experiencing this symptom (Modanloo et al., 2010). It is difficult to evaluate, cannot be objectively measured and its severity is often assessed and documented by nursing staff and not the patient (Al-Shaer, Hill, & Anderson, 2011; Lewén et al., 2010; Modanloo et al., 2010; Wang & Tsai, 2010). Temperature, respiratory rate, pulse and blood pressure are the four most widely accepted vital signs used in patient assessment and recently pain has been promoted as the fifth vital sign, but is proving more difficult to measure, because it includes a subjective component based on individual interpretation (Wheeler et al., 2010). It is important to distinguish between the different types of pain and a complete pain history provides important diagnostic information (Macintyre et al., 2010).

Definitions of pain

The sensation of pain can be difficult to define and there are various different definitions for pain. The most commonly accepted definition of pain is the one used by
the International Association for the Study of Pain (IASP) which defines pain “as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (Macintyre et al., 2010, p. 1). This definition of pain highlights the unpleasantness of pain, and that pain is both a physical and an emotional experience and this definition is still currently used by the Australian and NZ College of Anaesthetists and Faculty of pain Medicine. (Macintyre et al., 2010; Taylor, 2010).

In 1968 Margo McCaffery who was a RN and pioneer of pain management nursing defined pain as it is experienced; “Pain is what the experiencing person says it is, existing whenever he says it does”. This definition has become the most prevailing definition for the use in clinical practise and has been a practical guide for clinicians for nearly 40 years. This definition highlights the subjective and personal nature of pain and reinforces the need to believe the patient (Taylor, 2010; Zalon, Constantino, & Andrews, 2008).

Physiological types of pain

Pain can be divided into two types of physiological pain; nociceptive and neuropathic. Pain then becomes easier to understand, locate its cause and treat by using the different physiological explanations of pain (Morrow, 2009).

1) Nociceptive Pain (This type of pain can either be somatic or visceral).
   a) Somatic pain: usually well localized, often described as sharp, dull, aching, throbbing, or gnawing. This pain is usually the result from injury to parts of the body such as bones, joints, and soft tissues.
   b) Visceral pain: not well localized, often described as dull, aching, cramping, deep pain, or pressure. This pain results from inflammation, distension, or stretching of the internal organs. This pain is also associated with tenderness locally or in the area of deferred pain and includes the symptoms of nausea, diaphoresis and cardiovascular changes.

2) Neuropathic Pain: results from injury to nerves in either the central nervous system or the peripheral body. It can be described as burning, tingling, shooting, stabbing, or shocking pain (Macintyre et al., 2010; Morrow, 2009).

Adverse effects of untreated pain

Neighbor, Honner, and Kohn (2004) identified that untreated acute pain has adverse physical, psychological and economic consequences. They reported that untreated pain often increases a patient’s fear and anxiety and may lead to aggressive behaviour, cause disturbances of cognition and have a detrimental effect on physiological
parameters which may cause anorexia, insomnia, depression and feelings of hopelessness and helplessness. The authors reported that the patient’s perception of pain may be higher if subjected to the same hurtful stimulus the second time around. Unrelieved pain results in longer hospital stays, increased rate of re-hospitalization, increased outpatient visits and decreased level of functioning, leading to loss of income (Neighbor et al., 2004). Many harmful effects are caused by pain like hypertension, tachycardia aggravating congestive heart failure and possibly pneumonia, (Holdgate, Shepherd, & Huxson, 2010; Jones & Ramakrishnan, 2005).

**Pain assessment**

The first step in the management of pain is accurate pain assessment and documentation followed by periodic reassessment (Ducharme, 2011; Taylor, 2010). Pain assessment is essential because it helps to determine the appropriate analgesia to administer and how urgently it needs to be administered. Only after pain assessment can a pain management plan be developed (Baharuddin, Mohamad, Rahman, Ahmad, & Him, 2010; Wuhrman & Cooney, 2011). Nurses have to rely on knowledge, interviewing techniques and physical assessment skills to accurately assess and manage patients with acute pain, as these skills cannot be replaced with technology (Wuhrman & Cooney, 2011). Pain is often not noticeable or measurable which makes it difficult to assess, which is why asking the patient about their pain is the most appropriate way to assess it (Taylor, 2010).

**Aims of pain assessment**

The aim of pain assessment is to help determine the cause of pain, and the best treatment for that pain (see Table 2) (Taylor, 2010).

**Table 2. The Aims of Pain Assessment**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>To find out information which helps determine the cause and type of pain</td>
</tr>
<tr>
<td>2</td>
<td>To help the patient to describe their painful experience</td>
</tr>
<tr>
<td>3</td>
<td>To find out about the impact the pain is having on their quality of life and ability to function</td>
</tr>
<tr>
<td>4</td>
<td>To allow documentation of the patient's pain in a standardised way</td>
</tr>
<tr>
<td>5</td>
<td>To allow an understanding of what treatments would be most helpful and effective</td>
</tr>
<tr>
<td>6</td>
<td>To find out about the patient’s beliefs, which may affect their pain management, e.g. fear of taking medication</td>
</tr>
<tr>
<td>7</td>
<td>To find out whether current treatments are effective</td>
</tr>
</tbody>
</table>

Note. From (Taylor, 2010)
Full pain assessment

Pain assessment in the ED involves more than just a pain score; it involves determining the pain’s onset, location, duration, character, aggravating factors, radiation, timing and severity (Ducharme, 2011). The ED nurses can help patients accurately report their pain by asking specific questions by using the mnemonic PQRST ([Provocation, Quality/Quantity, Region/Radiation, Severity scale and Timing]) (Ducharme, 2011; Foster, Grimes, & Hornyak, 2010, February-March). The eight dimensions of pain assessment can also be recalled using the mnemonic OLD CARTS ([Onset, Location/radiation, Duration, Character, Aggravating factors, Relieving factors, Timing and Severity]). Pain is dynamic and may change with time, therefore its severity must be reassessed frequently. This assessment ideally should involve the use of validated, objective and subjective pain assessment tools (Ducharme, 2011; Goldberg, 2008).

When assessing acute pain; a thorough general medical history, physical examination and a specific pain history with the evaluation of functional impairment should be included. Regular reassessments of the patient’s pain must be undertaken and documented (see Table 3) (Macintyre et al., 2010).

Pain management

It is only possible to provide safe and effective pain management by assessing pain regularly (Taylor, 2010). The key principles of acute pain management is to assess the severity, the use of appropriate doses of analgesics, to titrate the doses to control the pain and to monitor adverse effects (Ducharme, 2011). “The key to effective pharmacological pain management in the ED is selection of an agent appropriate for the intensity of pain, prompt onset of analgesic activity, ease of administration, safety and efficacy.” (Ducharme, 2011, p. 260). The backbone of acute pain management has been the administration of pharmacological agents with opioid analgesics as the cornerstone of pharmacological management of moderate to severe pain (Ducharme, 2011). The end point of pain management is clinically significant pain relief as judged by the patient and the only relevant goal is to satisfy the needs of the patient (Ducharme, 2011).

Role of the ED nurse

The Emergency Nurses Association (ENA) states the ED nurse has a unique role where they can make an immediate difference in people’s lives. They typically work with patients not yet diagnosed, or accustomed to the institutional environment, who
are struggling to deal with a reality of illness or injury and may have intoxicants or
devices or treatment (Emergency Nurses Association, 2005). ED nursing is a specialty where nurses care for patients in the
emergency or critical phase of their illness or injury. They are competent at discerning
life-threatening problems, prioritizing the urgency of care and are able to rapidly and
effectively carrying out resuscitative measures (Emergency Nurses Association, 2005).
Emergency nurses act with a high level of autonomy. They have the ability to initiate
the required measures without outside direction while simultaneously educating the
patient and family, providing information and emotional support to the patient and
family (Emergency Nurses Association, 2005).

Nurses play a major role in the assessment of pain because of the nature of their
relationship with patients. An accurate assessment is the first step in managing acute
pain and is therefore essential to help develop an effective pain management plan
(Taylor, 2010; Wuhrman & Cooney, 2011). Given the front line positioning of ED
services ED nurses are well placed to become active leaders in pain management. ED
nurses should innovatively respond to reduce pain; but unfortunately studies have
reported that despite great improvements in analgesia medication, pain management
by ED nurses is still insufficient (Fry, Bennett, & Huckson, 2011; Shaban, Holzhauser,
Gillespie, Huckson, & Bennetts, 2012; Wong, Chan, & Rainer, 2007).

Nurses are responsible for a patient’s pain assessment and the administration of
analgesic drugs or other relief like repositioning, splinting and distraction. They are not
able to independently prescribe drugs for analgesia and are therefore not always able
to give patients what they themselves may consider ideal for the relief of their patients
pain (Blondal & Halldorsdottir, 2009). Due to the closer relationship nurses have with
patients, compared to other team members, nurses play a fundamental and essential
role in patients’ pain control (Modanloo et al., 2010). A clinician decides the type, dose
and time interval of analgesic and the nurse determines whether the prescribed
analgesic should be administrated or not (Blondal & Halldorsdottir, 2009).

**Documentation**

Regulatory agencies, such as The Joint Commission (a United States-based non-profit
organization that accredits more than 19,000 health care organizations and programs in
the United States) has stipulated that the severity of pain should be documented on
initial assessment in triage (Ducharme, 2011). ED triage nurses are often the first to
assess the patient in ED and the assessment and documentation of pain is an
indispensable component of triage (Curtis & Morrell, 2006; Wong et al., 2007). To
provide care that is safe and of high quality, all members from the multidisciplinary team (MDT), need access to information which is fundamental for making decisions about patients’ treatment and therefore documentation must be an integral part of the patients’ care (Lewén et al., 2010).

Table 3. Fundamentals of a Pain History

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1. Site of pain</td>
<td></td>
</tr>
<tr>
<td>a. primary location: description ± body map diagram</td>
<td></td>
</tr>
<tr>
<td>b. radiation</td>
<td></td>
</tr>
<tr>
<td>2. Circumstances associated with pain onset including details of trauma or surgical procedures</td>
<td></td>
</tr>
<tr>
<td>3. Character of pain</td>
<td></td>
</tr>
<tr>
<td>a. sensory descriptors eg sharp, throbbing, aching (Victor et al, 2008)</td>
<td></td>
</tr>
<tr>
<td>b. McGill Pain Questionnaire: includes sensory and affective descriptors (Melzack, 1987)</td>
<td></td>
</tr>
<tr>
<td>c. neuropathic pain characteristics (eg Neuropathic Pain Questionnaire) (Backonja &amp; Krause, 2003)</td>
<td></td>
</tr>
<tr>
<td>4. Intensity of pain</td>
<td></td>
</tr>
<tr>
<td>a. at rest</td>
<td></td>
</tr>
<tr>
<td>b. on movement</td>
<td></td>
</tr>
<tr>
<td>c. temporal factors</td>
<td></td>
</tr>
<tr>
<td>d. duration</td>
<td></td>
</tr>
<tr>
<td>e. current pain, during last week, highest level</td>
<td></td>
</tr>
<tr>
<td>f. continuous or intermittent</td>
<td></td>
</tr>
<tr>
<td>g. aggravating or relieving factors</td>
<td></td>
</tr>
<tr>
<td>5. Associated symptoms (eg nausea)</td>
<td></td>
</tr>
<tr>
<td>6. Effect of pain on activities and sleep</td>
<td></td>
</tr>
<tr>
<td>7. Treatment</td>
<td></td>
</tr>
<tr>
<td>a. current and previous medications — dose, frequency of use, efficacy, side effects</td>
<td></td>
</tr>
<tr>
<td>b. other treatment eg transcutaneous electrical nerve stimulation</td>
<td></td>
</tr>
<tr>
<td>c. health professionals consulted</td>
<td></td>
</tr>
<tr>
<td>d. relevant medical history</td>
<td></td>
</tr>
<tr>
<td>e. prior or coexisting pain conditions and treatment outcomes</td>
<td></td>
</tr>
<tr>
<td>f. prior or coexisting medical conditions</td>
<td></td>
</tr>
<tr>
<td>8. Factors influencing the patient’s symptomatic treatment</td>
<td></td>
</tr>
<tr>
<td>a. belief concerning the causes of pain</td>
<td></td>
</tr>
<tr>
<td>b. knowledge, expectations and preferences for pain management</td>
<td></td>
</tr>
<tr>
<td>c. expectations of outcome of pain treatment</td>
<td></td>
</tr>
<tr>
<td>d. reduction in pain required for patient satisfaction or to resume ‘reasonable activities’</td>
<td></td>
</tr>
<tr>
<td>e. typical coping response for stress or pain, including presence of anxiety or psychiatric disorders (e.g. depression or psychosis)</td>
<td></td>
</tr>
<tr>
<td>f. family expectations and beliefs about pain, stress and postoperative course</td>
<td></td>
</tr>
</tbody>
</table>

Note. From (Macintyre et al., 2010)

**Analgesia**

The IASP defines analgesia as the absence of pain in response to stimulation which would normally be painful (Merskey & Bogduk, 1994). The relief of pain must play a prominent role in emergency medicine and should be addressed with a planned approach which includes nurses and clinicians (Marx, Hockberger, & Walls, 2010). In the ED opioid analgesic agents should be the mainstay of treatment for moderate and severe pain (Marx et al., 2010).
Oligoanalgesia

Oligoanalgesia, as stated previously, is the phenomenon of failure to recognise or properly treat pain (Todd et al., 2007). Inadequate pain management remains a major challenge for health care providers and up to 60-80% of patients are frequently undertreated (Curtis & Morrell, 2006; Pines & Hollander, 2008; Stalnikowicz et al., 2005). In a literature review completed by Weber and Kelly (2010), they identified that oligoanalgesia still exists in EDs worldwide, they emphasize the importance of pain assessment and recommend conceptualising pain as the fifth vital sign. This is an important concept that nurses need to learn and remember when assessing and treating pain (Weber & Kelley, 2010). The authors identified that there were many factors which may be associated with oligoanalgesia, such as inaccurate/lack of assessment of patient’s pain, underestimation of pain, and lack of knowledge of effective pain management.
Chapter Three

LITERATURE REVIEW

The smallest pain in our little finger gives us more concern than the destruction of millions of our fellow beings.

William Hazlitt 1778-1830.

Figure 3. Dalley's Magical Pain Extractor (from J.Wright Co, 1860).
Purpose and focus of the literature review

The purpose of the literature review was to systematically and critically review the most important published scholarly literature on the management of pain in the ED. The focus of this chapter will be to discuss national and international literature reviewed on the management of a patient’s pain presenting to the ED. It has been demonstrated in a range of literature that pain is the most common complaint that motivates people to seek care in an ED (Ducharme et al., 2008; Lewén et al., 2010; Motov, 2012; Puntillo et al., 2003; Shugarman et al., 2010; Wuhrman & Cooney, 2011).

Search strategy

An initial search for literature on pain management in ED was performed using the following databases; the Cumulative Index for Nursing and Allied Health Literature (CINAHL); Cochrane; Medline; Medscape; Google Scholar; Science Direct; ProQuest; Google and published books.

Search terms used to review the literature in the English language included: “Nurses” “Emergency Department”, “Oligoanalgesia”, “Pain management”, “Pain assessment”, “Barriers/enablers”, and “Nurses’ knowledge”.

From the initial search other articles were then identified using the bibliographies of those publications. The literature chosen for more careful review was limited to research publications and research reports from 2002 to 2012. Literature was chosen which described the adverse effects of oligoanalgesia, outlined the role of nursing knowledge, barriers and enablers to pain management by nurses, nurses’ assessment of pain and the role that nurses have in the management of patients’ pain in the ED.

Introduction

The patient left in pain has, arguably, been failed by the healthcare system and particularly by the nurse providing on-going care


Studies have shown that as many as 70% of patients with acutely painful conditions do not receive any pain medication in the ED, resulting in oligoanalgesia (Calil et al., 2007; Downey & Zun, 2010; Miner, Biros, Trainor, Hubbard, & Beltram, 2006). Access to pain management and pain control has been declared a fundamental human right, recognised by the WHO and the European Federation of IASP chapters in 2004, and reinforced by the Declaration of Montreal in 2010, (International Association for the Study of Pain, 2010; Johnson, 2005).
Johnson (2005, p. 734) notes that:

ED procedures typically require at least seven steps: patient presentation and registration, nursing assessment and triage, placement in a treatment room, primary nurse assessment and documentation, physician evaluation, physician ordering of pain medication, nursing obtaining pain medication and finally, nursing administration of pain medication.

While these seven steps are vital in providing the safe and necessary care to patients, this process is in itself a barrier to fast effective pain management. It is therefore important to identify the enablers or barriers that NZ ED nurses face as this is the first step in identifying those problems and providing practical solutions and strategies to enable effective pain management in the ED.

**Background**

Tanabe and Bushmann (2000) conducted a study to determine the areas of emergency nurses' knowledge deficit regarding pain management and to identify barriers to pain management as perceived by the ED nurses. Most of the studies since 2000 have looked at nurses' knowledge and barriers in other areas of the clinical setting rather than what ED nurses perceive as enablers and barriers in the ED (Al-Shaer et al., 2011; Duignan & Dunn, 2009; Messeri, Scolo Abeti, Guidi, & Simonetti, 2008; Tsai, Tsai, Chien, & Lin, 2007; B. Wilson, 2007).

**Nursing barriers and enablers need to be identified**

After the completion of the literature review the researcher identified there was a gap in the literature regarding pain management enablers as perceived by ED nurses and require more research on this topic. While there has been much research and literature on the potential and actual barriers to effective pain management there is a need for more extensive study about what the ED nurse perceives as barriers and enablers to effective pain management to equip ED nurses to become active leaders in pain management.

There are a variety of barriers that lead to the under treatment of pain in the ED, which include ignorance of pharmacological treatment, the lack of specific and comprehensive education in the area of pain in undergraduate and postgraduate programmes for health professionals, and the fear of medication (Calil et al., 2007; Carr, 2008).
Themes

Consistent themes in the literature review were:

1. oligoanalgesia (under-treatment of patients' pain)

2. lack of nursing knowledge concerning pain assessment, and pain management (especially regarding opioid administration)

3. underestimation of pain intensity

4. inadequate pain assessment and inadequate pain management

5. lack of documentation and

6. barriers and minimal enablers regarding pain assessment and management in the ED (Al-Shaer et al., 2011; Duignan & Dunn, 2009; Messeri et al., 2008; Shaban et al., 2012; Tanabe & Buschmann, 2000; Zanolin et al., 2007).

Oligoanalgesia

“Oligoanalgesia” is the term used to describe the phenomenon of poor pain management due to inadequate usage of analgesia and the most important finding in the literature reviewed was that consistently high levels of pain continue to exist in most EDs despite availability of new pain technologies (Al-Shaer et al., 2011; Carr, 2008; Decosterd et al., 2007; Pines & Hollander, 2008; Shugarman et al., 2010; Vlahaki & Milne, 2008). Oligoanalgesia is recognized as a serious problem in ED patients worldwide (Al-Shaer et al., 2011). Previous studies have identified that pain in the ED continues to be treated poorly and high levels of pain intensity, both on arrival and discharge, with only small changes to pain intensity despite treatment given (Calil et al., 2007; Carr, 2008; Rupp & Delaney, 2004; Todd et al., 2007).

In a literature review by Curtis and Morrell, (2006), they noted that the first study reporting oligoanalgesia was a retrospective chart review by Wilson and Pendleton in 1989. All the charts of that study documented that patients had pain but only 67% had the degree of pain documented. Only 44% of patients received narcotics while in the ED and the authors found that one third of patients with documented moderate to severe pain had suboptimal opioid pain management. For the majority of patients (69%) the average waiting time for analgesia was more than one hour and 42% of patients waited more than two hours. The authors identified problems such as lack of pain assessment, suboptimal use and dosing of opioids and patients waiting a long time for analgesia (Curtis & Morrell, 2006).
Looking at the social, professional and legal framework regarding pain management, Johnson, (2005) reported that while under-treated pain has been extensively studied in the past and despite increased attention given to this topic, the problem of oligoanalgesia, still persists in the ED. Johnson identified that it was pain that impels most patients to pursue medical care at the ED and for the majority of those patients that pain is quite severe, rating 8 out of 10 on a 0-10 numeric pain intensity scale. Johnson noted that emergency medicine focused on life preserving treatment, not on assessment and management of pain. She suggested that pain assessment and pain management should be made a priority in emergency medicine as it has been well established by The Code of Ethics of the American College of Emergency Physicians that it is the ethical duty and obligation of the emergency staff to relieve pain as part of emergency treatment (Johnson, 2005).

Numerous studies have reported that despite efforts to improve pain management oligoanalgesia remains a problem for emergency medicine worldwide (Calil et al., 2007; Decosterd et al., 2007; Grant, 2006; Miner et al., 2006; Neighbor et al., 2004; Pines & Hollander, 2008; Rupp & Delaney, 2004; Stalnikowicz et al., 2005; Todd et al., 2007). Although these studies differ in their design and populations surveyed, together they contribute to the existing knowledge and evidence of oligoanalgesia in the ED.

In a retrospective cohort study by Neighbor, Honner and Kohn (2004) to identify factors associated with failure to receive opioid pain management in patients with acute trauma, they found similar findings regarding opioid usage to Wilson and Pendleton in 1989 that only 47.8% of patients received intravenous opioid analgesia within three hours of arrival to the ED. That was only a 3.8% increase of opioid use over 15 years. They found that the median time to receiving opioids was 95 minutes and patients younger than 10 years, over 65 years or intubated were at risk of not receiving any analgesia.

In another retrospective study by Grant (2006), the waiting time for patients with moderate pain was longer than three hours for analgesia and those with severe pain waited just over an hour for analgesia. In this study the author looked at all presentations of pain, not just trauma and found similar results to the study by Neighbor et al. (2004).

In a prospective pre-post intervention cohort study by Decosterd et al. (2007) in Switzerland, the researchers identified that 60% of the patients in their study did not receive any analgesia and that 75% of patients did not receive analgesia in the first 30 minutes of admission. This study identified that there was an increase in waiting times
for analgesia placing the patient in the ED at risk of oligoanalgesia therefore further research was needed to identify barriers and enablers to improve pain management.

The vast majority (82%) of the patients in a quantitative study by Downey and Zun (2010) reported a pain score of 7 or more on arrival, which indicated severe pain. This study was conducted to measure the correlation, if any, between pain reduction and the level of satisfaction in patients who present to the ED with pain as their main complaint. All patients were given some type of treatment (nonsteroidal anti-inflammatory drugs (NSAIDs) and opioids) to reduce pain; those treatments provided relief to about 60% of the patients, while 40% reported no relief of pain. The authors identified that the patients were more likely to follow the doctor's advice if the doctor had a warm and understanding manner and a reduction in perceived pain levels was directly related to several indicators of customer service.

Lemoyne, De Paepe, Vankeirsblick and Buylaert, (2011) found numerous reports in their literature review indicating that the quality of pain management in the ED is disturbingly poor. The following causes for poor pain management have been put forward by the authors: failure to acknowledge pain; assess initial pain, provide pain management guidelines in the ED, document pain, assess treatment adequacy and meet the patient's expectations of pain relief (Lemoyne et al., 2011).

**Reluctance of patients to report pain**

There are specific factors that may contribute to oligoanalgesia and these factors include; patients not reporting pain, poor communication between nurses/patients; nurses/clinicians and patients/clinicians, inadequate nursing/medical education regarding pain management, and misconceptions of both patients and staff (Stalnikowicz et al., 2005).

In a prospective observational two phase study by Stalnikowicz et al. (2005) it was identified that two thirds of the patients who presented with acute pain caused by orthopaedic injuries believed that they should not ask for analgesia until the pain had become unbearable.

A study by Wheeler et al., (2010) which focused on the role pain plays regarding time to treatment in the ED found that the patients' report of pain had very little effect in the length of waiting time. The nurses in their study judged that the majority of the patients should be seen in less than two hours by a doctor and that the mean waiting time was 60.63 minutes.
**Waiting times**

In an observational, multicentre, prospective, cohort study, Ducharme et al. (2008) examined the influence of triage systems and triage scores on timeliness of ED analgesic administration. The authors once again identified that pain was the most common presenting symptom among those seeking care in the ED. Patients had unacceptably long waiting times for analgesics to be administered, with 50% of patients waiting between 85-121 minutes before receiving analgesics. Lower-acuity patients consistently waited almost 90 minutes longer for analgesics than those with higher-acuity. Many with moderate or severe pain (40%) did not receive analgesia during their stay. These findings were similar to that of a previous study by Neighbor, Honner and Kohn (2004). Others identified the need for additional staff at triage if analgesics were to be administrated in the waiting room to avoid the delay of triaging new patients by the triage nurse (Ducharme et al., 2008).

**Time to treatment**

Two studies found 70% of patients presenting to ED with acute pain did not receive analgesia, and patients had high levels of pain intensity both on arrival and discharge with only small changes to their pain intensity (Todd et al., 2007; Wheeler et al., 2010).

Grant (2006) evaluated the effectiveness of analgesia delivery in the ED of The Royal County Hospital in the United Kingdom and found that patients attending with moderate pain had a range of waiting times between events in their management (see Table 4).

<table>
<thead>
<tr>
<th>Event</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
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<tbody>
<tr>
<td>Arrival and assessment by a doctor</td>
<td>2 hours and 22 minutes</td>
<td>42 minutes</td>
</tr>
<tr>
<td>Arrival and prescription of analgesia</td>
<td>2 hours and 28 minutes</td>
<td>58 minutes</td>
</tr>
<tr>
<td>Arrival and receipt of analgesia</td>
<td>3 hours and 56 minutes</td>
<td>72 minutes</td>
</tr>
<tr>
<td>Delay between prescription and administration of analgesia</td>
<td>68 minutes</td>
<td>14 minutes</td>
</tr>
</tbody>
</table>

Grant (2006) identified that there was a large time gap between the prescribing of analgesia and then the administration of analgesia to the patient, and concluded that pain relief should be a priority, and staff education and training should be focused on pain assessment and pain management.
In an Australian, retrospective study Holdgate, Sheperd and Huckson (2010) sought to describe current practices for managing pain in patients with a fractured neck of femur and to identify real or potential barriers to providing analgesia. They reported that most patients were elderly and female, 28.6% patients had no record of analgesia given in the ED and half of those patients had not received pre-hospital analgesics. The median time to receiving analgesics was 75 minutes after ED arrival and the most common barriers reported were cognitive impairment and language difficulties.

**ED overcrowding**

The Australian College for Emergency Medicine (ACEM) defines ED overcrowding as the situation where the ED function is impeded primarily because the number of patients waiting to be seen, undergoing assessment and treatment, or waiting for discharge exceeds the physical and/or staffing capacity of the ED (Richardson & Mountain, 2009).

When the ED is crowded patients do not receive optimal care and the waiting room numbers seem to be highly predictive of failure to treat and treatment delays, as shown by a 17 month quantitative retrospective cohort study by Pines and Hollander (2008). The authors looked at the impact of ED crowding on delays in treatment and non-treatment for patients with severe pain. They identified that ED crowding is associated with poor quality of care in patients with severe pain. They found that only half of the patients presenting with severe pain received analgesia, of those treated 59% experienced delays in treatment from triage and 20% experienced delays from time in waiting room till room placement. They identified that the waiting room number seem to be a high predictor of failure to treat and treatment delays. They recommended that improved health care system functioning may improve the quality of treatment for the ED patients’ pain. Although this study was conducted in only one hospital and pain was measured only at one point, was not reassessed and reasons for non-treatment or delays in treatment were not measured, the authors identified that the assessment and treatment of pain was an important outcome in emergency care and a significant quality issue. These findings were similar and consistent with previous studies (Downey & Zun, 2010; Pines & Hollander, 2008; Puntillo et al., 2003). The authors concluded that ED crowding is associated with poor quality of care in patients with severe pain and speculated that providers are too busy to appropriately assess and treat patients.

Mitchell, Kelly and Kerr (2009) conducted a retrospective observational study to determine if overcrowding had an impact on delay to analgesia. The authors came to the conclusion that there was no relationship but the delays were associated with age,
language and delay in pain assessment. In contrast to these findings a previous study by Neighbor, Honner and Kohn (2004) found that age was not a risk factor for oligoanalgesia.

**Lack of nursing knowledge concerning pain assessment and pain management**

Most of the studies reviewed on nursing knowledge were quantitative and used a questionnaire to collect data and descriptive statistics were used to examine the data (Al-Shaer et al., 2011; Decosterd et al., 2007; Duignan & Dunn, 2009; Grant, 2006; Messeri et al., 2008; Tanabe & Buschmann, 2000; T. Thomas, 2007; Visentin, Trentin, de Marco, & Zanolin, 2001; B. Wilson, 2007; Zanolin et al., 2007).

Tanabe and Buschmann, (2000) conducted a descriptive study to assess ED nurses’ knowledge of pain management principles and identified barriers to pain management in the ED, as perceived by ED nurses. The authors designed an extensive 52-item knowledge questionnaire which revealed serious knowledge deficits among ED nurses specifically in pharmacologic analgesic principles. They identified that if a nurse was to be a valuable patient advocate, the nurse’s ability to perform objective pain assessments for all ED patients was essential. “Always remember, if it were your family member, how would you want their pain treated?” (Tanabe & Buschmann, 2000, p. 305). Their questionnaire return rate was 30%, and the respondents had an average age of 41 years, 17 years of nursing experience and 11 years of emergency nursing experience. The average correct knowledge regarding pharmacologic intervention was 59% and the average correct knowledge regarding addiction terms was 61% correct.

Three similar studies were performed by Visentin, Trentin, de Marco and Zanolin, (2001), Zanolin et al., (2007) and Messeri, Scollo, Guidi and Simonetti, (2008). These studies had a response rate of 85% compared to 30% for Tanabe and Buschmann’s study in 2000. It was identified that there was a 56% average of correct answers by nurses in the 2007 study compared to 59% in the 2001 study, while in the 2008 study the nurse’s general knowledge regarding pain was 86% correct and regarding opiates only 48.4% correct. Although from the results of these studies it seems that there had been an improvement of nursing knowledge over the last seven years, there were still gaps regarding knowledge of opioids. The authors concluded that nurses continue to lack significant knowledge which prevents effective pain management (Messeri et al., 2008; Visentin et al., 2001; Zanolin et al., 2007). Table 5 provides a comparison of the questions.
Table 5. Percentage of Correct Answers between Studies

<table>
<thead>
<tr>
<th>Statement</th>
<th>2001</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Giving narcotics on a regular schedule is preferred over prn/ as needed for continuous pain.</td>
<td>90%</td>
<td>81.1%</td>
<td>88.1%</td>
</tr>
<tr>
<td>2. A patient should experience discomfort prior to giving the next dose of pain medications.</td>
<td>59%</td>
<td>45.2%</td>
<td>83%</td>
</tr>
<tr>
<td>3. The preferred route of administration of narcotic pain relievers to patients with cancer-related pain is intramuscular.</td>
<td>67%</td>
<td>55.8%</td>
<td>95.6%</td>
</tr>
<tr>
<td>4. The most accurate judge of the intensity of the patient’s pain is the patient.</td>
<td>63%</td>
<td>64.1%</td>
<td>64.8%</td>
</tr>
<tr>
<td>5. Narcotics should not be used in paediatric patients.</td>
<td>43%</td>
<td>37.2%</td>
<td>60.2%</td>
</tr>
<tr>
<td>6. Respiratory depression is the most common side effect of morphine.</td>
<td>N/A</td>
<td>N/A</td>
<td>25.4%</td>
</tr>
<tr>
<td>7. It is a patient’s right to expect total pain relief as a consequence of treatment.</td>
<td>64%</td>
<td>70.9%</td>
<td>95.7%</td>
</tr>
<tr>
<td>8. It is necessary to continuously assess pain as a vital sign.</td>
<td>N/A</td>
<td>N/A</td>
<td>80.2%</td>
</tr>
<tr>
<td>9. 25% of patients receiving analgesics on a regular basis become drug addicted.</td>
<td>N/A</td>
<td>30.2%</td>
<td>48.1%</td>
</tr>
<tr>
<td>10. The most suitable dose of morphine for a patient in pain is a dose which best controls the symptoms; there is no maximum dose (i.e. a level which must not be exceeded) for morphine.</td>
<td>34%</td>
<td>45%</td>
<td>59.3%</td>
</tr>
<tr>
<td>11. Distraction with non-pharmacological techniques (music, imagery) decreases pain perception.</td>
<td>N/A</td>
<td>67.7%</td>
<td>89%</td>
</tr>
<tr>
<td>12. Patients with chronic pain need high dosages of analgesics in comparison to patients with acute pain.</td>
<td>N/A</td>
<td>46.6%</td>
<td>70.2%</td>
</tr>
</tbody>
</table>

Note. N/A=Not available

In a qualitative non-experimental descriptive study by Al-Shar, Hill and Anderson, (2011) the authors identified that nurses’ knowledge of pain assessment and intervention was an essential component in promoting positive patient outcomes. The authors suggested that nurses need to not only update their knowledge, but also change their attitudes towards pain assessment, management and interventions. They identified that education on pain assessment needs to be of high priority and further development in sensitivity and empathy towards the patients must become part of nursing education. They suggested that hospitals should introduce institutional policies.
for annual review of pain competencies (Al-Shaer et al., 2011). Similar themes recognized in previous studies were that education on pain assessment needs to be a high priority and development of sensitivity and empathy must become part of nursing education (Al-Shaer et al., 2011; Messeri et al., 2008; Shugarman et al., 2010).

**Underestimation of pain intensity**

In a prospective descriptive study to determine the accuracy of ED nurses’ assessment Puntillo, Neighbor, O’Neil and Nixon (2003) identified that there was a significant difference between patients’ ratings of pain intensity and nurses’ ratings of a patient’s pain. They reported that ED nurses need to be aware that they commonly underestimate a patient’s pain intensity and that they need to base pain management decisions on the patient’s self-report of pain using a Visual Analogue Score (VAS). They identified that when patients are not asked to rate their pain intensity, nurses’ pain assessment will be based on assumption which is most likely to be incorrect and underestimation of the patients’ pain intensity may occur (Puntillo et al., 2003).

During a prospective, observational, two phase study by Stalnikowicz et al. (2005) with a before and after intervention the underestimation of pain intensity by healthcare staff was identified as a factor leading to the under-treatment of pain. Before intervention the authors identified a significant gap between the pain rating of the patient and that of the nurse. The intervention included education of medical and nursing staffs, insertion of a VAS template in the patient’s chart, initiation of routine VAS assessment and re-assessment, and implementation of a protocol for pain management with standing orders for nurses. After the intervention the VAS gap between the patient and the nurse decreased significantly (Stalnikowicz et al., 2005). The authors concluded that although medication was important in pain management, reassurance, empathy, and explanations about the condition were no less important.

Congruence between patients’ self-report of pain intensity and nurses’ assessment of the patient’s pain intensity was also explored in a study by Duignan and Dunn (2008). They found that only in 54.7% cases nurses and patient’s pain intensity estimation was equal. The authors identified that although the majority (89.6%) of the nurses underestimated the patient’s pain intensity, there was some congruence between patients’ pain intensity scores and nurses. The authors also identified that there were incidents of overestimation of pain intensity by the nurses especially if the patient said they had no pain.

In their cohort cross-sectional visit based study Shugarman et al. (2010) found that good pain measurement requires the consistent use of valid and reliable instruments.
The authors found that the informal approach to pain management by nurses (i.e. “How are you?”) resulted in under-recognition and suboptimal pain management. The authors identified that nurses were less likely to underestimate pain when they used a valid pain assessment tool and this finding reinforces the need for implementation of standardised tools for pain assessment. Furthermore the authors identified that the nurses underestimated pain in a quarter of all patients that presented and that overestimation was uncommon. These findings were similar to previous studies (Duignan & Dunn, 2008; Puntillo et al., 2003).

Inadequate pain assessment

The first step of pain assessment in any patient is to determine whether the patient can provide a report of their pain experience, as the gold standard of pain assessment is the patient’s self-report (Pasero, 2009). Accuracy of pain assessment and its proper treatment remains a clinical challenge in the ED (Modanloo et al., 2010). Reliable and accurate assessment of a patient’s pain is essential to enable a safe, effective and individualised pain management plan (Macintyre et al., 2010). Excellence in pain assessment is crucial in not only assisting in the diagnosis of the cause of a patient’s pain but it also determines the type and amount of medication to be administered (Macintyre et al., 2010; Puntillo et al., 2003). While doctors are responsible for patient’s pain control by selecting appropriate analgesic therapy, nurses are responsible for administrating the therapy, evaluating the patient’s response and, if required, adjusting that therapy according to the patient’s response. Therefore nurses have a major role in patient’s pain control (Macintyre et al., 2010; Modanloo et al., 2010).

The initial pain assessment is mainly done by a nurse and is part of triage whether that is at the bedside or in the waiting room (Bergman, 2012; Hanks-Bell, Halvey, & Paice, 2004). It is primarily the nurse who establishes the pain intensity with the patient and sets a timeline for the administration of analgesia (Bergman, 2012). It has also been suggested by Johnson (2005) that recognizing pain and understanding its severity does not come from shared experiences, and even the individual has a great variability in their experiences of pain in different circumstances.

A prospective, observational, two phase study of 140 patients with acute pain due to orthopaedic injuries was conducted by Stalnikowicz, Mahamid, Kaspi, and Brezis (2005). The study assessed the level of pain management in an urban ED in Jerusalem and evaluated potential causes for under-treatment of pain, in order to improve current pain management. The authors found that poor pain management was due to inadequate assessment of patient pain levels. An intervention was
designed which included: a VAS template in each patient’s chart as a fifth vital sign; assessment of the VAS on admission and 30–60 minutes after treatment; visual illustrated posters for patients encouraging pain control displayed in several places in the ED; development and posting of a protocol for pain management; appointment of several nurses as ‘pain trustees’ to promote the protocol; and development of standing orders for the use of some analgesics. It was identified that the patients’ average pain score were higher than the nurses’ score. After the intervention the gap observed between nurses and patients VAS rating decreased significantly. It was noted that the waiting time for analgesia for patients with moderate pain was significantly reduced because nurses were allowed to give analgesia to patients before they were assessed by a doctor. The authors identified that patients with severe pain had delayed treatment due to needing a doctor's order for stronger analgesia. The authors suggested that pain management may be improved by routine VAS recording and a nurse-initiated pain protocol. Although their study sample was small and excluded many other conditions which may also cause pain, it provided proof of oligoanalgesia in the ED. The authors highlighted the need for more research to understand the issue of underestimation of pain levels.

**Inadequate pain management**

Carr (2008) critically explored the sequential explanatory mixed method research design and how it can enhance the nurses’ understanding of pain management. The author found that inadequacy of pain management has been reported consistently for more than thirty years. The authors combined quantitative and qualitative data to give a greater understanding of the management of pain. The authors found that pain research was challenging and new approaches were needed to expand health care practitioners’ knowledge of pain management. This study revealed that a range of barriers could prevent the potential benefits of prescribed analgesics. Although this study was not ED focused it proves to be relevant to the scope of pain management in ED as one of the most important findings from this study related to the consistently high levels of pain which continued to exist.

The most significant barrier to effective pain management that Wilson and Anderson (2011) found in their research was the nurses’ reliance on their own subjective judgement of a patient’s pain. In a non-experimental descriptive study by Al-Shaer, Hill, and Anderson (2011) to determine nurses’ knowledge regarding pain assessment and management, the authors suggested that nurses must refrain from basing their assessment of pain and pain management on personal beliefs and judgments. The authors identified and recommended that training programmes to develop sensitivity
and empathy must be critical components of nursing education to improve pain assessment. The authors concluded that accurate knowledge and use of pain management principles are essential to nursing practice as they directly and positively impact on patient outcomes. The authors identified that to manage a patient’s pain effectively, nurses must learn to trust the patient’s self-report (Al-Shaer et al., 2011).

**Lack of documentation**

It has also been reported that inappropriate pain documentation is likely to be an important contributor to the poor management of pain, especially for elderly patients in the ED (Iyer, 2011). During a four year study period Iyer (2011) found that 75% of the patients whose main presentation was for pain had no pain scores documented. The author identified that a disparity in the use of analgesic prescriptions and opioid exists and may result in patients not receiving proper analgesics, or receiving them in inadequate doses. The author suggested that by improving pain assessment and documentation, changing the attitude toward analgesic and opioid prescribing and the recognition of ethnic, racial and age differences in patients with pain have the potential to contribute to effective management of pain in the ED.

In contrast to the previous study, in a retrospective review of patients’ documentation by Lewén, Gardulf and Nilson (2010) to investigate the extent to which pain assessment, pain treatment and pain relief were documented the authors identified an alarming lack of documentation. The authors identified that only half of the patients’ records had documented pain scores on arrival to the ED and written documentation regarding treatment given, the effect of that treatment and re-evaluation were seldom found. The authors concluded that in order to provide safe care of high quality, health care personnel need access to information that is essential for making decisions about the treatment for a patient and that documentation of pain assessments and evaluations after treatment must become part of a routine system.

Nursing documentation has been one of the most important functions of nurses because it serves multiple and diverse purposes (Cheevakasemsook, Chapman, Francis, & Davies, 2006). Current health-care systems require that documentation ensures continuity of care, supplies legal evidence of the process of care and supports evaluation of quality of patient care (Cheevakasemsook et al., 2006). However, the authors found in their mixed method study that nursing documentation has not served such objectives because of its complexities. They identified that the complexities of the existing nursing documentation included three components for documentation (disruption of documentation; incompleteness in charting; inappropriate charting) and other related factors (limited nurses’ competence, motivation and confidence;
ineffective nursing procedures; inadequate nursing auditing, supervision and staff development).

In Switzerland a prospective pre-post intervention cohort study to evaluate the implementation of documentation guidelines, the authors identified that pain was initially documented in 61% of the nurses notes versus 78% after the intervention. Administration of analgesia increased from 40% to 63% and morphine from 10% to 27%, and this was associated with improved pain relief at discharge and patients reported greater treatment satisfaction (Decosterd et al., 2007). It was identified by the authors that the frequency of pain reassessment by nurses had increased by 10% in the second phase. They identified that education programs and guidelines for pain management in the ED lead to improved pain management, increased analgesia and patient satisfaction. Similar findings were presented in a study by Todd et al., (2007) although while they found 83% of initial pain assessments were documented, documentation of reassessment was uncommon.

**Barriers and enablers to pain management in ED**

It is important to identify barriers and enablers to the ED nurses’ pain assessment and pain management because by defining a standard of excellence in pain management nurses can promote quality improvement initiatives to achieve their goal in becoming active pain management leaders (Decosterd et al., 2007; Fry et al., 2011).

There are a variety of barriers that lead to the under treatment of pain in the ED; these include ignorance of pharmacological treatment and the lack of specific and comprehensive education in the area of pain in nursing education (Calil et al., 2007; Carr, 2008). Patient's pain is a unique, subjective experience and despite decades of research, inadequate pain assessment and management remain a huge problem in ED (Al-Shaer et al., 2011).

Fry et al., (2011) conducted an audit of ED pain management patterns and suggest that given the front-line positioning of ED services, ED nurses should be well placed to become active leaders and innovatively responsive in reducing pain. Unfortunately it has been identified in the literature that nurses continue to demonstrate inadequate knowledge of pain assessment and pain management interventions and there are still numerous barriers regarding pain assessment and pain management in ED (Al-Shaer et al., 2011).

There are many barriers to effective pain assessment and pain management and these include nurse-related, patient-related, clinician-related and environmental barriers.
Nurse-related barriers

A descriptive survey approach was used by Duignan and Dunn, (2009) to identify barriers to pain management in EDs as perceived by nurses in the Republic of Ireland (ROI). They sought to compare their findings to the results of a previous study in the United States of America (USA) published by Tanabe and Buschmann, (2000). A questionnaire from Tanabe and Buschmann, (2000) was adapted and distributed to all ED nurses working across five EDs in the ROI. Despite the length of time between studies, findings in the second study were very similar to the initial study; most nurses had no pain management training and the barriers most perceived by these nurses were consistent (see Table 6).

Table 6. Most Common Barriers to Pain Management in the ED (Duignan & Dunn, 2009; Tanabe & Buschmann, 2000)

<table>
<thead>
<tr>
<th>Statement</th>
<th>ROI</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unable to offer analgesia until diagnosis was made</td>
<td>56.85%</td>
<td>53%</td>
</tr>
<tr>
<td>Lack of time to adequately assess and control pain</td>
<td>52.59%</td>
<td>44%</td>
</tr>
<tr>
<td>Responsibility of other acutely ill patients</td>
<td>51.50%</td>
<td>47%</td>
</tr>
<tr>
<td>Inability to monitor side effects when patient go for diagnostic procedures</td>
<td>45.92%</td>
<td>N/A</td>
</tr>
<tr>
<td>Recreational drug and alcohol use by patients</td>
<td>45.50%</td>
<td>33%</td>
</tr>
<tr>
<td>Inadequate knowledge of pain management principles among staff</td>
<td>39.62%</td>
<td>44%</td>
</tr>
<tr>
<td>Patients’ reluctance to report pain</td>
<td>39.93%</td>
<td>33%</td>
</tr>
<tr>
<td>Inability to determine history or allergies</td>
<td>31.23%</td>
<td>N/A</td>
</tr>
<tr>
<td>Patients’ reluctance to take opioids</td>
<td>22.96%</td>
<td>N/A</td>
</tr>
<tr>
<td>Nurses’ reluctance to give opioids</td>
<td>26.23%</td>
<td>N/A</td>
</tr>
<tr>
<td>The inability to find the narcotic keys</td>
<td>21.48%</td>
<td>7%</td>
</tr>
<tr>
<td>Lack of intravenous access</td>
<td>16.62%</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Note. Not available=N/A
Both studies found that the greatest barrier was the inability to administer medication until a diagnosis was made, followed closely by a lack of time to adequately assess and control pain (Duignan & Dunn, 2009; Tanabe & Buschmann, 2000).

The highly stressful environment of the ED where pain and suffering are constant and relentless companions and where nurses must act promptly knowing that their actions will determine life or death of a stranger may also produce an extreme form of detachment from the suffering of the patient in pain who needs to be examined and treated (Johnson, 2005). This detachment from patients in pain, which may increase over time because of constant exposure may be a natural support mechanism for the nurse who needs to proceed despite the patient’s suffering (Johnson, 2005). Shaban et al. (2012) found similar findings related to the desensitisation of staff towards patients in pain due to pressures of workload and the subjectivity of pain assessment.

**Patient-related barriers**

In a review by Taylor (2010), it was identified that many patients will not tell nurses details about their pain unless they are asked specific questions. Some patients are often reluctant to interrupt busy nurses as they do not want to add to the nurse’s workload. They also do not want to be regarded as a nuisance. Others thought they had to be brave and feared that nurses would not believe them, while others avoided reporting pain because they were fearful of drugs and their side effects (Taylor, 2010). The patient’s fear of addiction or desire to manage without drugs was also evident in previous research by Heins et al. (2006). It was identified by Todd et al. (2007) that 42% of patients in their study desired analgesics but only 31% of those patients actually requested them.

**Clinician-related barriers**

Heins et al. (2006) identified in a descriptive study to investigate disparities in ED pain treatment, that the analgesic practices of clinicians were highly variable, especially in the ED. Although the authors identified that patients were more likely to receive opioids in the ED from clinicians with less than three years of experience than from more experienced clinicians, patients were more likely to receive discharge opioid prescriptions from more experienced clinicians. The authors also identified that clinicians were often fearful of being duped by dishonest patients or that they would be promoting addiction.

**Environmental-related barriers**

Staff are working under pressure to meet government standards and targets (T. Thomas, 2007). Thomas also suggests that nurses are under pressure discharging
patients from the ED rather than giving psychological support and are focused on the technical aspects of nursing care. These may be some of the reasons why pain management might be considered a low priority by nurses (T. Thomas, 2007).

Shaban et al. (2012) conducted a two-phase mixed-method, exploratory study to describe interventions that lead to successful implementation of approved guidelines in 52 Australian EDs participating in the National Emergency Care Pain Management Initiative. These guidelines included specific recommendations for best practice pain management. They discovered several themes which represented the major issues for the ED staff. The most important was staff perception, which was either a guiding force or a barrier for change. Participants of the study thought that their hospital was doing a “good job” and did not need change and they were very surprised with the results. It was identified that feedback from audits altered staff perceptions and was seen as a motivator for change. Another theme was the attitudes staff had towards pain relief, especially why the analgesia was needed, how pain was going to be managed and that nurses did not accept the patients’ pain ratings. The main barriers found were time and burnt-out staff with lack of sympathy for patients (Shaban et al., 2012).

A qualitative methodology was selected by Bennetts, Campbell-Brophy, Huckson and Doherty (2012), to explore current pain management practice in Australian EDs and to identify enablers and barriers for best-practice pain management. The authors found that their methodology enabled specific issues to be explored in a comprehensive and unrestricted manner. It was identified by the ED staff that there was a gap between evidence-based pain management recommendations and everyday practice. They noted a difficulty in applying pain management guidelines in a challenging ED environment and learning from respected senior staff was perceived as a key enabler. They concluded that evidence-based pain management should be championed by senior clinical staff.

**Summary**

In conclusion, oligoanalgesia in the ED has been consistently reported. Pain is the most common presentation to the ED and more than 70% of the patients present to the ED with pain as their main complaint. It has been demonstrated in the literature that under treatment of pain in the ED setting can result in detrimental outcomes for patients. There is a gap in the literature regarding pain management enablers and more research is required on what ED nurses perceive as enablers for the management of a patient’s pain. While there are numerous studies reporting nursing barriers to pain assessment and pain management few report on barriers perceived by
ED nurses. The lack of nurses’ current knowledge regarding pain assessment, pain management principles and especially opioid knowledge has been well reported in most studies.
Chapter Four

METHODOLOGY

We must all die. But that I can save a person from days of torture that is what I feel is my great and ever-new privilege. Pain is a more terrible lord of mankind than even death itself.

Albert Schweitzer, 1875-1965

Figure 4. Pears, Expressions Pain Toothache Soap (from Medicine ads of the 1890s, 2010)
Introduction

Methodology provides a process for conducting a research study (Schneider & Elliott, 2008). This chapter will describe the research design and methods, discuss the sample selection and ethical considerations. This chapter will also discuss data collection tools and methods.

Method

In this research both quantitative and qualitative approaches were used, but quantitative was the main approach. The quantitative method of research was chosen as this kind of research will tell us how effective particular nursing interventions or treatments were, and it is useful for the collection and analysis of numerical data (Schneider & Elliott, 2008). A qualitative method was chosen to interpret the data from the three open-ended questions. Qualitative data helps us understand social phenomena by exploring the attitudes, beliefs and experiences of the research participants (Schneider & Elliott, 2008). Data was collected after approval was obtained from the MEC, EIT Research Ethics and Approvals Committee and from the Maori Health Services of the HBDHB.

Purpose of the study

The aim of this study is to identify enablers and barriers to pain management as perceived by ED nurses. A secondary aim is to identify existing knowledge among ED nurses regarding pain management principles. The literature has shown that there is a lack of knowledge regarding enablers and barriers to pain management as perceived by ED nurses (Al-Shaer et al., 2011; Tsai et al., 2007). By identifying gaps in nursing knowledge it will be possible to build and add to the existing nursing knowledge in regard to enablers, barriers and knowledge of pain management in the ED.

Ethics

An abstract was completed and presented for assessment by an external research scholar and internal panel at EIT. Approval was given to continue developing a research proposal (see Appendix 1). A Principal Supervisor was appointed and a formal research proposal was then submitted to EIT on the 5th June 2012. This was endorsed by the EIT Research Ethics and Approvals Committee on July 30th July 2012 (see Appendix 2). The researcher completed an Expedited Review of Observational Studies Application form and was given expedited ethical approval by the Chair of the MEC on 22 June 2012 (ref: MEC/12/EXP/078) (see Appendix 3). There were three
changes to the questionnaire post-piloting and these were emailed to the administrator of the MEC and the researcher was informed via email that these were not major changes and would not affect the research approval.

**Cultural consideration**

This research project did not target Maori, although some of the participants may be of Māori descent. The investigator submitted the questionnaire to the Māori Health Liaison at the HBDHB for discussion of appropriateness of the questionnaire regarding Māori. A letter of endorsement was received in support of the research project (see Appendix 4).

**Population**

Members of the CENNZ were chosen as a purposive, convenience sample because they were the easiest to recruit, readily available and in keeping with the aims of this research question. By focusing only on CENNZ ED nurses, the findings will potentially represent the ED nursing population of NZ.

**Inclusion criteria**

In order to participate in this research, participants had to be CENNZ members and currently working in an ED.

**The research tool**

The tool which the researcher used to collect data was a questionnaire (see Appendix 5). The questionnaire was developed from questions regarding barriers and nursing knowledge from several previous studies (Messeri et al., 2008; Tanabe & Buschmann, 2000; Visentin et al., 2001; Zanolin et al., 2007). As the researcher was unable to find questions regarding possible enablers for pain management in the ED, nine questions for possible enablers were developed by the researcher. The researcher was able to find three questionnaires in the literature regarding possible barriers for pain management in the ED (Messeri et al., 2008; Tanabe & Buschmann, 2000; Zanolin et al., 2007).

The questionnaire was in the form of an email based survey. This form of survey was used because this type collection tool is possible to collect a large amount of data in a short period about individuals, with the advantages of being inexpensive and less time consuming than postal surveys (Cherry, 2012). The disadvantages of using a survey as a data collection tool include not providing answer choices which are a true
reflection of how the participant feels and low response rates can bias the results of a survey (Cherry, 2012)

**Questionnaire**

After an extensive search in the literature for an existing questionnaire on pain management enablers and barriers, a 43-item questionnaire for ED nurses was developed by the researcher. The questionnaire was titled “What are the barriers and enablers to Emergency Department nurses' management of pain?” This questionnaire was made up of four sections.

The first section concerned enablers previously identified in the literature and the respondents were asked to answer ‘Yes’ or ‘No’ to the questions to indicate if they believed those questions were enablers to pain management. There was opportunity at the end of this section for the participant to indicate other possible enablers not mentioned by the researcher.

The second section was about barriers to pain management previously identified in the literature and respondents were asked to answer ‘Yes’ ‘No’ to the statements to indicate if those were barriers to pain management. There was opportunity at the end of this section for the respondents to indicate other possible barriers they perceived not mentioned by the author.

The third section of the questionnaire contained questions about pain management principles. These were made up of 12 questions with a Likert scale rating between ‘strongly disagree’, ‘disagree’, ‘neutral’, ‘agree’ and ‘strongly agree’. The questions where subdivided into three categories: general knowledge (questions (Q) 1, 2, 3, 7, 8, 9, 11 and 13), opiates (Q5, 6, and 10), myths and prejudices (Q 4 and 12). These 13 questions were from an existing questionnaire by Messeri, Scollo, Abeti, Guidi and Simonetti (2008).

The fourth section requested demographic information from the respondents.

**Questionnaire pilot study**

The 43 item questionnaire was piloted by six nurses from the researcher’s hospital. All six participants struggled with the wording of Q5 and Q6 in the enablers section and question one in the demographics section. The words “evidence base” “guidelines” and “assessment” of pain management in the enabler section all seemed to create confusion as each respondent gave a different interpretation of the question. As a result these three questions where changed. Q5: “Do you use evidence-based
“Do you follow a protocol to assess a patient’s pain?” and an addition was made to question five: “If the answer to Q5 was yes what protocol did you use?” As a result Q6: “Do those guidelines on assessment of pain management promote accurate assessment skills amongst ED nurses?” became irrelevant and was removed. In the demographics section, nurses who had a Bachelor of Nursing indicated that they were a RN only. As a result of this the wording of the answer to Q1 in the demographic section was changed to Registered Nurse (diploma) and Registered Nurse (degree).

**Distributing and collecting the research data**

The researcher chose Survey Monkey™ which is an internet tool for the development, distribution and analysis of a questionnaire. The NZNO was approached regarding distribution of the questionnaire link via email. A formal request for research support was sent to the CENNZ Professional Services Manager, and approval was obtained to survey the CENNZ nurses. An email was sent via the NZNO to all the members of the CENNZ, inviting them to participate in a research project (see Appendix 6). An introduction to the researcher and the purpose of the study was given in the email, inviting the ED nurses to complete the questionnaire. In the email was a link to the Survey Monkey questionnaire. Completion of the questionnaire would indicate provision of consent. The simplicity with which the NZNO email linked to Survey Monkey ensured that the data collection was uncomplicated. A reminder email was sent out after three weeks. The six participants of the pilot study were asked not to complete the questionnaire. This choice of data collection approach ensured wide distribution across NZ.

**Data analysis**

Data was downloaded from Survey Monkey™ into Microsoft Excel™. Both quantitative and qualitative analysis approaches were needed to analyse the data for this study. Quantitative data was processed by using Excel™. A general inductive approach was used for analysing qualitative data (D. R. Thomas, 2006). Themes were established from the responses of the nurses regarding perceived enablers, protocols and barriers regarding pain management in the ED. This approach was easy to use and provided qualitative data which was simple, straightforward and trustworthy (D. R. Thomas, 2006). Themes were descriptively grouped according to similarity.
Chapter Five

RESULTS

The moment an ill can be patiently handled, it is disarmed of its poison, though not of its pain.

Henry Ward Beecher 1813-1887

Figure 5. Perry Davis’ Pain Killer (from Knapp & Co, 1890)
Introduction

In this chapter the response rate and results from the questionnaire will be provided. The data were collected from Survey Monkey and downloaded to Excel software. There were 172 respondents who completed the quantitative questions, 109 completed the protocol assessment question, 38 completed the question regarding other enablers and 62 completed the question regarding other barriers. Descriptive data analysis was performed utilizing Excel software and data entry errors have been minimized by double checking.

Response rate

The response rate for this research was 106%. The NZNO sent out a total of 197 emails to their CENNZ members. There were a total of 35 emails that “bounced” back, meaning the email address was either incorrect or the email had changed and not yet updated, which meant a total of 162 ED nurses received an email. There were 197 survey responses, of which 15 were deleted, as the respondent did not specify any ED experience. Thus a total of 172 surveys were analyzed. The total number of surveys collected was therefore greater than the number of emails sent. This result indicated a “snowballing” effect (Schneider & Elliott, 2008). The assumption here is that other ED nurses were invited by the CENNZ nurses to also participate in this research.

Data presentation

The quantitative data will be presented in a variety of formats such as text, charts and tables. Descriptive statistics will be provided where appropriate and percentages will be used to describe responses. The data will be discussed in five sections. These sections are:

1. demographics;
2. respondents by age and experience;
3. enablers;
4. barriers and
5. nursing knowledge.

Demographics

In this section the results are grouped together under the following headings; age, ethnicity, highest qualification and years of ED experience.
**Age**

All 172 respondents completed this question. The majority of the respondents were female (92%), 36 years and older, indicating a mature group of ED respondents (see Figure 6). As there were only three respondents in the >65 year age group, this does not provide a good representation of this group and their results will not be discussed.

![Figure 6. Age](image)

**Ethnicity**

For the purpose of this study the researcher has grouped the nurses into the following ethnic groups: NZ European; Maori; Pacific Island (Samoan); Asian (Asian, Indian, Filipino, Filipino Chinese); Other (did not say) and European (European, British, Irish, Scottish, Anglo-Celtic). Most of the nurses were NZ European, with a 5% response from Maori (see Figure 7).

![Figure 7. Ethnicity](image)
**Years of ED experience**

There was a well distributed range of ED experience ranging from 1 year to over 15 years (see Figure 8).

![Years of ED Experience](image1)

Figure 8. Years of ED Experience

**Years of nursing experience**

There were only 10 respondents with less than 5 years nursing experience. The majority of respondents had over 15 years nursing experience (66%) and just over a quarter of the respondents had 6-15 years nursing experience (see Figure 9.).

![Years of Nursing Experience](image2)

Figure 9. Years of Nursing Experience
**Highest qualification**

More than three quarters of the respondents (65%) had post graduate qualifications. Nearly half of the respondents (45%) had a postgraduate diploma/certificate (PGDip/Cert.) while 17% of the respondents had a master’s degree. Not all of the respondents indicated if they had a nursing degree or diploma. Two of the respondents had higher qualifications, one had a Master of Business Administration (MBA) and one had a Doctor of Philosophy (PhD). Another respondent had a physiology degree (see Figure 10).

![Figure 10. Highest Qualification](chart)

**Respondents by age and experience**

In this section results will be presented by comparing age and highest qualification with years of ED experience and nursing years of experience.

Most of the respondents (80%) were aged between 36-65 years and had over 6 years of ED experience’ experience (see Table 7).
Table 7. Number of Nurses by Years of ED Experience and Age

<table>
<thead>
<tr>
<th>Years of experience in ED:</th>
<th>20-35 years</th>
<th>36-50 Years</th>
<th>51-65 years</th>
<th>&gt;66 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>22</td>
<td>21</td>
<td>7</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>6-10</td>
<td>7</td>
<td>27</td>
<td>12</td>
<td>1</td>
<td>47</td>
</tr>
<tr>
<td>11-15</td>
<td>1</td>
<td>27</td>
<td>10</td>
<td>1</td>
<td>39</td>
</tr>
<tr>
<td>&gt;15</td>
<td>11</td>
<td>24</td>
<td>1</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>86</td>
<td>53</td>
<td>3</td>
<td>172</td>
</tr>
</tbody>
</table>

There were nearly equal numbers of respondents aged 20-25 years with 1-5 years ED experience (22) and aged 36-50 years with 6-10 year (21). There were equal numbers of respondents aged 36-50 with 6-10 and 11-15 years ED experience (see Figure 11).

Figure 11. Age by ED years of Experience
The majority of the respondents working in the ED (94%) have more than 6 years nursing experience and over two thirds of those respondents (70%) have over 15 years of ED experience (see Figure 12).

The majority of the respondents with a post-graduate qualification were over 36 years of age (see Figure 13). There were more respondents with a nursing degree in the 20-35 year age group which accurately represents the nursing qualification available for nursing students in NZ, due to the fact that entry to the RN scope of practice is by Bachelor’s degree since the 1980s (see Figure 13).
Just under half of the respondents with ED experience (46%) have achieved a postgraduate qualification. There were 30 respondents from 1 to over 15 years ED experience with a master’s degree (see Figure 14).

![Figure 14. Years of ED Experience and Highest Qualification](image)

### Enablers

The results for the enablers section will be presented and discussed under four separate headings. The questions are grouped together under the following headings; nurse empowering enablers (Q1 2, 3, 4): pain assessment tools (Q5, 7, 8, 9): workload (Q6) and qualitative results.

#### Nurse empowering enablers

Table 8. Questions and Results for Nurse Empowering Enablers

<table>
<thead>
<tr>
<th>Q</th>
<th>Possible enablers for nurses</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>Do nurse initiated analgesia protocols improve pain management for ED patients?</td>
<td>97%</td>
<td>3%</td>
</tr>
<tr>
<td>Q2</td>
<td>Do you have a pain management champion in your area?</td>
<td>19%</td>
<td>81%</td>
</tr>
<tr>
<td>Q3</td>
<td>Would pain management champions improve pain assessments, pain management and nursing knowledge of pain?</td>
<td>86%</td>
<td>14%</td>
</tr>
<tr>
<td>Q4</td>
<td>Will attending pain management courses/in-services courses improve nursing management principles?</td>
<td>95%</td>
<td>5%</td>
</tr>
</tbody>
</table>

As shown in Table 8, in Q1 the vast majority of respondents (97%) agreed that nurse initiated analgesia protocols will improve pain management for ED patients. Notably from Q2, only a few EDs appear to have pain management champions and most of the
respondents indicated in Q3 that having a pain management champion would improve their assessment of patients’ pain management. Although most of the respondents (95%) said education was an enabler (Q4), a small percentage (10%) of the respondents in the 20 -35 years age group disagreed.

**Pain assessment tools**

Table 9. Questions and Results for Pain Assessment Tools

<table>
<thead>
<tr>
<th>Q</th>
<th>Possible enablers for nurses</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q5</td>
<td>Do you follow a protocol to assess a patient’s pain? If Yes, what do you use?</td>
<td>70%</td>
<td>30%</td>
</tr>
<tr>
<td>Q7</td>
<td>Would regular audits on pain management motivate nurses to achieve the goal of optimum pain management?</td>
<td>51%</td>
<td>49%</td>
</tr>
<tr>
<td>Q8</td>
<td>Does treating pain as the fifth vital sign contribute to optimal pain management care?</td>
<td>86%</td>
<td>15%</td>
</tr>
<tr>
<td>Q9</td>
<td>Would posters of pain assessment tools improve accuracy of pain score assessment and documentation of pain score</td>
<td>76%</td>
<td>24%</td>
</tr>
</tbody>
</table>

Just under a third of the respondents (30%) across all ages said that they did not follow a protocol to assess pain (Q5) (see Table 9). Just over a third of respondents (36%) aged 20-35 years with less than 5 years ED experience did not follow protocols. Respondents aged 36-50 years, regardless of ED years of experience were less likely to follow a protocol to assess a patient’s pain than any other respondents (see Figure 15).

![Figure 15. Do you follow a Protocol to Assess a Patient’s Pain? Age vs. Years of ED Experience](image-url)
There was an opportunity for the respondents to state what type of protocol was used. There were 117 (68%) respondents who responded to this question. From those respondents who answered this particular question 77% said they used a pain score tool (i.e. Wong Baker, 1-10 pain score tool, visual and verbal analogue pain score) to assess a patient's pain. Only 16% of the respondents indicated that they assessed the patient's pain with a specific method they which they followed, for example they used a mnemonic like (P=Provocation; Q=Quality/Quantity; R=Region/Radiation; S=Severity Scale and T=Timing (PQRST) or (Onset, Location/radiation, Duration, Character, Aggravating factors, Reliving factors, Timing and Severity (OLD CHARTS) (see Figure 16).

Figure 16. Type of Pain Assessment Protocol

From Q7 it was identified that just over half of the respondents were interested in pain audits as a means of improving their management of a patient's pain. Over half (57%) of the respondents aged 20-25 years and more than a third (67%) of the respondents over the age of 65 were less likely to think audits would improve their management of a patient's pain.
The concept of treating pain as the fifth vital sign to improve pain management (Q8) was not accepted by 15% of the respondents. The respondents less likely to accept pain as the fifth vital sign were the respondents aged 36-50 years of age with 6-10 years of ED experience (26%) (see Figure 17).

![Figure 17. Treating Pain as the Fifth Vital Sign](image)

Although only just less than a quarter (24%) of the respondents thought that visual pain scoring tools were not an enabler to pain management in the ED (Q9), one of the themes which emerged from the qualitative section was that the use of pain scoring tools would be an enabler. Respondents who were aged 20-50 years and had less than 10 years of ED experience were less likely to use visual tools or think that visual posters will help improve their assessment of a patient’s pain (see Figure 18).

![Figure 18. Posters of Pain Score Tools](image)

Respondents who said they did not use posters to assess patients’ pain
Workload

Table 10: Question and Results for Workload

<table>
<thead>
<tr>
<th>Q</th>
<th>Possible enablers for nurses</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q6</td>
<td>Does workload impact your ability to assess a patient's pain?</td>
<td>79%</td>
<td>21%</td>
</tr>
</tbody>
</table>

Over three quarters (79%) of the respondents thought that their workload had an impact on their assessment of a patient’s pain and pain management (Q6). The respondents with less than five years ED experience (28%) disagreed with this (see Figure 19).

![Figure 19. Impact of Workload: Age verse ED Experience](image)

Qualitative results

There was also an opportunity for the respondents to list other enablers not mentioned by the researcher and 34 (20%) respondents offered information which they thought were possible enablers. A general inductive approach was used to analyze the qualitative data (D. R. Thomas, 2006). The following themes were identified as enablers from the raw data provided by the respondents:

Nurses commented on pathways and standing orders for nurse initiated analgesia.

*Clinical pathways encouraging nurse initiated analgesia.*

*Having standing orders other than paracetamol & ibuprofen would be helpful.*
Proactive clinicians and a change in doctors’ attitudes were noted as potential enablers.

While nurses readily evaluate and recognize patients pain the biggest hurdle is getting doctors to chart appropriate pain relief and enough of it. Junior doctors are scared of analgesia.

Doctors who are willing to quickly & briefly assess the patient so that analgesia can be promptly charted to manage their pain while they wait for a full assessment.

Some suggested pain specialist champions would be useful.

Champions help with training, role modeling and performance improvement for individuals.

Hospital has a pain Nurse specialist, who runs pain management study days.

The utility of assessment tools was mentioned.

PQRST method for pain assessment.

Numeric Pain Intensity Scale 0-10.

Continuous educational programs were also listed.

A training program and correct protocols that enable RN to practice good pain management within guidelines need to be available.

Education for patient. Many arrive in ED without any analgesia taken; education on personal pain management can assist this further.

**Barriers**

There were 14 questions representing possible barriers to pain management, modified from Tanabe, (2000). The results for the barriers section will be presented and discussed under 4 separate headings. The questions are grouped together under the following headings: environmental issues (Q1, 7, 12 13, 14): patient related (Q2, 3, 9, 10, 11): nurse related (Q4, 5, 6): clinician (Q8) and qualitative results. Results will be analyzed by age and years of ED experience.

**Environmental barriers**

Table 11: Questions and Results for Environmental Barriers.

<table>
<thead>
<tr>
<th>Q</th>
<th>Possible barriers</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>The responsibility of caring for other acutely ill patients in addition to a patient with pain.</td>
<td>83%</td>
<td>17%</td>
</tr>
<tr>
<td>Q7</td>
<td>Lack of time to adequately assess and control pain.</td>
<td>81%</td>
<td>19%</td>
</tr>
</tbody>
</table>
Inability to monitor for side effects when patients leave the department for diagnostic procedures

Time to find narcotic keys.

The need for frequent monitoring post-intravenous opioids.

From this section it was identified that the two major barriers to pain management were the responsibility for caring for other acutely ill patients in addition to a patient with pain and the lack of time to adequately assess and control a patient’s pain. This was especially evident for the respondents aged 20-35 years with less than five years of ED experience, as all 22 respondents (100%) agreed that this was a major barrier to their management of a patient’s pain (see Figure 20).

The second major barrier identified in Q7, the lack of time to adequately assess and control a patient’s pain, was especially evident from the following respondents; aged 20-35 years with 1-5 years ED experience (91%) and aged 36-50 years with 6-10 years ED experience (88%) (see Figure 21).
Only a third of the respondents (33%) thought that the inability to monitor side effects when patients leave the department for diagnostic procedures was a barrier. The respondents more likely to find this a barrier were the respondents aged 36-50 with more than 6 years ED experience (49%) (see Figure 22). Time to find the narcotic keys (Q13) was regarded as a barrier as 27% of the respondents agreed with this statement. Over a third of the respondents (37%), regardless of age or years of ED experience, thought that the need for frequent monitoring post-intravenous opioids was a barrier.

![Figure 22. Inability to monitor for Side Effects When Patient Leaves the Department for Diagnostic procedures]

**Patient related barriers**

Table 12: Questions and Results for Patient Related Barriers

<table>
<thead>
<tr>
<th>Q</th>
<th>Possible barriers</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2</td>
<td>Patients’ reluctance to report pain.</td>
<td>77%</td>
<td>23%</td>
</tr>
<tr>
<td>Q3</td>
<td>Patients’ reluctance to take opioids.</td>
<td>62%</td>
<td>38%</td>
</tr>
<tr>
<td>Q9</td>
<td>The inability to determine adequate history/allergies.</td>
<td>24%</td>
<td>32%</td>
</tr>
<tr>
<td>Q10</td>
<td>The patient’s use of alcohol or other recreational drugs.</td>
<td>68%</td>
<td>32%</td>
</tr>
<tr>
<td>Q11</td>
<td>Lack of intravenous access.</td>
<td>34%</td>
<td>66%</td>
</tr>
</tbody>
</table>

From this section it was identified that the respondents found the largest barrier to be the reluctance of the patient to report pain followed by the patient’s use of alcohol or recreational drugs and then the reluctance of the patient to take opioids. Lack of
intravenous access and the inability to determine adequate history or allergies were not regarded as major barriers.

In Q2 it was identified that over three quarters (78%) of respondents with 6-10 years of ED experience and slightly less than three quarters (74%) of the respondents with less than 5 years ED experience, regardless of age, thought patients were reluctant to report pain. It was more likely that the respondents (85%) aged 51-65 years thought that patients were reluctant to report pain (see Figure 23).

![Figure 23. Are Patients Reluctant To Report Pain? Respondents who answered 'Yes' by age and years of ED experience](image)

Respondents aged 20-35 years with less than 5 years ED experience (77%) were most likely to find patients’ reluctance to take opioids a barrier (Q3). It was also identified that a third of all the respondents with less than five years of ED experience regardless of age perceived that the patients’ reluctance to take opioids was a barrier (see Figure 24).

![Figure 24. Patient’s Reluctance to Take Opioids](image)
Although lack of IV access was not regarded as a major barrier by most, the respondents with less than 5 years ED experience (63%) were more likely to find this a barrier. A third of the respondents aged 51-65 with over 15 years ED experience also found lack of IV access to be a barrier to pain management (see Figure 25).

![Figure 25. Lack of Intravenous Access as a Barrier](image)

**Nurse related barriers**

Table 13: Questions and Results for Nurse related Barriers

<table>
<thead>
<tr>
<th>Q</th>
<th>Possible barriers</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q4</td>
<td>Nursing staff reluctance to give opioids.</td>
<td>26%</td>
<td>74%</td>
</tr>
<tr>
<td>Q5</td>
<td>Inadequate initial assessment of pain and re-assessment of pain relief.</td>
<td>65%</td>
<td>35%</td>
</tr>
<tr>
<td>Q6</td>
<td>Inadequate staff knowledge of pain management principles.</td>
<td>67%</td>
<td>33%</td>
</tr>
</tbody>
</table>

From this section it was identified that the respondents thought that lack of knowledge and inadequate initial pain assessment were the two main barriers of pain management. The administration of opioids was not seen as a barrier by most of the respondents.

Although most of the respondents (74%) were not reluctant to give opioids those aged 51-65 years with less than 10 years ED experience (58%) were most likely to be reluctant to use opioids (see Figure 26). Patients would more likely receive opioids from nurses aged 20-35 years with 1-5 years’ experience, while 32% of the
respondents with 6-10 years of ED experience were still reluctant to give opioids to patients with pain (see Figure 26).

![Figure 26. The Reluctance to Give Opioids](image)

From Q5; inadequate initial assessment of pain and re-assessment of pain relief, it has been identified that 80% of the respondents with 1-5 years ED experience thought their initial pain assessment was adequate. Respondents aged 20-35 years, with 1-5 years of ED experience (46%) were also more likely to think that their initial assessment and re-assessment of pain was adequate (see Figure 27).

![Figure 27. Initial Assessment of Pain and Re-assessment of Pain](image)

From Q6 it was identified that over half of the respondents (55%) aged 20-35 years with 1-5 years ED experience did not think they lacked knowledge regarding pain
management principles. Just under a third of the respondents aged 36-50 years also thought their initial pain assessment was adequate (see Figure 28).

![Figure 28. Sufficient Knowledge of Pain management Principles](image)

**Clinician related barriers**

Over a third of the respondents (35%) indicated that they thought that the inability to medicate until a diagnosis was made was a barrier. Just under a third (29%) of these respondents were aged 36-50 years with more than six years of ED experience. Just over a quarter (27%) of respondents had less than five years of ED experience (see Figure 29).

![Figure 29. The Inability to treat until a Diagnosis is Made](image)
Qualitative results

There was an opportunity to list any other barriers not mentioned by the researcher, 65 (38%) respondents offered information which they perceived were possible barriers. A general inductive approach was used to sort the qualitative data into themes (D. R. Thomas, 2006). The following themes were identified which the respondents thought were other barriers;

A number of comments were related to clinicians including a reluctance to prescribe adequate analgesia, junior doctors’ reluctance to prescribe opioids, and wasting time finding a doctor to prescribe analgesia.

*Doctors reluctance to chart appropriate analgesia*

*Medical staffs reluctance to ‘chart something stronger’ until they have seen the pt. Even though this might be hours!*

*Junior doctors who have inadequate knowledge about what analgesia to chart and how much to chart*

*Inexperienced doctors i.e. House officers reluctant to prescribe adequate pain relief until they have assessed/examined the patient*

*Finding a doctor to prescribe analgesia*

*Waiting to get meds charted by a doctor. Especially if only single dose charted each time*

A number of comments were related to lack of standing orders including the lack of simple analgesia and opioids.

*Our ED does not have standing orders for analgesia and patients often wait extended periods will (sic) mild/moderate pain for analgesia as medical consult is required first*

*Not enough standing orders to cover the expanse of analgesias (sic) needed to manage peoples (sic) pain*

*No standing orders for narcotic use-have to wait for a doctor assessment and prescription*

*We have a protocol in place to give analgesics, but to give other analgesics takes a Dr to prescribe; some are rightly reluctant to do this until they have examined the pt.*

Some respondents’ comments were patient related including anxiety, highly variable report of pain score and drug seeking behaviour

*Patient anxiety levels.*

*Parental perception of child’s pain and reluctance for medication.*

*Reality of existing pain.*
Subjective and highly variable reporting of pain severity from patients.

History of drug dependence or abuse users Patients who are known of attention seeker and by doing so always ask.

People’s belief that drunk annoying patients don’t deserve or it is dangerous to give narcotics.

People (nurses and doctors) who think that illicit drug users need less analgesia, when they often need more.

Respondents commented on the lack of time to assess and manage a patient’s pain; these comments included lack of time due to workload, busy department, reassessment of pain after administration of analgesics.

The main barrier is the demand for care as the majority of ED’s are overwhelmed with workloads. Makes it hard to find the trees in the forest (sic).

“Inadequate time and pressure to care for a demanding workload is the BIG issue”.

Volume of pts to care for, getting the medication charted (opoid (sic)/others meds other than standing order medication for analgesia).

Time – especially at triage, I need to see those waiting which means person in pain (who is already triaged) continues having pain until you can get back to them- often a long wait to see the waiting room nurse.

Lack of time to reassess pain and if the analgesia was effective, due to heavy workload.

No follow-up esp if pt in WR as in our busy dept patients have long waits to be seen by Dr.

Some suggested that it took time to find a second nurse to check narcotics.

2nd nurse access to opioid (sic) cupboard.

We have electronic safe access, so keys searches not a limit, but obtaining the second nurse require to open the safe and conduct the check can be a barrier.

Nursing Knowledge

There were 12 questions representing general knowledge of pain and pain management, taken from Messer et al., (2008). Any ‘neutral’ response was considered to be an incorrect answer, as it indicated the respondent did not know the correct answer.
The results for the general knowledge section will be presented and discussed under four separate headings. The questions are grouped together under the following headings: general knowledge (Q2, 7, 8, 9); opioids (Q1, 3, 5, 6, 10); myths and prejudices (Q4, 12); and qualitative results.

**General Knowledge**

Just under three quarters of the respondents (74%) had a good general knowledge of pain management principles. The majority of respondents (95%) knew that pain should be treated as the fifth vital sign. There were two areas where the respondents lacked knowledge. More than half of the respondents (53%) did not believe that it was a patient’s right to expect total pain relief from treatment and just under a third of the respondents (31%) lacked current knowledge regarding drug addiction habits.

It was identified that half of the respondents aged 36-50 years with more than six years ED experience lacked current general knowledge regarding pain management principles; these are the respondents who would most likely not use alternative methods to distract the patient from their pain or expect that a patient would have total pain relief from treatment.

Table 14. General Knowledge Questions and Results Regarding Pain Management

<table>
<thead>
<tr>
<th>Q</th>
<th>Correct answer indicated as yes (Y) no (N)</th>
<th>Correct</th>
<th>Incorrect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2</td>
<td>A patient should experience discomfort prior to giving the next dose of pain medications. (N)</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>Q7</td>
<td>It is a patient's right to expect total pain relief as a consequence of treatment. (Y)</td>
<td>47%</td>
<td>53%</td>
</tr>
<tr>
<td>Q8</td>
<td>It is necessary to continuously assess pain as a vital sign. (Y)</td>
<td>95%</td>
<td>5%</td>
</tr>
<tr>
<td>Q9</td>
<td>25% of patients receiving analgesics on a regular basis become drug addicted. (N)</td>
<td>69%</td>
<td>31%</td>
</tr>
<tr>
<td>Q11</td>
<td>Distraction with non-pharmacological techniques (music, imagery) decreases pain perception. (Y)</td>
<td>73%</td>
<td>27%</td>
</tr>
</tbody>
</table>

The vast majority of respondents (95%) indicated that it was necessary to continuously assess pain as a vital sign. All the respondents with less than five years ED experience knew that it was necessary to continuously assess pain as the fifth vital sign. See Figure 30 regarding respondents less likely to accept pain as a vital sign.
From Q2 it was identified that the respondents most likely to wait until a patient has discomfort before giving analgesia were aged 36-50 years, especially if they had more than 11 years ED experience. Just under a third of all respondents with less than 5 years ED experience (41%) were also more likely to allow their patient to experience discomfort prior to giving the next dose of pain medication (see Figure 31).

More than half of the respondents (53%) did not believe that it was a patient’s right to expect total pain relief from treatment. Just under a third (30%) of those respondents were aged 36-50 years. Just over two thirds (64%) of the respondents aged 20-35 years with less than 5 years ED experience were less likely to believe it was a patient’s right to expect total pain relief from treatment (see Figure 32).
From Q9 it was identified that just under a two thirds of the respondents with less than five years of ED experience (64%) were more likely to incorrectly think that 25% of patients became drug addicted when receiving analgesic on a regular basis (see Figure 33).

Respondents aged 36-50 years were less likely to use non-pharmacological techniques like music or imagery to decrease a patient’s pain perception. Less than half (43%) of the respondents with less than 5 years ED experience were likely to use distraction to decrease a patient’s pain perception (see Figure 34).
Opioids

Table 15. Questions Regarding Opioids

<table>
<thead>
<tr>
<th>Q</th>
<th>Correct answer indicated as yes (Y) no (N)</th>
<th>Correct</th>
<th>Incorrect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>Giving narcotics on a regular schedule is preferred over prn/as needed for continuous pain. (Y)</td>
<td>48%</td>
<td>52%</td>
</tr>
<tr>
<td>Q3</td>
<td>The preferred route of administration of narcotic pain relievers to patients with cancer-related pain is intramuscular. (N)</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>Q5</td>
<td>Narcotics should not be used in paediatric patients. (N)</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>Q6</td>
<td>Respiratory depression is the most common side effect of morphine. (N)</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Q10</td>
<td>The most suitable dose of morphine for a patient in pain is a dose which best controls the symptoms; there is no maximum dose (i.e. a level which must not be exceeded) for morphine (Y).</td>
<td>66%</td>
<td>34%</td>
</tr>
</tbody>
</table>

Note. Prn=Pro re nata

A large deficit in respondents’ current knowledge regarding opioids was identified as a third of the respondents (33%) answered the opioid questions incorrectly. The main lack of knowledge regarding opioids was identified as giving narcotics on a regular schedule is preferred over as needed, and respiratory depression is not the most common side effect of morphine. Nurses 20-35 years of age with less than five years
of ED experience seem to be more aware of current knowledge regarding opioids (see Figures 35, 36 and 37).

Half of the respondents with less than five years ED experience were less likely to give narcotics on a regular schedule for continuous pain. Just over a quarter of the respondents aged 36-50 years were also less likely to give narcotics on a regular schedule for continuous pain (see Figure 35).

It was identified in Q5 that a third of the respondents (33%) with less than five years of ED experience were reluctant to give narcotics to children (see Figure 36). Respondents aged 20-35 years with less than five years ED experience (20%) were also less likely to give narcotics to children with pain (see Figure 36).
Half of the respondents did not know that nausea and vomiting was the most common side effect of morphine not respiratory depression. More than three quarters of the respondents with less than 5 years of ED experience did not know what was the most common side effect of morphine (see Figure 37).

![Figure 37. The Most Common Side Effect of Morphine](image)

**Myths and Prejudices**

Table 16. Questions and Results Regarding Myths and Prejudices

<table>
<thead>
<tr>
<th>Q</th>
<th>Correct answer indicated as yes (Y) no (N)</th>
<th>Correct</th>
<th>Incorrect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q4</td>
<td>The most accurate judge of the intensity of the patient’s pain is the patient. (Y)</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>Q12</td>
<td>Patients with chronic pain need high dosages of analgesic in comparison to patients with acute pain. (Y)</td>
<td>53%</td>
<td>47%</td>
</tr>
</tbody>
</table>

The respondents had excellent knowledge regarding Q4 that the patients are the most accurate judge of their pain intensity. There was, however, a lack of knowledge regarding the management of a patient’s with chronic pain. Half of the respondents aged 36-50 years and half of the respondents aged 51-65 years were less likely to give higher dosages of analgesics to a patient with chronic pain in comparison to patients with acute pain (see Figure 38).
Summary

This chapter presented the findings of the research. The majority of the respondents were female, NZ European, over 36 years of age with a well distributed range of ED nursing experience and had over five years of ED experience. The findings have identified nurse initiated analgesic protocols and pain champions as enablers. The main barriers identified were the responsibility of caring for other acutely ill patients in addition to a patient with pain and the lack of time to adequately assess and control pain. Although the respondents had good knowledge regarding general pain management principles there was a deficit regarding current opioid knowledge. The analysis and the discussion of the findings in relation to the literature review as well as the aims of this study will be presented in Chapter 6.
Chapter Six

DISCUSSION

On the outskirts of every agony sits some observant fellow who points.

Virginia Woolf (1882-1941)

Figure 39. Dr. Batty’s Asthma Cigarettes (Dr. Batty’s asthma cigarettes [ Advertisement]. 1930)
Introduction

In the previous chapter it was revealed that 172 ED nurses responded, and according to the Nursing Council of New Zealand (NCNZ) workforce statistics the total number of nurses working in the ED nationally in 2011 was 2531 (Nursing Council of New Zealand, 2011). This indicates that this research is based on 7% of the workforce in the ED.

Findings in the previous chapter revealed that the majority of the respondents were female aged 36 years and over, had some postgraduate qualification and over six years of ED experience. This suggests these results are an accurate reflection of the ED nursing workforce in NZ as these figures are similar to the findings presented by the NCNZ in their workforce statistics publication (Nursing Council of New Zealand, 2011).

The discussion of the research will be grouped into the sections and subsections identified during data analysis: demographics; respondents by age and experience; enablers; barriers and nursing knowledge.

Demographics

Age

The NCNZ identified that 41% of the workforce of NZ nurses are aged 50 years and over, compared to 32.5% of respondents in this research. However, 82.5% of respondents in this research were over the age of 36 compared to 74.4% of the national workforce (Nursing Council of New Zealand, 2011). International studies findings were similar, recording the nurses’ average age as 42 years with the majority of nurses aged 36-55 years (Al-Shaer et al., 2011; Tanabe & Buschmann, 2000).

Ethnicity

The ethnicity of respondents (NZ European/Other European 89%; Maori 5%) was similar to the data collected in 2011 by the NCNZ (NZ European/Other European 91%; Maori 7%) (Nursing Council of New Zealand, 2011) indicating an appropriate sample of nursing ethnicities.

Years of ED Experience/Years of Nursing Experience

There was a well distributed range of ED experience among the respondents ranging from one year to over 15 years (see Figure 8). These findings are similar to the finding of Tanabe and Buschmann (2000), where the nurses in their study had an average of 17 years nursing experience and 11 years ED experience. The majority of the
respondents in this study (65.6%) had over 15 years nursing experience and 43.6% had 11 or more years of ED experience (see Figure 11).

**Highest Qualification**

Although not all respondents indicated whether they had a nursing degree or diploma, 65% (n=111) of the respondents indicated that they had post graduate qualifications. This indicated that nearly 20% more of this sample had postgraduate qualifications than reported by the NCNZ in 2011. The nurses whose knowledge was assessed by Tanabe and Buschmann (2000) also indicated that they had post-graduate qualifications or additional education regarding pain management and the nurses with a master's degree demonstrated a higher level of knowledge.

**Respondents by Age and Experience**

The largest group of respondents in this study were aged between 36-50 years with more than six years of emergency nursing experience. This group represented 50% of the nursing force in the ED. While according to the NCNZ data from 2011 more than a third of nurses are aged 50 years and over nationally, only a third of the respondents in this research were over the age of 51 years (Nursing Council of New Zealand, 2011). In a study by Duignan and Dunn (2009) the largest group of respondents were aged 30-39 years with more than ten years of emergency nursing experience.

A study by Al-Shaer, Hill and Anderson (2011) identified that nurses with more than 16 years speciality experience scored significantly higher in general knowledge regarding pain management principles than nurses who reported having worked fewer years in their speciality area. Just over a fifth (21%) of the respondents in this study had more than 16 years of ED experience and this may be one of the reasons for the lack of respondent’s knowledge in some elements of this research compared to those in the Al-Shaer et al. (2011) study.

Many of the respondents in this research lacked current knowledge regarding opioid usage regardless of age and experience, although it was the younger respondents with less than five years of ED experience who had the least knowledge regarding current opioid usage.

Approximately half of the respondents aged 36-50 years with more than six years ED experience lacked current general knowledge regarding pain management principles; these are the respondents who would most likely not use alternative methods to distract the patient from their pain or expect that a patient would have total pain relief from treatment.
Enablers

The results of the nine questions of possible enablers will again be grouped into the sections and subsections identified during data analysis. The results will be discussed under the following headings: nurse empowering enablers; pain assessment tools; workload and qualitative results.

Nurse empowering enablers

From the nurse empowering enablers found in the literature, the researcher wanted to identify those which could be improved and incorporated in the daily nursing practice of the ED nurses to help improve the pain management of patients presenting to the ED.

Nurse initiated analgesia protocols were identified as the most important enabler in this section as most of the respondents agreed that these protocols would improve pain management for ED patients. The respondents also indicated the need for pathways and standing orders for nurse initiated analgesia in the qualitative responses. It has already been demonstrated that a structured standing orders protocol for nurse-initiated intravenous opioids significantly improves the frequency of delivering analgesics with a consequent reduction in the patients’ waiting time in the ED (Decosterd et al., 2007; Muntlin et al., 2011; Stalnikowicz et al., 2005). The biggest delay identified in one study was the gap between the prescribing of analgesic medication and its administration (Grant, 2006). Having nurse initiated protocols would significantly reduce this gap. It has been identified in a previous study that the majority of patients are willing to accept analgesia from a nurse prior to being assessed by a clinician therefore the value of nurse initiated analgesics under the scope of standing orders and protocols is likely to benefit patients (Grant, 2006; Stalnikowicz et al., 2005). Nurse initiated analgesic protocols as an enabler was also identified in a study by Decosterd et al. (2007). It was shown by these authors that implementation of guidelines there was an improvement in pain assessment; and increased frequency of analgesic administration is followed by greater patient satisfaction.

While the respondents indicated an overwhelming response to having nurse initiated protocols was indicated by the respondents they also demonstrated in their qualitative comments that they wanted proactive clinicians prescribing analgesia. They wanted clinicians to prescribe adequate analgesia for patients as this would enable nurses to deliver continuous analgesia without having to constantly go back to find the clinician and ask the clinician to repeat the prescription. It was identified that clinicians were still reluctant to prescribe analgesia until they have assessed a patient themselves. The respondents indicated that they wanted this attitude of the doctors to change.
Respondents indicated the need for clinicians’ willingness to chart appropriate and sufficient analgesia before assessing a patient. This change of attitude would require trusting nurses’ assessment and request for analgesics. Further research is needed on the topic of trust between clinicians and nurses. The lack of protocols and the clinicians’ reluctance to chart analgesia before assessing a patient, lead to long and unnecessary waiting times for the patient in pain, this could be avoided.

The respondents themselves indicated that they lacked knowledge regarding pain management principles. The enabler with the second highest level of agreement (95%) was the need for on-going education. That nurses lack knowledge regarding pain management principles was noted in most articles reviewed. Question four (see Table 8) identified that nurses were very interested in on-going education and even requested on-going in-service courses regarding pain management principles in their qualitative comments. In this research the respondents indicated that they lacked knowledge regarding pain management principles and this was reflected in the nursing knowledge section as less than three quarters of the respondents answered all nursing knowledge questions correctly (see Table 15). A few of the younger respondents with less than five years of ED experience indicated that they did not think education was an enabler, although it was identified that the respondents aged 20-35 years with less ED experience lacked knowledge regarding general knowledge of pain management principles, the use of opioids and had prejudices regarding pain management.

Education as an enabler was also identified as one of the themes from the qualitative section. Once again the respondents acknowledged their lack of current knowledge regarding pain management and indicated a need for on-going education. The values of educational programmes have been supported by Decosterd et al. (2007) in a previous study which demonstrated that education programmes and guidelines for pain management do improve pain management, delivery of analgesia and patient satisfaction in the ED.

This research found a gap in the NZ nursing field regarding pain management champions. It was identified that only a few EDs in NZ had pain management champions and that the majority of respondents perceived having a nurse in this position would be an enabler. A theme which also emerged from the qualitative section was the respondents’ need for pain specialists in their department. According to the literature, pain management champions with specialised knowledge improve pain management in the ED (Herr & Titler, 2009; T. Thomas, 2007). Having a pain management specialist/champion in ED, with enhanced knowledge will facilitate improved pain management in the ED. Pain management champions as an enabler
was also supported in the Australian National Emergency Care Pain Management Initiative final report of 2011 (National Health and Medical Research Council, 2012).

**Pain assessment tools**

Three quarters of the respondents thought that having posters displaying visual pain assessment tools would help improve their accuracy of pain score assessment and encourage documentation of pain scores. Using assessment tools was another theme that emerged from the qualitative section. Respondents indicated that having assessment methods like “PQRST” for the assessment of pain and “numeric pain intensity scale 1-10” tools will enhance their assessment and management of their patient’s pain. As noted by Al-Shaer et al. (2011), the patient is the most accurate judge of the intensity of their pain. Using standardised pain scoring tools were considered enablers in a previous study by Shugarman et al. (2010) and it was identified that when an informal approach was used for pain assessment (i.e. “how are you”) resulted in under-recognition of pain and suboptimal pain management. If nurses do not use a formal approach for the assessment of pain management they rely on their own clinical judgement which may be biased as pain is a subjective experience (Al-Shaer et al., 2011). It is therefore important that standardised pain assessment tools should be implemented in EDs to maximize accurate pain detection (Al-Shaer et al., 2011; Duignan & Dunn, 2008; Shugarman et al., 2010).

The researcher wanted to determine what type of pain assessment protocols were used by respondents. If a patient’s pain assessment was inaccurate, or if there was no assessment of pain, it will be impossible to manage pain optimally. Accuracy of assessment also relies on the patient’s understanding of what nurses are asking and why (Taylor, 2010). Most respondents indicated they used a tool to assess a patient’s pain such as a 1-10 pain score tool. However pain assessment includes much more information than the use of a pain scoring tool, which only measures pain intensity (Taylor, 2010). The researcher identified that the wording of this question should have been stated more clearly as the researcher wanted to identify which “method” respondents used to assess a patient’s pain. Only 19 respondents indicated they used the mnemonic PQRST and this placed a limitation on the utility of the responses, as the researcher must assume most of the respondents misunderstood the question.

From Q8 the researcher wanted to establish the respondents’ knowledge regarding current research regarding vital signs. Treating pain as a vital sign was seen as the main enabler in this section where 95% of respondents (95%) stated “yes”, pain should be considered as the fifth vital sign. Although it has been identified that treating pain as a vital sign contributed to better pain management, if not regularly documented it has
no value to the patient in pain (Decosterd et al., 2007). Although other researchers have recommended that routine pain assessments need to be mandated as a fifth vital sign in hospitals this has not yet occurred in NZ hospitals (Baharuddin et al., 2010; Decosterd et al., 2007; Taylor, 2010). Although most of the respondents indicated that they knew this was important, it was not investigated in this research. A complete chart review of all the patients presenting to ED in pain was needed to establish to what extent pain assessment was documented. Further research is needed on the topic of pain documentation in the ED.

Workload

Most of the respondents indicated that their workload had an impact on their ability to assess a patient’s pain. The impact of workload was especially evident amongst the respondents aged 36-50 years regardless of years of ED experience. Most of the respondents with less than five years ED experience regardless of age also indicated that their workload affected their ability to assess a patient’s pain. It has been previously identified that when the ED gets busy, staff are less responsive to patients in pain and this may be a contributing factor to the delay of treatment and inadequate pain relief (Baharuddin et al., 2010). The workload for nurses with less ED experience should be divided fairly in order to avoid overwhelming the less experienced nurses. There should be sufficient support in place for nurses with less than five years of ED experience. This support could be, as discussed earlier, in the form of pain management champions. Nurses aged between 36-50 years are most likely seen as highly experienced and mature nurses. Managers should be made aware that it is most likely that far too much responsibility is being placed on these nurses as it has been indicated by the majority of these respondents that their workload had an impact on their ability to assess a patient’s pain.

Barriers

The researcher found a questionnaire in the literature regarding possible barriers for pain management in the ED by Tanabe and Buschmann (2000) and these results will be discussed in this section. The results of the 14 questions on barriers to pain assessment and management will again be grouped into the sections and subsections identified during data analysis and discussed under the following headings: environmental barriers; patent related barriers, nurse related barriers, clinician related barriers and qualitative results.
Environmental Barriers

From the environmental barrier questions the researcher wanted to assess how well the respondents were able to manage their workload. It was identified that most of the nurses found that their workload had an impact on their ability to assess and manage a patient’s pain while caring for other patients.

The two main barriers identified in this section were the responsibility of caring for other acutely ill patients in addition to a patient with pain, and the lack of time to adequately assess and control a patient’s pain. These findings were similar to those identified by previous studies (Duignan & Dunn, 2009; Tanabe & Buschmann, 2000). However, in this research 83% of the respondents believed that the responsibility of caring for other acutely ill patients was a barrier versus 47% in Tanabe and Buschmann, and lack of time as a barrier was 81% versus 44%. Lack of time as a barrier also emerged as a theme from the qualitative section, confirming that this was perceived as a main barrier to the respondents’ management of a patient’s pain. Reasons for this are unclear, but may be related to the volume of patients attending the ED between 2000 and 2012, or staffing levels. Baharuddin et al. (2010) identified that one of the factors when the ED staff were busy treating acute life-threatening conditions, is that pain was considered a minor condition resulting in less time allocated for the pain management.

It was identified by Ducharme et al., (2008) that the greatest demand on the triage nurse was to triage new patients and most times there are multiple presentations of patients to the waiting room, not only walk-in patients but patients presenting via ambulance as well. The authors also identified that due to the constant workload the triage nurse was often not able to offer analgesia to patients with pain who were still in the waiting room. The increase in patients presenting to the ED was not studied in this research, but further research is needed in this area as the workload was seen as a barrier by the respondents and solutions need to be found to improve pressures of the workload. Increased waiting time from time of presentation to treatment is all a reflection of the workload and lack of time the nurses have to assess a patient (Ducharme et al., 2008).

About a third of the respondents thought that frequently monitoring post-intravenous opioids and side effects from treatment when the patient leaves the department were barriers. Although these results identified fewer respondents than Duignan and Dunn (2009) (46%) who perceived this as a barrier, this is still an issue which needs to be addressed. Although time to find the narcotic keys was not regarded as a barrier by Tanabe and Buschmann (2000) it was perceived as a barrier by over a quarter of respondents in this research and this was similar to the results from Duignan and
Dunn (2009) (7%, 27% and 21% respectively). The barrier regarding the need for two nurses to checkout narcotics will always be present due to the strict regulations enforced by the NZ legislation Misuse of Drugs Regulations Act 1977. Further research is needed to identify solutions for this on-going barrier.

**Patient-related barriers**

Patient related barriers were identified from the literature and respondents were asked to agree or disagree with them. Results suggested that respondents needed knowledge on how to assess pain and how to educate patients regarding use of opioids. Respondents also identified that patient’s use of alcohol or other recreational drugs was a barrier.

The largest barrier identified was patients’ reluctance to report pain. In this study 77% of the respondents believed that patients’ reluctance to report pain was a barrier versus 33% in Tanabe and Buschmann (2000) and 40% in Duigan and Dunn's (2009) studies. This finding seems to be contradictory as it has been overwhelmingly reported in numerous studies, as discussed in the literature review, that patients present to the ED complaining of pain and reporting their pain as mostly moderate to severe in intensity. However, in a study by Todd et al. (2007) 42% of patients reported that they thought they needed pain relief although 31% of those patients did not ask for analgesia. It has been identified that nursing communication skills play an important role in the assessment of a patient’s pain and nurse may possibly be assessing a patient’s pain using an informal approach or simply do not ask what the patient’s pain intensity is (Puntillo et al., 2003; Taylor, 2010). It may be that patients to not tell nurses about their pain unless asked and it may also be possible that nurses do not ask.

It has been identified that nursing communication skills play an important role in the assessment of a patient’s pain. Nurses may possibly be assessing a patient’s pain by using an informal approach or simply do not ask what the patient’s pain intensity is (Puntillo et al., 2003; Taylor, 2010).

The next main barriers to pain management identified were the patient’s use of alcohol of other recreational drugs and the patients’ reluctance to take opioids. It seems that patients’ alcohol and drug use at 68% is significantly higher in this study compared to the 33% in Tanabe and Buschmann (2000) and 45% in Duignan and Dunn’s studies. It may be due to lack of education regarding recreational drugs or that nurses are biased to patients presenting to the ED intoxicated as they demand time unnecessarily from the nurse who has to care for other acutely ill patients as well.
While the inability to determine adequate history or allergies of a patient and the lack of intravenous access were not seen as major barriers, more than a quarter of respondents indicated that it was a barrier, and these were similar findings to previous studies (Duignan & Dunn, 2009; Tanabe & Buschmann, 2000).

**Nurse-related barriers**

Nurse related barriers identify levels of knowledge regarding pain management principles. From this section it was found that respondents were aware of and acknowledged their lack of knowledge regarding pain management principles.

It appears that the lack of knowledge was a greater barrier in this research (67% of respondents) compared to 44% in Tanabe and Buschmann’s (2000) study and 40% in the Duignan & Dunn (2009) study. The respondents’ dismissal of opioid knowledge as a barrier was also reflected in the lack of opioid knowledge from the general knowledge section. Lack of opioid knowledge was seen as the greatest barrier by most studies and this proved to be consistent as it was identified that 33% of respondents answered the questions in the opioid section incorrectly (Duignan & Dunn, 2009; Tanabe & Buschmann, 2000).

It was concerning to identify that just under half (46%) of respondents aged 20-35 years with less than five years of ED experience thought that their assessment and reassessment of pain was adequate. Although a chart review was not completed to check this; the literature suggests that lack of assessment was one of the main barriers to pain management (Duignan & Dunn, 2009). It was also concerning to identify that most of the younger respondents with less experience lacked current opioid knowledge.

**Clinician-related barriers**

Just over a third (35%) of respondents indicated that they had to wait for a clinician to diagnose before they were able to treat the patient’s pain. This finding was concerning as historically this was the practice for an acutely painful abdomen, but Rupp and Delaney (2004) reported that there have been three excellent studies which showed that early administration of analgesics allows patients to relax, reducing voluntary guarding and allows improved assessment of the area (Rupp & Delaney, 2004). Although just over a third of respondents found this to be a barrier this number was much smaller than the 53% in Tanabe and Buschmann’s study in 2000.
Qualitative results

A number of barriers were related to clinicians including a reluctance to prescribe adequate analgesia, junior doctors’ reluctance to prescribe opioids, and wasting time finding a doctor to prescribe analgesia. In contrast to the literature which indicated that clinicians with less than three years of experience were more likely to prescribe opioids, the respondents of this study indicated that junior clinicians were reluctant to prescribe opioids. As suggested in the literature, the respondents in this study wanted to advocate for their patients and wanted standing orders for analgesia including opioids. The majority of patients are willing to accept analgesia from a nurse prior to being assessed by a clinician, therefore the value of nurse initiated analgesia under the scope of standing orders and protocols will benefit ED patients (Stalnikowicz et al., 2005).

A number of barriers were related to the lack of standing orders for simple analgesia and opioids. Respondents commented on the lack of time to assess and manage a patient’s pain; these comments included lack of time due to workload, a busy department, and reassessment of pain after administration of analgesics. Lack of time may possibly be due to poor time management, lack of experience, outdated processes or increased patient presentations. Further research is needed to investigate why nurses lack time to assess and manage patients’ pain.

Nursing knowledge

A questionnaire on nurses pain management principle knowledge from Visentin, Tretin, de Marco, and Zanolin (2001), Zanolin et al. (2007) and Messeri et al. (2008) was used in this study.

The respondents of this research project had a reasonable knowledge of pain management principles, with an average of 71% correct, similar to the 69% reported by Messeri et al. (2008) but higher than the 61% from a study by Visentin, Trentin (2001) and 52% from the study by Zanolin et al. (2007).

The results from the nursing knowledge questions will again be grouped into the sections and subsections identified during data analysis and discussed under the following headings: general knowledge, opioids, myths and prejudices and qualitative results.

General knowledge

While most of the respondents had a reasonable knowledge regarding the general knowledge of pain management principles, some respondents still lacked specific
information especially regarding the patient’s right to total pain relief from treatment, the percentage of patients who become addicted to analgesics and the use of non-pharmacological techniques to decrease pain perception.

The findings of Q2 were very similar to that of Messeri, Abeti, Guidi and Simonetti’s (2008) study in demonstrating good knowledge as most of the respondents knew that patients should not experience pain prior to receiving the next treatment. In previous studies it was found that half the nurses thought a patient should experience pain before their next treatment (Visentin et al., 2001; Zanolin et al., 2007). This may still be a factor in the reassessment of a patient’s pain and subsequently the management of that patient’s pain. It is possible that if a patient had a reduction of pain then the nurse may feel it was not necessary to continue with treatment until the patient experienced discomfort prior to giving the next dose of pain medication.

In Q5 half of the respondents of this research did not believe that it was a patient’s right to expect total pain relief from treatment. These results are much lower than findings of previous studies where most of the nurses believed that it was a patient’s right. This was a concerning result as there are pamphlets regarding patient’s rights distributed throughout the hospitals in NZ. The reason for this belief was uncertain and this finding calls for more research regarding nurses’ attitudes toward a patient’s right to total pain relief as a consequence of treatment.

Most respondents demonstrated good knowledge regarding Q8 that pain should be assessed as a vital sign although this research did not evaluate the frequency of pain assessment documentation in the patients’ records. More than three quarters of the respondents lacked knowledge regarding addiction to drugs: this was a similar finding to all the previous studies cited (Messeri et al., 2008; Tanabe & Buschmann, 2000; Visentin et al., 2001; Zanolin et al., 2007).
Opioids

A lack of knowledge was especially evident in Q1 (Giving narcotics on a regular schedule is preferred over prn for continuous pain) and Q6 (Respiratory depression is not the most common side effect of morphine) as half of the respondents answered those two questions incorrectly (Patanwala et al., 2010). The reluctance to give narcotics on a regular schedule, the fear of respiratory depression and the lack of current knowledge regarding the most suitable dose of morphine suggests that oligoanalgesia is present in many of the respondent's EDs. From Q1, 3, 5, 6 and 10 the respondents’ knowledge regarding opioids was assessed and it was identified that the respondents lacked current knowledge. This was a similar finding to most of the previous studies reviewed although the Italian nurses demonstrated far more knowledge regarding Q1 and 3 than the respondents of this research (Messeri et al., 2008; Zanolin et al., 2007).

It was identified that half of the respondents, regardless of age, with less than five years ED experience would not give narcotics on a regular schedule and would not give narcotics to children. These findings indicate the risk of oligoanalgesia in children are similar to a previous study which identified that children are at risk of oligoanalgesia (Neighbor et al., 2004). Once again these results indicate lack of knowledge and if nurses had on-going education regarding opioids the management of all patients’ pain would improve.

Myths and prejudices

Although the majority of the respondents had excellent knowledge regarding the patient being the most accurate judge of the intensity of pain. Half of the respondents did not know that patients with chronic pain need higher dosages of analgesia when they present with acute pain compared to other patients. These findings indicate that oligoanalgesia is still present in the ED as it has been identified that patients with chronic pain who present to ED with acute pain may be undertreated.

Summary

This research identified a few major enablers to patient pain assessment and management as perceived by ED nurses and they include the following: nurse initiated analgesic protocols and guidelines; pain management champions and on-going education regarding pain management principles. These enablers identified in this research have been discussed and supported in previous studies and therefore implementation of these enablers needs to be a priority in all EDs. There were similar barriers identified in this research and previous studies regarding lack of time, workload
and reluctance of clinicians prescribing analgesics and further research is needed to overcome these barriers. While the respondents demonstrated reasonable knowledge regarding general pain management principles, gaps were found regarding current knowledge of opioids. This research identified that nurses needed on-going education regarding pain management principles, especially regarding the usage of opioids. It was also identified that nurses need education or possibly a change of attitude regarding the patients’ right to expect total relief as a consequence of treatment.
Chapter Seven

SUMMARY AND CONCLUSIONS

All our progress is an unfolding like a vegetable bud. You have first an instinct, then an opinion, then a knowledge as the plant has root, bud, and fruit. Trust the instinct to the end, though you can render no reason.

Ralph Waldo Emerson (1803-1882)

Figure 39. The best article in the world (from Laird, 1863)
Summary

This chapter will provide a summary of the research study, discuss the conclusions and limitations of the study and provide recommendations for nursing education, practice and research.

Pain is the most common presentation to the ED. More than 70% of the patients present with pain as their main symptom, pain is recognised as the third most common healthcare problem and is more debilitating than heart disease or cancer (Ducharme, 2011; Lewén et al., 2010; Motov & Khan, 2009; Puntillo et al., 2003; Tanabe & Buschmann, 2000). Although there were numerous barriers identified to pain management including nurse, patient, clinician and environmental barriers, only a few studies have focused on enablers as perceived by ED nurses. It has been identified in previous studies that nurses lack knowledge regarding pain management and current opioid usage.

This research specifically aimed to identify the enablers and barriers as perceived by ED nurses and to establish current nursing knowledge regarding pain management principles. The findings of this research reflected the literature reviewed and met the aims of the research.

This research was a quantitative non-experimental descriptive survey. The data collection tool was a structured questionnaire which in part was duplicated from previous studies. Distributing the questionnaire through an email link via NZNO to all their CENNZ members allowed for broad geographic cover and a variety of ED nurses’ responses to be analysed.

The questionnaire consisted of 43 questions and the survey took approximately ten minutes to complete. Advantages of using this design were that it was economical both in time and financial resourcing, there was no interviewer bias and confidentiality of the respondents was able to be maintained.

A total of 172 questionnaires were analyzed. The majority of respondents were: female (92%); NZ European (80%); had more than 15 years nursing experience (66%) and had postgraduate qualifications (64%). The majority of respondents (97%) thought that having pain management protocols were important and that pain management courses would be beneficial. It was identified that only a few EDs had a pain management champion and most of the respondents (86%) thought that having a pain champion nurse in their department would be an enabler to patients’ pain management. The responsibility of caring for acutely ill patients in addition to a patient with pain was identified as the biggest barrier (83%) with lack of time a close second (80%).
Although it was identified that the respondents had reasonable general knowledge (71%) they lacked current opioid knowledge and had a few gaps in their general knowledge. The majority of the respondents (90%) knew that the best judge of pain was the patient.

The findings of this research are a call for action for nurses in the EDs of NZ to become pro-active in increasing their own knowledge regarding assessment, management and principles of pain. Nurses play a vital role in the management of patients’ pain and need to become active leaders of pain management in the ED. Respondents have voiced the need for nurse initiated analgesic protocols and have the ability to improve pain management if this enabler was supported by environmental administrators. Only a few respondents acknowledged that their ED had a pain management champion and the need for pain management champions was identified. Most of the respondents indicated that they needed and wanted on-going education regarding pain management. The largest barriers were caring for acutely ill patients in addition to a patient with pain, and lack of time due to workload.

Limitations of this research

Selecting to only collect data from the CENNZ members excluded a large number of possible respondents. This research concentrated only on pain management in the ED and what the ED nurses’ perceptions were regarding enablers and barriers to pain management, and there may possibly be different enablers or barriers present in other clinical areas.

Conclusions

This study focused on determining the barriers and enablers to ED nurses’ management of pain. The findings support those of other studies that substantial barriers are present regarding the management of patients’ pain in the ED. Identified was the continued lack of nurses’ knowledge regarding opioid use. The main enablers to ED nurses’ improved management of pain were the need for nurse initiated analgesic protocols and pain management champions. It is hoped that this study will encourage the implementation of the enablers identified and strengthen those already existing in the EDs. While nurse initiated protocols was identified as the main enabler to improve patients’ pain management there is a concern regarding the nurses lack of knowledge regarding opioids and how this might limit implementation of protocols.

This research demonstrates that adequate pain management remains an elusive goal within the emergency nursing setting. It has been demonstrated in the literature that
oligoanalgesia, the under treatment of pain, in the ED setting can result in detrimental outcomes for patients. It was envisioned that by identifying barriers and enablers to ED nurses’ management of patients’ pain it will be possible to narrow the gap that exists between the ideal of universal effective pain management and the reality of clinical practice.

**Recommendations**

There is a need to improve pain assessment and pain management of patients’ presenting to the ED. Various recommendations for improving the management of a patient’s pain have been published, however adherence to these recommendations are random. Lack of nursing knowledge regarding pain management principles, especially regarding opioid usage has been consistently been reported. Based on the findings of this research the following recommendations are made.

**Recommendations for nursing education**

The results of this research show few pain management champions exist in EDs and the literature shows a number of benefits from having this position. Therefore the introduction of a pain management champion could introduce benefits such as instantly available expert advice, continuous education regarding pain management principles for staff and patients, and support for all the nurses working in ED especially for those with limited ED experience. The added value of having nursing pain champions is that they can concentrate on those patients presenting with acute and chronic pain and therefore reduce the workload of the nurse looking after acutely ill patients. The possibility of having nurse led clinics in the waiting room teaching and educating patients, patients’ family and nurses about analgesia and how to take or give pain relief could be part of the nurse champion’s role.

It was identified in this research and in previous studies that nurses lack knowledge of pain assessment, management and up to date opioid knowledge. Specific allocation of study days for pain assessment, management and current analgesics especially opioids appear to be needed. Annual revalidation of opioid usage and pain management principles has the benefit of identifying gaps in the nursing knowledge and promoting current evidence based practice.

**Recommendations for nursing practice**

Management of pain requires both assessment and documentation. One option for improving initial assessment could be the use of a compulsory drop box on the computerised triage form where the triage nurse has to ask the patient “what is your
pain score: none, mild, moderate or severe?”. The benefit of this will be consistent initial documentation of each patient’s pain intensity on arrival to the ED.

The literature indicates that pain should be considered to be the fifth vital sign and this concept should be embraced and implemented in all hospitals. The observation chart for recording vital signs needs to be modified to include an allocated place for the documentation of pain.

Another approach to assessment with the aim of improving and standardising pain assessment is by introducing standardised nurse protocols for the assessment of pain such as using the mnemonic PQRST or OLD CHARTS method. The benefit of introducing a standardised method will be the completion of specific questions regarding a patient’s pain. Patients will be asked the same questions by each nurse and this will prevent confusion or inconsistency. A formal “sticker” with the mnemonic PQRST or OLD CHARTS letters printed each on a separate line, where the nurse has to document initial pain assessment, can be placed on the nursing notes and signed and dated.

A standardized visual acuity tool could be issued to all nurses in ED and the rest of the hospital to encourage consistency of evaluating pain intensity. There could be visual acuity posters displayed on walls in all the rooms of the ED so that the patients’ pain intensity can be rated consistently by all nurses and so that patients can be educated regarding pain scores.

Research indicates that the benefits of nurse autonomy in the administration of pain medication in the ED include reducing median pain scores and waiting times (Fry & Holdgate, 2002). Pain assessment should be performed by an ED nurse, and, when appropriate, patients should be treated for their pain before seeing a clinician. Therefore there appears to be a need for standardised nurse initiated analgesia protocols, not only for simple analgesia such as paracetamol and ibuprofen, but for schedule two (class b; morphine) and three (class c; codeine) analgesics as well. Furthermore the need for protocols with clear guidelines on how to administer non-pharmacological pain relief (i.e. splinting a fractured limb, elevating a painful limb, ice packs, heat packs) has the added benefit that nurses can provide analgesia prior to consulting a clinician regarding analgesics. Regular evaluation of nursing competencies related to those protocols would possibly improve compliance of protocol usage. Having the organisations and managers and all the stake holders such as the pain specialist team on board, supporting the usage of the nurse initiated protocols would enhance pain management.
Presenting half yearly statistics of pain management audits and setting targets may have the benefit of encouraging nurses to improve patients’ pain management and may be used as a quality measurement tool. The need for a “transport” nurse was also identified to facilitate administration of opioids. A “transport” nurse needs to be a highly experienced nurse whose role would be facilitating and escorting patients from the ED to diagnostics and to the ward. This will reduce the workload of the ED nurse allowing more time for her other patients as the “transport” nurse will be able to accompany the patient and monitor vital signs and side effects while not in the ED.

**Recommendations for further research**

Further research is needed to identify why half of the nurses do not believe that it is the patients’ right to have total pain relief as a consequence of treatment. More research is needed regarding the waiting room patients and the role the triage nurse has in pain assessment and pain management. The increase in patients presenting to the ED was not studied in this research, but further research is needed in this area as the workload was seen as a barrier by the respondents and solutions need to be found to improve pressures of the workload.

**Summary**

Evidence exist that oligoanalgesia is still present in the ED and that ED nurses lack knowledge regarding the use of opioids. Opportunities exist in NZ for nurses to enhance their knowledge and become pain management champions. Raising awareness that oligoanalgesia exists in the ED amongst all nurses is essential. There is an urgent need for action to reduce oligoanalgesia in the ED. ED nurses are in the unique position to become leaders in pain assessment and pain management.
REFERENCES


Dr. Batty's asthma cigarettes [Advertisement]. (1930). Retrieved from http://www.yourememberthat.com/media/13635/Dr_Batty_Asthma_Cigarettes/


Appendices
Appendix 1

Faculty Academic Committee approval letter

21 June 2012

Annatjie Pretorius
809 Alexandra Street
Parikvale
HASTINGS 4122

Dear Annatjie

The Faculty Academic Committee met on 19 June, and approved your research proposal topic "What are the barriers and enablers to Emergency Department nurses management of patients' pain?", to progress.

If you have any questions, please do not hesitate to contact me.

Yours sincerely

Ruth Crawford
MNV490 Course Coordinator
For the Faculty Academic Committee
Faculty of Health Sciences

Cc: Dr Bob Marshall, Judy Searle
Appendix 2

EIT Research Ethics and Approvals Committee approval letter

Reference Number: 30/12

Jul 2012

[Name and title]

[Institution]

Dear [Name of recipient],

I am pleased to inform you that your research project, "[Project title]", has been approved by the EIT Research Ethics and Approvals Committee at their meeting held on [Date].

You are reminded that should the proposal change in any significant way, you must inform the Committee in writing. Please ensure all relevant members of all correspondence on this Committee.

Please provide the Committee with a progress report after one year of the project and a brief summary at the conclusion.

Thank you for your cooperation.

Yours sincerely,

[Signature]

[Name and title]

[Institution]

[Contact information]

[Logo]
Appendix 3

Multi-region Ethics Committee approval letter

25 June 2012

Annatjie Pretorius
809 Alexandra Street
Hastings
Hawkes Bay

Dear Ms Pretorius

Ethics ref: MEC/12/EXP/678  (please quote in all correspondence)
Study title: What are the barriers and enablers to Emergency Department nurses’ management of patients’ pain?

This study was given expedited ethical approval by the Chair of the Multi-region Ethics Committee on 22 June 2012.

Approved Documents

- Expedited Application
- Study Protocol
- Emergency Department Nurses’ Questionnaire

This approval is valid until 30 November 2012, provided that Annual Progress Reports are submitted (see below).

Amendments and Protocol Deviations

All significant amendments to this proposal must receive prior approval from the Committee. Significant amendments include (but are not limited to) changes to:

- the researcher responsible for the conduct of the study at a study site
- the addition of an extra study site
- the design or duration of the study
- the method of recruitment
- information sheets and informed consent procedures.

Significant deviations from the approved protocol must be reported to the Committee as soon as possible.

Annual Progress Reports and Final Reports

The first Annual Progress Report for this study is due to the Committee by 24 June 2013. The Annual Report Form that should be used is available at www.ethicscommittees.health.govt.nz. Please note that if you do not provide a progress report by this date, ethical approval may be withdrawn.
Appendix 4

Letter of Approval from Maori Health Services of the HBDHB

26 June 2012

Annatjie Pretorius
Registered Nurse (ED)
Hawke’s Bay Hospital Soldiers Memorial
Ohau Road
Private Bag 9014
Hastings

Tēnā koe Annatjie

RE: PAIN MANAGEMENT EMERGENCY DEPARTMENT

Thank you for the opportunity to review your proposal for the above. I support the research you are undertaking here in Hawkes Bay.

I would recommend that the ethnicity question on the survey form be changed to meet with the Ministry of Health protocol. This means that respondents are able to indicate one or more ethnic groups. For further information visit www.moh.govt.nz reference Ethnicity Data Protocols for the Health and Disability Sector.

I wish you well in your research and look forward to receiving a copy of the final report.

Noho ora mai rā

Lewis Ratapu
Kaiwhakahaere

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TE WAHANGA HAUORA MĀORI
Corporate Services, Hawke’s Bay District Health Board

Omaha Road, Private Bag 9014, Hastings 4156, New Zealand- Telephone (06) 878 1654 Fax (06) 878 1655

Email: Lewis.Ratapu@hbdhb.govt.nz
Appendix 5

Questionnaire placed in Survey Monkey

Emergency Department Nurses’ Questionnaire

Hello, my name is Annatjie Pretorius and I am a postgraduate student completing my Master of Nursing degree at the Eastern Institute of Technology Hawke’s Bay. I work in the Emergency Department (ED) at Hastings Hospital and have a real interest in pain management in the ED area. I would like to invite you to participate in my research regarding pain assessment and pain management.

The aims of my project are to explore ED nurses’ knowledge of pain management principles, and to identify their perceived barriers/enablers to pain management.

My research question is: What are the barriers and enablers to Emergency Department nurses’ management of patients’ pain?

By participating in this survey you will contribute in sharing vital information and knowledge regarding ED nurses’ clinical practice in pain management, enabling opportunities to improve patient care.

Completing the survey will be acknowledged as providing consent to participate in the research. All information will be strictly confidential. You will not be required to state who you are or where you practise.

Ethical approval for this project has been received from the Chair of the Multi-region Ethics Committee (Ethics ref:MEC/12EXP/078). Information collected from the data will be made available to the College of Emergency Nurses New Zealand and presented at their conference.

Thank you for your time.

Annatjie
Possible enablers for nurses.

The following questions represent possible enablers for you in pain management in the ED.

Please answer Yes or No to each of the following questions.

1. Do nurse initiated analgesia protocols improve pain management for the ED patients?
   - Yes
   - No

2. Do you have a pain management champion in your area?
   - Yes
   - No

3. Would pain management champions improve pain assessments, management and nursing knowledge of pain?
   - Yes
   - No

4. Will attending pain management courses/conferences/in-service courses improve nursing management principles?
   - Yes
   - No

5. Do you follow a protocol to assess a patient’s pain?
   - Yes
   - No

   If Yes what do you use?

6. Does workload impact your ability to assess and manage a patient’s pain?
   - Yes
   - No
7. Would regular audits on pain management motivate nurses to achieve the goal of optimum pain management?
- Yes
- No

8. Does treating pain as the fifth vital sign contribute to optimal pain management care?
- Yes
- No

9. Would posters of pain assessment tools like this improve accuracy of pain score assessment and documentation of pain score?
- Yes
- No

Pain scale Wong-Baker
http://noisebetweenstations.com/personal/weblogs/images/Pain-Scale-Wong-Baker.jpg
Possible barriers for nurses.

Do the following statements describe barriers for you in providing optimal pain management? (modified from Tanabe, 2000).

Please answer Yes or No to each of the following statements.

* 10. 1. The responsibility of caring for other acutely ill patients in addition to a patient with pain.
   - Yes
   - No

* 11. 2. Patients' reluctance to report pain.
   - Yes
   - No

* 12. 3. Patients' reluctance to take opioids.
   - Yes
   - No

* 13. 4. Nursing staff reluctance to give opioids.
   - Yes
   - No

* 14. 5. Inadequate initial assessment of pain and re-assessment of pain relief.
   - Yes
   - No

* 15. 6. Inadequate staff knowledge of pain management principles.
   - Yes
   - No

* 16. 7. Lack of time to adequately assess and control pain.
   - Yes
   - No

* 17. 8. The inability to medicate until a diagnosis is made.
   - Yes
   - No

* 18. 9. The inability to determine adequate history/allergies.
   - Yes
   - No
19. The patient’s use of alcohol or other recreational drugs.
   ○ Yes
   ○ No

20. Lack of intravenous access.
   ○ Yes
   ○ No

21. Inability to monitor for side effects when patients leave the department for diagnostic procedures.
   ○ Yes
   ○ No

22. Time to find narcotic keys.
   ○ Yes
   ○ No

23. The need for frequent monitoring post-intravenous opioids.
   ○ Yes
   ○ No

24. If you have experience of any other barriers to pain management would you please list them below?
General knowledge of pain and pain management.

The following questions were duplicated from a questionnaire by Messeri, Soollo, Abele, Guidi and Simoneti, 2008 and represent a general knowledge of pain and pain management.

Please indicate your agreement or disagreement with the following statements:

25.1. Giving narcotics on a regular schedule is preferred over prn/as needed for continuous pain.
- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

26.2. A patient should experience discomfort prior to giving the next dose of pain medications.
- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

27. The preferred route of administration of narcotic pain relievers to patients with cancer-related pain is intramuscular.
- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

28.4. The most accurate judge of the intensity of the patient's pain is the patient.
- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly disagree
* 29.5. Narcotics should not be used in paediatric patients.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree

* 30.6. Respiratory depression is the most common side effect of morphine.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree

* 31.7. It is a patient's right to expect total pain relief as a consequence of treatment.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree

* 32.8. It is necessary to continuously assess pain as a vital sign.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree

* 33.9. 25% of patients receiving analgesics on a regular basis become drug addicted.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree
34. 10 The most suitable dose of morphine for a patient in pain is a dose which best controls the symptoms; there is no maximum dose (i.e. a level which must not be exceeded) for morphine.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree

35. 11. Distraction with non-pharmacological techniques (music, imagery) decreases pain perception.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree

36. 12. Patients with chronic pain need high dosages of analgesics in comparison to patients with acute pain.
   - Strongly disagree
   - Disagree
   - Neutral
   - Agree
   - Strongly agree
**Demographics**

Finally, could you please provide some information about yourself?

Please place a tick in one of the following options for each question.

**37. 1. Gender:**
- Female
- Male

**38. 2. Age:**
- 20-30 years
- 31-40 years
- 41-50 years
- 51-65 years
- >65 years

**39. 3. Ethnicity:**
- NZ European
- Maori
- Samoan
- Cook Island Maori
- Tongan
- Niuean
- Chinese
- Indian
- Other

Other (please specify) __________________________

**40. 4. Highest level of Qualification obtained:**
- Registered Nurse (Diploma)
- Registered Nurse (Degree)
- Postgraduate Certificate/Diploma
- Masters degree
- Other
41. 5. Years of experience in nursing:
   - 1-5 years
   - 6-10 years
   - 11-15 years
   - >15 years

42. 6. Years of experience in ED:
   - 1-5 years
   - 6-10 years
   - 11-15 years
   - >15 years

Thank you for your time in completing this survey. Your contribution to my research is much appreciated.
Appendix 6

Invitation to be placed in the CENNZ newsletter

Emergency Department Nurses’ Questionnaire

Hello, my name is Annatjie Pretorius and I am a postgraduate student completing my Master of Nursing degree at the Eastern Institute of Technology Hawke’s Bay. I work in the Emergency Department (ED) at Hastings Hospital and have a real interest in pain management in the ED area. I would like to invite you to participate in my research regarding pain assessment and pain management.

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My research question is: What are the barriers and enablers to Emergency Department nurses’ management of patients’ pain?

By participating in this survey you will contribute in sharing vital information and knowledge regarding ED nurses’ clinical practice in pain management, enabling opportunities to improve patient care.

Completing the survey will be acknowledged as providing consent to participate in the research. All information will be strictly confidential. You will not be required to state who you are or where you practise.

Ethical approval for this project has been received from the Chair of the Multi-region Ethics Committee (Ethics ref: MEC/12/EXP/078). Information collected from the data will be made available to the College of Emergency Nurses New Zealand and offered for presentation at their conference.

Please click on the following link to access the survey. Alternatively highlight and copy the link into your browser.

Survey link: https://www.surveymonkey.com/s/ED_NursesHatePain

Thank you for your time

Annatjie Pretorius