Research Project

An evaluation of the development and implementation of a pain management guideline for the Knysna Provincial Hospital

Submitted for partial completion of Masters of Philosophy in Palliative Care

Hilary Grey

Student number: gryhil003

Supervisor: Doctor Liz Gwyther

University of Cape Town

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Declaration of own work

I, Hilary Grey, hereby declare that the work on which this dissertation/thesis is based is my original work (except where acknowledgements indicate otherwise) and have used the Vancouver system of referencing.

Biostatistical work was done by biostatistician; Carmen Stindt

Signature Signed by candidate

8 January 2018

Acknowledgements

It is with gratitude that the researcher acknowledges the contributions and assistance that were offered by the following people, without their input this study would not have been possible:

- My mother, Joan Grey, for her prayers, patience and quiet support
- Susan McGarvie for reminding me to stay in the moment
- The staff at Knysna Sedgefield Hospice for inspiring and believing in me
- For Dr. Janet Stanford and Dr. Rene Krause for their expert opinion
- For all the staff at the Knysna Provincial Hospital who thoroughly engaged in this process to improve chronic pain management for patients

Abstract

The evaluation of the development and implementation of a pain management guideline for the Knysna Provincial Hospital

Introduction

Pain is the symptom that most frequently brings patients to the hospital and impacts on the quality of patients and their families' lives, yet researchers have shown that barriers to effective pain management for patients who suffer chronic pain remain. The barriers include professional, patient and system issues. Many of these issues could be seen at the Knysna Provincial Hospital. The literature reveals that the implementation of a guideline increases the success of the pain management process. This research looks at the implementation of a site specific guideline at the Knysna Provincial Hospital.

Methodology

This study incorporates both quantitative and qualitative analysis. The study has two phases; the first includes a quantitative analysis of file audits and the thematic analysis of three focus groups held to determine barriers and facilitators of the pain management process. Using the information garnered in phase-1 a guideline is developed and implemented. Phase-2 involves the quantitative analysis of files after the implementation of the guideline.

Data management and analysis

Data from the file audits in both phase-1 and phase-2 was analyzed using quantitative analysis techniques using the software; IBM SPSS 24.0. Data from the focus group discussion was thematically analyzed. Using data from the phase-1 audit and the themes from the focus group discussions a chronic pain management guideline was developed. The guideline was

implemented and the phase-2 file audit was performed to establish the effect of the guideline on the pain management process at the Knysna Provincial Hospital.

Ethical Considerations

All participants of the focus group discussions were given sufficient information about the study to make an informed consent. Ethical approval was obtained from the UCT Faculty of Health Sciences Human Research Ethics Committee. Permission to conduct the research was obtained from the Western Cape Department of Health, Knysna Provincial Hospital, and the Knysna Sedgefield Hospice Board of Directors.

Findings

This study aimed to identify the barriers and facilitators to good pain management and use the findings to create a guideline. The focus group discussions showed that the current practice was inconsistent; the focus groups identified several barriers and facilitators to improved pain management. The initial file audit showed 84% of patient's pain was assessed and only 59% were reassessed. Using the data from the file audit and FGD, a guideline was created to meet the needs of the Knysna Provincial Hospital. The file audit post the implementation of the guideline showed improved pain management processes with initial assessment at 100% and reassessment at 71%. The implementation of the new guideline was flawed and only 35% of files audited showed evidence that the new process was used.

Conclusion

The guideline developed based on the file audits and identification of barriers and facilitators during focus group discussions improved the pain management process at the Knysna Provincial Hospital.

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CHAPTER 1 - INTRODUCTION

1.0 Title

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1.1 Introduction

1.1.1 Pain, a common symptom

Pain is localized suffering as a result of actual or potential tissue damage that is associated with physical, emotional, social and even spiritual components of a person. Pain is also the most common complaint that brings a patient to the emergency room. It is recognized that pain is a normal response, even a predictable effect of diseases such as cancer or HIV, it is also documented that significant unnecessary physical and psychosocial suffering occurs because of sustained or poorly managed pain[1–3]. The consequences of pain include reduced quality of life; impaired physical function, increased depression and anxiety, longer hospital stays or frequent readmissions with associated economic burden and extended recovery time where the patient may not be able to work. The experience of pain has a cumulative effect, with significant effects on the quality of life of the sufferer which further exacerbates their experience of pain. Effective pain management is a basic human right[4,5].

1.1.2 The state of pain management

In the last decade many studies, including a meta-analysis in 2016, have been conducted on pain management strategies yet pain, according to the meta-analysis, is seen in 39-66% of patients with cancer increasing in patients with advanced disease[1,6]. Research shows 35-91% of people living with HIV report experiencing pain[2,3,7]. Newshan indicates that 48% of people living with

HIV where there is an undetectable viral load, still report continuous pain conditions[2]. In addition, patients with non-communicable diseases report the primary reason for admission to hospital is pain. Pain management has been researched for decades and there is a wealth of information available for effective pain control yet pain is still inadequately treated. A comprehensive approach to understanding, diagnosing and treating pain is needed. Research shows an interdisciplinary approach where clear treatment goals are identified, pain is assessed and reassessed frequently, and treated with a standard approach is most effective. However, implementation of these strategies appears problematic and effective pain management in the patient with continuous pain is constrained[8,9].

In 1986, the World Health Organisation developed guidelines for Cancer Pain Relief [10] including the analgesic ladder which is used widely and recommends a three-step approach depending on pain intensity, moving from non-opioids to weak opioid to strong opioids. Principles for managing continuous pain, including around the clock dosing, with as needed doses for breakthrough, are considered foundational. Extensive research to improve pain management over the years has resulted in national strategies in several countries including South Africa[11–13]. However, two decades later chronic pain management, as in cancer pain, remains inadequate and research on barriers to good pain management and how to overcome these barriers is ongoing.

1.1.3 Barriers to effective pain management

Barriers to effective pain relief are identified in 3 broad categories – patient, professional and system barriers. The literature shows that patient related barriers include under-reporting pain for a variety of reasons such as fear of addiction, fear of side effects, and fear of disturbing the

health professional, wanting to be a good patient and even fear of injections inhibit quality care. Often these misconceptions can be dealt with by focused patient education. Ward et al. and others believe that if patients are informed about common side effects and how to prevent them some of the fear would dissipate[14]. In their research, Drayer et al. suggest communication between patient and health professional has a direct impact on pain management[15]. Establishing the patient's expectation and treatment goals is considered a an essential part of reducing patient related barriers[2,9,14] and this is often the intersection of patient and professional barriers.

According to the literature, professional barriers are based not just on a lack of knowledge but also on incorrect knowledge which leads to a fear of opioids or doctor attitudes causing labeling patients as malingerers or pain as psychosomatic. The result of these barriers could to lead to outcomes such as pain simply not being recognized or pain being under or over treated. However, much of the research done showed that simply training doctors and nurses was not enough for a sustainable approach to effective pain management; the addition of a pain guideline or protocol significantly improved adoption of concepts taught[7,14,16–18].

Conflict relationships between doctors and nurses also play a role in poor quality pain management. Van Niekerk et al. researched the impact of nurse-physician relationships on pain management in Tasmania. They describe such conflict negatively impacting patient care when nurses did not feel they had been included and often felt they did not know the goal of pain treatment. Van Niekerk et al. reported issues where nurses felt their expertise was ignored even

if they had more up to date knowledge on pain control and finally, doctors predominantly saw nurses as generally incompetent. Language barriers between professionals further exacerbated the situation[18]. Other common obstacles for both doctors and nurses are lack of time to adequately assess pain, disagreement on pain intensity, and patients' incongruence in pain behaviour and intensity reporting complicating the picture. Pain assessment and documentation goes a long way to improve pain management[7,14,16–19].

System barriers include internal or external factors which hinder care of the patient in pain. Access to drugs as an external barrier has largely been removed as most medications including morphine are generally available in South African hospitals. Internal barriers could be lack of cooperation between disciplines or poor referral pathways. Low nurse: patient ratio has also been suggested as a system barrier[16].

1.1.4 Recommendations to improve pain management

Oldenmenger et al. recommend three steps to improve pain management: improve health professional education, improve pain assessment and improve pain consultation through use of protocols[20]. Staff education alone does not bring sustained improvement in pain management, and later research shows that while some of the education programmes could be tied to improvements many fell short of the intended outcome. Most agreed that an education strategy needed to be focused on both health care providers and on patient empowerment. This twofold process supports the use of routine assessment of pain using accepted tools which has been shown to improve the quality of treatment given[11,16–18].

1.1.5 Pain Assessment

For many years, the concept of pain as a fifth vital sign has been promoted. The belief is if pain is assessed routinely as blood pressure or temperature, pain assessment is more likely to be done. In 2001, JCAHO (Joint Commission on Accreditation of Healthcare Organizations) introduced this concept as a standard, for hospitals in America; so many hospitals implemented this as a model for assessing and treating pain. Its application found using visual analogue scales helpful to measure pain and to set a course of treatment. Pain $\geq$ 5/10 generally required some kind of intervention. This practice change was not without problems, acute pain and chronic or cancer pain were treated with the same rules which lead to serious consequences including prolonged hospital stays and death[21]. Purser et al. report only 70% of doctors and nurses surveyed, used the tool, and the tool was used to assess pain but not used to assess the intervention[22]. Documentation did not follow the charting and in patients with cancer or chronic pain often pain baselines were missing when patients reported for follow up visits. One of the results of making pain as the fifth vital sign makes pain assessment more visible and pain management strategies were stimulated. However, Lucas et al. showed that the same principles used on patients with acute pain could lead to over medication and they noted some life-threatening outcomes[21]. Schreiber et al. takes time to describe how patients' reports may be different with different staff which is further complicated by staff subjectivity[19,21]. Generally, the use of visual analogues scales to report and document pain is seen to be helpful.

Clear documentation that is available for those that are making decisions allows continuity of care. Inconsistent documentation not only adds to conflict between clinicians and nurses but also hinders treatment. Assessment and reassessment are essential for continuous, effective

treatment. This focused process shows diminished barriers to effective pain management[2,17,23–25].

Recent studies conducted showed up to a 25% decrease in under-treatment of pain where institutional changes were implemented, these included policies and procedures on the regular assessment of pain, standardization of pain treatment and clinical pathways which provide a step by step pain management process[1,12,26].

1.1.6 Knysna Provincial Hospital

Knysna is a town in the Garden Route of the Western Cape, a sub-district of Eden with a population of 69,000 people. The Knysna Provincial Hospital is a 90 bed, level one facility that serves two sub-districts, the Knysna sub-district and Bitou sub-district with a population of 49,000. Knysna has the highest population density per kilometer in the Eden District, which accounts for many of the burden of disease challenges seen, such as the highest tuberculosis and HIV incidence rate in the district and amongst the highest in the province.

The hospital has undergone major renovations; a new emergency centre the first of the upgrades completed was opened in 2014[27], with the aim of improving the patients' experience and providing a better work environment and ultimately affecting patient outcomes. Changes to the infrastructure have stimulated changes to care delivery processes. The Hospital management wants to improve patient experience and as experts in pain management Knysna Hospice staff were asked to assist in the process. This research contributes to the change process and responds to the hospital request.

CHAPTER 2 - LITERATURE REVIEW

2.1 Introduction

A review of the literature was done. The researcher used Google Scholar to refine the key words to use in a Boolean structure that was utilized for ClinicalKey, Medline, PubMed and CINAHL. CINAHL had a strong American bias but the articles were in line with those found through the above search engines. Both ClinicalKey and CINLAH have a nursing focus. The researcher included a book South African Cancer Pain Guidelines from 2015. A hand search using the references of articles found was employed for additional references. The key words used were pain linked with barriers, assessment, cancer, HIV, Sub-Saharan Africa, guideline, protocol

Articles included in this literature review needed to be in English and published since 2000. Studies that explored barriers to continuous pain management, doctors and nurses' attitudes to pain management, pain assessment and reassessment tools, pain management experienced in sub-Saharan Africa and the benefits and barriers to guideline /protocol use were included. The review excluded articles that described pain management at home, symptoms other than pain, the treatment of acute pain or treatment of drug addiction or drug seeking.

2.2 The prevalence of pain

Pain management has been the subject of research for decades yet despite effective treatments being available; this common and debilitating symptom is still undertreated. Van den Beuken-van Everdingen et al. performed a systematic review of the literature and 122 studies were selected for a meta-analysis on the pain prevalence in the world. They note that worldwide, more than one-third of cancer patients will experience moderate to severe pain[(1)]. Their study

looked at literature published between September 2005 and January 2014 and triangulated the data based on representation of the sample, description of methods and results and the definition of pain prevalence. This included disease stage and cancer. The data was scored by two of the authors; conflicts were resolved through a consensus approach. They concluded that despite increased attention on assessment and management of pain, pain continues to be a prevalent symptom[1].

An earlier study by Deandrea et al. done in 2008[28], showed that 40-50% of cancer patients were undertreated for chronic pain which they attributed to ineffective use of opioids, recognizing the contribution of patient, family, health professional and institutional barriers to the problem. The focus of the study looked at the pain management index (PMI), a well validated method of assessing pain based on the WHO guidelines. Deandrea et al. looked at slightly fewer studies, 44 compared to 52 in the 2016 van den Beuken-van Everdingen et al. study[1] . The Deandrea et al. study was updated by Greco et al. and they looked at studies between 2007 and 2013 using the same criteria[6]. This update found that while there was an improvement in the pharmacological treatment of pain to 31% undertreated, a third of patients with severe pain were not adequately treated[6]. Both these studies used univariable regression analysis with the PMI as the continuous variable.

There is growing evidence of research in pain management in the African context. However, in sub-Saharan Africa, most focus is on the management and treatment of HIV-related pain.

Harding et al., in a report motivating for evidence based research into the Sub-Saharan African cancer picture, using WHO cancer registry data, showed 421,000 people died of cancer in Sub-Saharan Africa in 2008[29]. While this number is recognized as an underestimate because of inadequate cancer registries, the report further details cancer symptoms from South Africa and Uganda, showing 87.5% of patients with cancer (one fifth also have HIV) experiencing pain[29]. Newshan and Staats support this finding in their 2013 report, citing that as many as 48% of people living with HIV, that have an undetectable viral load, experience pain[2]. Newshan and Staats based their findings on a review of literature looking at pharmacological and non-pharmacological interventions related to pain in people living with HIV. The purpose of their study was to develop a best practice guideline and concluded that the WHO guidelines stepwise approach used for cancer patients was the most commonly used and effective guideline.

Maree et al. also published a paper in 2013 on the management of HIV and AIDS related pain. Their study was more focused and looked at the experience of patients attending a single primary health clinic in Tshwane. They used patient registers and performed patient surveys over a 6-month period. They also used patient facility records to determine if pain guidelines were followed. The sample size was large so that outliers did not influence the study. They recognized study limitations, the greatest of which was language barriers. They reported up to 87% of patients experienced some pain at some point in their day, they concluded that pain was not addressed effectively because of a lack of knowledge about pain and poor processes that

prevented nurse prescribing of certain drugs e.g. amitriptyline prevented effective pain management[25].

Farrant et al. researched symptom burden of patients with HIV using a rigorous study design using cross sectional, self-report study with validated tools. Analysis was done by means of univariant and multivariant regression models. They found neuropathic pain the most common symptom and pain in up to 83% of patients[30].

In an editorial Stockler and Wilkens comment that the probability of patients experiencing pain that warrants analgesia should not be a surprise but the fact that 40% of these patients are undertreated should be of concern[31].

2.3 Pain Management

Initially, there was criticism of the WHO Cancer Pain Relief document because of a lack of scientific process in developing the guidelines. However, field testing of the guidelines demonstrate that 70-90% of cancer pain can be effectively managed using the WHO recommendations[32]. Over the years this "mainstay of therapy for cancer pain management"[32] has been adjusted by practitioners to include interventional pain management as a fourth step[33]. In 2015 "The Guide to the Treatment of Cancer Pain in South Africa the SHIP Model" (Stepwise Healthcare Intervention for Pain) introduced an integrated approach to include neuropathic pain[11], this reflects the need based on South African disease profile. The changes to the WHO analgesic ladder have been developed based on institutional best practice rather than scientific process.

Three decades after the publication of Cancer Pain Relief, we see evidence that the number of research articles into pain management increased by 35% and the methodological quality of the articles also improved, indicating an improvement in health professional education[1]. Luckett et al. had similar results to van den Beuken-van Everdingen et al.[1] in their systematic review of 659 articles around the benefit of treatment guidelines. They used a qualitative study method and used a checklist which provided clarity to selection of articles. The two reviewers performed a pilot to establish inter-rater reliability. Luckett et al. developed themes using validated checklists, a software programme (Evidence for Policy and Practice Information and Coordinating Centre-Reviewer 4 software) and a manual review with two reviewers[35]. Both van den Beuken-van Everdingen et al. and Luckett et al. suggest there has been a 25% improvement with regard to under-treatment of pain because of the implementation of pain management guidelines[1,35]. Yet, all agree, continuous pain management, as in cancer pain, remains inadequate.

2.4 Barriers to pain management

Barriers to effective pain relief are identified in 3 broad categories – patient/carer, professional and system barriers.

2.4.1 Patient related barriers

Kwon includes a list of 29 barriers (nine patients specific) that was developed through a longitudinal study of literature from 1986 ending in 2013. Using the data gleaned from the peer reviewed articles, themes were developed and prioritized based on frequency[36]. Using a similar

methodology, Luckett et al., used data from 659 studies incorporating 48 patient specific research papers to identify barriers seen[35]. Both Kwon and Luckett et al., show that the barriers are, in fact, misconceptions about opioids and addiction. They believe that often these misconceptions can be dealt with by focused patient education. However, the study done by Sun et al. refutes the fact that misconceptions can be influenced by patient education alone[16]. They ran a 5 year study that included a sample of 100 cancer patients from a single hospital, 76.2% reported pain. The initial phase identified the distress experienced by patients in pain, the second phase linked misconceptions or barriers to effective pain control, in spite of patients scoring 73% on a patient pain knowledge tool[16]. They believe that good communication between the health professional and the patient around goals of treatment, together with appropriate use of analgesia diminish the patient barriers; however this was not the focus of their research.

Oldenmenger et al. had comparable results in their study of relevant literature produced between 1986 and 2007 and stated "Patients often impede their own treatment due to misconceptions about analgesics and their side-effects, non-adherence to treatment regimens and poor communication of their pain and concerns to health providers"[20]. By the same token, Ward et al., in their research on women with gynaecologic cancer that spanned 18 months and included 77 women with metastatic disease, hypothesized that if patients are informed about common side effects of pain medication and how to prevent them, some of the fear of using them would dissipate[14]. Ward et al. divided the sample of 77 patients into an intervention and a "care as usual" or control group. A baseline assessment was done on both groups. The intervention group was given information on pain management with a follow up clarification

phone call. They found no significant impact on desired outcomes between the two groups. However, the researchers did note that communication between patient and health professional had a direct impact on pain management, but the knowledge of the health professional was sometimes flawed[14]. When the professionals used the supplemental booklet provided to guide the interactive communication, patients were more likely to adhere to their prescribed regimen compared to those where the health care provider worked from memory/experience. Following on this study, Ward et al. are examining the connections between patient and health care professional barriers.

2.4.2 Professional barriers

Voshall et al. performed a review of the literature, looking at the value of pain management chapters in nursing textbooks, nursing and medical student knowledge and found a general lack of knowledge. This research was done in response to earlier works that showed that lack of education in pain management impacted the quality of the treatment given to patients[17]. They used Ferrell and McCaffery's[37] 2008 Knowledge and Attitudes Survey Regarding Pain (KASRP), which is a self-administered survey. There was a 51% response to surveys sent to 16 nursing schools. The results showed 75% received training in pain management yet less than 50% felt adequately prepared to treat patients in pain. The responses also revealed that in most cases the education did not include current information. The average age of respondents was 53-year-old, which was significant because they found younger nurses felt more prepared and more likely to do additional self-study. In South Africa according to 2015 SANC statistics 49% of nurses are over 50 years old[38]. The results of the Voshall et al. study concurred with the findings of Ward et al.

and Sun et al.[14,16,17] showing that professional barriers are based not just on a lack of knowledge but also on incorrect knowledge which leads to a fear of opioids or doctor attitudes causing labeling patients as malingerers or pain as psychosomatic[14,16,17]. The result of these barriers could lead to outcomes such as pain simply not being recognized or pain being undertreated.

Namisango et al. investigated pain in the ambulatory HIV/AIDS patients using validated pain and symptom outcome scale tools. The study was conducted in Uganda, and 302 patients responded to a self-report survey with potential bias of both language and education mitigated somewhat through the use of translators. According to their literature review the researchers expected a 35% prevalence of pain; however, the results showed pain prevalence of 47%. , with 14% attributing their pain to their treatment, 34% to their disease and 57% felt the pain they experienced was unrelated to either HIV or the treatment of HIV. The study indicated doctors had a general reluctance to prescribe morphine for severe pain which correlated with 68% of patients dissatisfied with pain management. This work spotlighted the damaging effect delays and under-treatment has on a patients' perception of quality of life. Namisango et al. concluded that there was a lack of recognition of the presence of pain in the patient with HIV, that a more robust assessment of pain should be promoted and is feasible[24].

Conflict relationships between doctors and nurses also play a role; Van Niekerk et al. researched the impact of nurse-physician relationships on pain management in Tasmania. This study had a 38% return on all the surveys that were sent to nurses throughout the state, the age range of nurses was reflective of the working population. It included government funded institutions only.

The nurses reported 66-100% of their work involved patients in pain. The researchers describe such conflict negatively impacting patient care when nurses did not feel they had been included and often felt they did not know the goal of pain treatment. Van Niekerk et al. reported issues where nurses felt their expertise was ignored even if they had more up to date knowledge on pain control and finally, doctors predominantly saw nurses as generally incompetent. Language barriers between professionals further exacerbated the situation. Other common obstacles for both doctors and nurses are lack of time to adequately assess pain, disagreement on pain intensity, and patients' incongruence in pain behaviour and intensity reporting complicating the picture[18].

Ista et al. performed a systematic review of 743 citations; only 23 were used as they were selected random control trials on the role of implementation strategies for pain assessment and documentation on the improvement of pain management. The authors concluded that education is necessary to inform nurses and other professionals about pain assessment. However, this is not a guarantee for improvement in pain management. They supported interactive education, a guided assessment and the use of pain management champions. While they found that implementation strategies made a difference, well conducted studies were lacking in this area[39].

The literature review performed by van den Beuken-van Everdingen et al., shows that simply training doctors and nurses is not enough for a sustainable approach to effective pain

management; the addition of a pain guideline or protocol significantly improved adoption of concepts taught, improving pain management by 25%[1].

2.4.3 System Barriers

System barriers include internal or external factors which hinder care of the patient in pain. Access to drugs as an external barrier has largely been removed as most medications including morphine are generally available in South African hospitals. Harding et al. in their study on the availability of medicines within PEPFAR-funded health facilities in East Africa demonstrated lack of stock as a real problem in those areas but also commented on the legislative burden found in smaller facilities around opioid storage, prescribing and administering given the stringent regulations[40] . In this study, Harding et al. looked at 120 PEPFAR facilities in Kenya and Uganda, using cross-sectional quantitative pharmacy review. The focus was on drug availability[40].

The Oldenmenger et al. research showed internal barriers could be lack of cooperation between disciplines or poor referral pathways. Nurse patient ratio has also been suggested as a system barrier[20].

2.5 Assessment of pain

In 1999, JCAHO (Joint Commission on Accreditation of Healthcare Organizations) introduced patient's right to pain management as a standard, for hospitals in America; so many hospitals implemented this as a model for assessing and treating pain. Its application found using visual analogue scales helpful to measure pain and to set a course of treatment. Pain $\geq$ 5/10 generally required some kind of intervention. Cohen et al. reviewed the application of the standards using

a retrospective review of files of patients with a cancer diagnosis from 5 hospitals in a city. The sample included 117 charts. They reviewed against several JCAHO standards (RI.1.2.8 “Patients have the right to appropriate assessment and management of pain” and PE1.4 “pain is assessed in all patients”) Pain intensity and location was documented most frequently i.e. 51-57% of charts, however, pain treatment was documented in 86% of charts. Cohen et al. also noted that only 28% of the files audited included evidence that patient education on pain management had occurred. They used JCAHO standards RI.1.2 (“patients are involved in all aspects of their care”) and PF.1.7 (“patients are taught that pain management is part of their treatment”). This study showed a need for institutional improvements in pain management and recommended the JCAHO standards as an approach to achieve an improved level of pain management[41].

Purser et al. performed a 3 stage audit to identify current pain assessment practice, implement principles of pain as the fifth vital sign and review of the changed process. The study was done at a large teaching hospital in the Northwest of England. The third stage included a review of analgesic administration alongside assessment to try and establish a link between assessment and management[22]. Adding pain assessment to routine patient observations was promoted in an effort to improve compliance to the process. Purser et al. found in stage one that pain was rarely assessed, so stage 2 included making the assessment tool more visible and accessible plotting pain scores with other routine vital signs. They showed an improvement in pain assessment from 15% in stage one to 70% in surgical wards and 90% in medical wards in stage two. Elevated pain scores should trigger a pain management intervention[22]. This practice change was not without problems and Purser et al. report the tool was used to assess pain but

not used to assess the intervention. Documentation did not consistently follow the charting and in patients with cancer or chronic pain often pain baselines were missing when patients reported for follow up visits[22]. Acute pain and chronic or cancer pain were treated with the same rules which can lead to dire consequences[21,22].

Lucas et al. presented data from a review of over 5000 case reports from trauma site surveys that used the same pain management principles on patients with acute pain as chronic and found this practice could lead to over-medication and they noted some life-threatening outcomes including death in 45 patients. The purpose of their study was to document adverse events linked to over-medication with analgesia, they looked at events between 1994 - 1998 and 2000-2004, the events were provided by 38 sites in the first time period and 21 sites in the second[21]. The case reports included children and adults. There were more deaths linked to the second period than the first which was associated with a stronger adoption of the concept of pain as the fifth vital sign. Most of the patients (82% and 78%) during both intervals were trauma patients. They found over-medication masked symptoms of e.g. compartment syndrome (abdominal most frequent) and hypercarbia leading to respiratory failure. They also found over-medication lead to an increase in length of stay because of side effects such as urinary retention or lethargy/dizziness. They recognized their study as being inherently biased because they only used reported negative incidents associated with pain management, both acute and chronic. Lucas et al. concluded that more scientific studies need to be done on the assessment of pain management, a clearer understanding of the goals of treatment. They also recommended the use of a pain service for patients with pain scores of $\geq$ 5 who would monitor both comfort and adverse reactions[21].

Schreiber et al. performed a pre and post intervention study, where the intervention was a two-day advanced pain management educational session with nurses. Most patients had acute pain management problems. Schreiber et al. takes the time to describe how patients' reports may be different with different staff which is further complicated by staff subjectivity. Generally, the use of visual analogues scales to report and document pain are seen to be helpful. Clear documentation that is available for those that are making decisions allows continuity of care. Inconsistent documentation not only adds to conflict between doctors and nurses but also hinders treatment. Assessment and reassessment are essential for continuous effective treatment. This focused process showed that education diminished barriers to effective pain management. They also recognized that their patient population was homogenous thus limiting the generalizability of the study, also the timeframe between the intervention and post-intervention reporting was too narrow and a longitudinal study needs to be done. However, organizational changes were implemented that resulted in improved pain management[19].

Hjermstad et al. performed a systematic review of literature up to and including works published 2010. Some of the literature dated back to 1950. The purpose of their study was to investigate the use and performance of pain scales. They reviewed 359 articles, they used 54 studies which all showed a comparison of the three types of scales – verbal, visual and numerical scales, included pain intensity as a criterion, excluded patients' self-report and only adults. The studies included both chronic/cancer patients and perioperative patients. They found visual analogue scales were the most frequently used by health professionals and their patients, however the

interpretation was not congruent with verbal or numerical response scales. Interestingly they found that the elderly, less educated and very ill preferred verbal response scales with “no pain” to “worst pain” the descriptors. They concluded that verbal and numerical response scales as well as visual analogue scales all work well and the “most important” choice is not the type of scale but the conditions related to its use which include the anchor descriptions, the methods of administration, time frames and information related to the use of the scale given to both patient and health professional[42].

Blum et al. presented research done on the measurement of pain and other symptoms in sub-Saharan Africa. Very little research is done in this regard in the African context. They used the APCA African POS (African Palliative Care Association Patient Outcome Scale) a validated tool to compare patient self-report of pain. The sample was 315 patients, 73% were patients with HIV. They found hands and faces correlated highly with a verbal score[43].

2.6 Implementing a guideline for pain management

The van den Beuken-van Everdingen et al. meta-analysis of 122 articles published between 2005 and 2014 also showed that there is a 25% decrease in the under-treatment of pain in cancer patients when treatment guidelines are implemented[1]. Oldenmenger et al. review of literature between 1986 and 2005 concluded their findings with the implementation of systematic guidelines positively effecting pain management[20]. Ista et al. had similar findings that showed pain assessment and reassessment integrated into pain management protocols improved patient outcomes, however compliance remained a problem[39].

Luckett et al. did a follow up study to their 2013 literature review. In this paper published in 2014[12], they used an online survey given to oncologists on the use of practice guidelines in pain management. The survey looked at barriers to the application of pain management principles and perceived barriers to guideline use including the lack of access. Their previous paper[35] identified three institutional models that provide some efficacy. These include policies and procedures for regular pain assessment and standardization of pain treatment, the adoption of clinical pathways and expert consultation. The later works looks at the application of these three models. Participants were self-identified health care professionals; they used SurveyMonkey^{R} and ran the survey for six months. The sample included 76 Australian oncologists. Limitations to the study included sample size which was too small to be fully representative of oncologists and the validity of responses could not be checked however they felt the anonymity of the respondents mitigated inaccurate or socially acceptable responses. The conclusions showed barriers to cancer pain assessment and management were identified but could be moderated through national clinical pathways that were tailored to individual service settings[12].

Phillips et al. took the above two studies done by Luckett et al. a step further in work published in 2015 and looked at the use of practice guidelines in adult cancer pain assessment and management from a nursing perspective[13]. They also used an online survey tool sent to nurses, 62 nurses responded which represented 29% of the total sample. They found a range of barriers to effective pain management including limited access to a clinical pathway that gives step-by-step guidance on evidence based practice[13].

Cummings et al. performed a systematic review and meta-analysis of 26 articles where a blinded or objective assessment of primary outcomes was present. The purpose of the study was to look at existing evidence on whether "knowledge translation" interventions with healthcare providers, patients and caregivers improved cancer pain outcomes[11]. Their findings showed that a combination of a comprehensive education programme; planned or dictated follow-up strategies and higher resource allocation significantly improved patient outcomes.

Nuckol et al. reviewed the quality of opioid prescribing guidelines. The purpose of the study was to evaluate the quality and content of guidelines on the use of opioids. They selected guidelines published between 2007 and 2013. They used recognized validated tools to evaluate the guidelines. A limitation to their study was only guidelines available in English were included. They found rigorous clinical practice guidelines reduce the risk of over-prescribing and misuse of opioids while maintaining patient comfort[44].

The evidence seen in the articles evaluated indicate that pain has a significant impact on patients' quality of life. Pain management has developed over the last 30 years and education has also improved but pain remains inadequately treated. Implementation of guidelines including assessment and reassessment of pain have reduced the under treatment of pain by 25%. Future research opportunities include looking at patient outcomes as a result of interventions.

2.7 Rationale for the study

Experience at Knysna Provincial Hospital and a review of the literature shows that patients with continuous pain like cancer pain or TB are have inadequate pain management. This study intended to explore whether the implementation of a hospital specific protocol will reduce known barriers to effective pain management at the Knysna Provincial Hospital. The hospital clinical and management team is committed to developing an evidenced-based approach to manage pain and this study aimed to provide local evidence for a valid approach to pain management.

The hospital is responsible for caring patients with life-threatening illnesses; pain is a common symptom that results in admission. The staff is represented by a team of young doctors and an aging nursing population with different genders and cultures represented. Education on pain management is provided annually by the local Hospice, however as the medical team is made up largely of doctors performing their one-year community service obligation, the impact of the education is diluted and more is needed to effect change.

This study has been designed to identify barriers that are common to the hospital, using a protocol that will mitigate issues and create a hospital culture where pain management is successful. From the literature review it is clear that eliminating barriers using a protocol has a direct impact on the patients' pain experience. This prompted this research project.

CHAPTER 3 - AIMS AND OBJECTIVES

3.1 Research Question

Does the implementation of a guideline at the Knysna Provincial Hospital improve the process of chronic pain management?

3.2 Aim:

To assess and review current pain management practice at the Knysna Provincial Hospital

3.3 Objectives:

- To assess the current treatment and documentation of pain management practice through review of patient files at Knysna Provincial Hospital
- To identify the positive and negative factors to effective pain management.
- To develop and review a guideline to promote to effective pain management

CHAPTER 4 - METHODOLOGY

4.1 Study Design

This study has two phases

Development of the Guideline		Implementation of the Guideline	
Phase-1 file audit	2 weeks	Implementation of the guideline	1 month
Focus Groups	1 month	Phase-2 file audit – 4 weeks after implementation	2 weeks
Development of the guideline	1 month	Evaluate	
PLAN DO		*CHECK ACT*	

Table 1: Study design

The clinical audit study design that was used for this research involves collecting data and measuring the performance against set standards with an emphasis on improving processes[45]. The standards used to measure against included:

- The South African Guideline for the use of chronic non-cancer pain[46]
- Guide to the treatment of cancer pain in South Africa 2015[34]
- The HPCA clinical guidelines[47]

Clinical audits draw attention to deficiencies in clinical care and create opportunities to improve practice[48]. For this reason, the researcher decided to use a file audit to look at the current pain management process at the Knysna Provincial Hospital.

4.2 Study Site

This study was performed in the male and female wards at the Knysna Provincial Hospital.

4.3 Study Population

4.3.1 For file audits:

The study population included patient files of patients admitted to the male and female adult general wards at Knysna Hospital.

4.3.2 For the focus groups

4.3.2.1 Nurses:

All nurses working in the male and female wards as well as the EC were invited to attend the focus groups. Those working in maternity and paediatrics were excluded. Day and night shift were involved. Managers did not participate

4.3.2.2 Doctors:

Doctors doing family medicine and working fulltime at the hospital participated in the focus group; the community service doctors observed the process.

4.4 Selection Criteria

4.4.1 Patient Files:

The following criteria were used to include files in the audit:

- Only patients over the age of 18.
- Patients reporting pain
- Patients with pain identified in the EC
- Patients admitted with but not limited to the following life-limiting diagnoses – cancer, organ failure, non communicable diseases, epilepsy, CVA, HIV, TB.

- Patients with wounds that are chronic or open for 30 or more days.

The following criteria were used to exclude files from the study:

- Children, patients admitted only to the Emergency Centre or maternity
- Patients post-surgical intervention, or those patients with an acute pain problem requiring surgery.
- Patients admitted for a psychiatric condition only.

4.4.2 Focus Groups:

The criteria used for inclusion in the nursing focus groups:

- All nurses working on adult inpatient units,

The criteria for exclusion from the nursing focus groups

- Nurses working in maternity and paediatrics

The criteria for inclusion to the doctors' focus group:

- Doctors working fulltime or doing family medicine

Initially doctors working as part of their community service programme were to be excluded however, the entire group requested permission to observe the focus group. There was a unanimous vote from the included doctors to allow their observation

4.5 Sample size:

4.5.1 Patient Files

A sample size of *32 files*, which represents 100% of the potential medical bed occupany were to be audited at a fixed point in time. However, because bed occupancy is not

guaranteed it was recognised the audit process may take longer to meet the criteria or may include more files if there were additional patients whose files met the inclusion criteria. Using Epicalc 2000 to calculate the sample size.

Count	:	32	
Sample size	:	32	
Proportion [95% CI]	:	100.00	[86.66, 99.71]

32 files were audited in phase 1 over a period of 9 days, the turnover of medical beds was slow (average LOS ± 3 days) and daily visits did not result in many new patients for the study visiting every 3rd day gave an average of 10 new patients each visit.

4.5.2 Focus Groups

4.5.2.1 Doctors and Nurses

A goal of eighteen nursing participants or 70% of the nursing staff working in the designated departments and a goal of eight participating doctors or 80% of doctors working at the hospital more than 12 months

4.6 Data Collection:

A meeting to discuss the basic design and needs of both the hospital and researcher occurred with key management staff and the CEO. This was necessary to establish a collaborative atmosphere necessary to collect data and improve the process of pain management.

4.6.1 Data collection tools:

The data collection tools were developed based on a survey of the literature that addressed pain management systems including barriers, assessment and reassessment processes. The search identified similar studies done in other countries where the process of pain management was

examined. The researcher drew on her personal experience working with pain management systems and finalized the tools in collaboration with her supervisors.

Two data collection tools were used, namely:

- The data extraction tool used for the file audit. (see appendix 4) This audit tool has been developed based on the literature review which shows inconsistent documentation, poor assessment and reassessment as barriers to effective pain management. It also looked at the guidelines for effective pain management process. The data extraction tool includes the following topics:
    1. Has the patient been assessed for pain on admission to the ward by a doctor and nurse?
    2. Was the pain scored by the doctor or nurse
    3. Medication prescribed
    4. Were side-effects treated
    5. Was the pain reassessed by the doctor or nurse
    6. Were medications updated
    7. Patient information including age, gender and diagnosis
- Focus Group Guideline (see appendix 5)

The guideline for the focus group was developed from my experiences as a nurse involved with pain management, literature reviews and discussions with peers involved in focus group work and discussion/advice from supervisor. The guideline was designed to elicit both the positive experiences of the staff as well as identify barriers[49].

4.7 Validation of the research instruments

Validation of the instruments used is necessary to ensure the methods used would measure what it is supposed to measure[50]. For the purpose of this study the content of the tools was developed based on the researcher's and supervisor's experience in pain management, as well as the literature survey, the file audit tool was designed to measure aspects necessary to answer the research question. Similarly, the focus group guideline was developed to test common issues seen in the literature review and identify differences unique to the Knysna Provincial Hospital. The file audit tool and the focus group guideline were designed to elicit information and test theories in order to answer the research question.

4.7.1 The file audit data extraction tool.

Validation was assured by using the standards for good chronic pain management to develop the criteria for examination[34,46,47]. Experts in the field of pain management worked with the researcher to develop the tool.

4.7.2 The focus group guideline:

Credibility was assured through using a semi-structured interview guide that was a framework to guide the focus group discussion with flexibility to allow for participant opinion and experience to be explored fully.

4.8 Piloting

The file audit tool was developed in collaboration with experts in the field of pain management and with some with knowledge of the Knysna Provincial Hospital process. The instrument was tested on three patient files or 10% of the sample, by the researcher. This was used to ensure

the relevant data could be collected. Alterations were necessary because the nursing process was not adequately captured by the tool. Based on the pilot an additional section was added to include nursing assessment and reassessment, as the doctors and nurses use two separate systems to document care.

This improved the validity of the tool.

4.9 Reliability

Reliability refers to the accuracy and consistency of a research instrument. Albeit that absolute reliability can never be attained, instruments used should produce a high level of consistency when used by different people. If the use of a valid instrument leads to the same observations when used by different test subjects under different circumstances, it is a reliable instrument. Therefore, reliability is achieved when the same method (the research instrument), is used at different times, by different people (domain experts) and produces the same results[50].

Two instruments were used:

1. The file audit data extraction tool. (Appendix 4)

   Reliability was assured by using the standards for good chronic pain management to develop the criteria for examination[34,46,47]. Experts in the field of pain management worked with the researcher to develop the tool.

2. The focus group guideline: (Appendix 5)

   Dependability and transferability were considered in the development of the focus group discussion interview guide allowing expression of participants lived

experience to be captured during focus group discussions. The two facilitators needed to elucidate consistent findings across three groups.

4.10 Collection of data

The concepts of this research paper were developed in conjunction with hospital management team. Permission was granted to the researcher to pursue the process by management. Once ethical approval had been given by both HREC and Western Cape Department of Health for the research proposal, the finalized process including the goals, the methodology for the research was presented again to hospital management and then all the staff attending the multidisciplinary meeting.

The researcher met with the hospital management team and together, times for accessing the patient files and times for the groups were confirmed.

4.10.1 Phase-1 File Audit

The researcher was given a review of the usual structure of the medical record by the professional nurse in charge of the male ward. The flow of information for both doctors and nurses was identified as well as the processes that the documentation reflected. The researcher then performed the pilot of the file audit tool and made the necessary adjustments which were validated by a pain management expert and the supervisor. The Phase-1 file audit took place over two visits, three days apart to maximize productivity because of bed turnover.

The researcher reviewed every patient file in the male and female ward to determine the files to be used in the audit.

The files were studied at the patient's bedside; the file was scrutinized for information. A patient label was saved for future identification of files should it be necessary. The data was captured directly into an electronic spread sheet, where patient identifying information was removed.

4.10.2 Focus Groups

The researcher performed a test run of the focus group guideline with a group of six professional nurses who are palliative care experts and considered experts in the field of pain management. This process allowed the researcher to check recording equipment that would be used, as well as serve as a training tool for the doctor and the nurse who were selected to facilitate the actual focus groups. The data gathered in this test group was not used in the study as none of the participants work at the Knysna Provincial Hospital.

The facilitators were selected based on the discipline they work in to prevent any perceptions of hierarchical power. A medical doctor facilitated the doctors' focus group and a nurse the nurses group. Both have previous experience with facilitating groups. The researcher also instructed the facilitators on other potential influences to ensure that the facilitator was sensitive to it so that she could ensure that the atmosphere remained neutral, secure and comfortable for the participants. The facilitators were familiarized with the research tools and discussion of research ethics pertaining to conducting focus group discussions was had with the facilitators.

The initial times planned for the nurses' groups were two afternoon groups and one evening group. This was changed to early mornings so that the night staff could join with the day staff because of staff shortages. Only two focus groups were held for nurses because of staff changes however the goal number of 18 nurses was met.

Invitations were issued through the ward managers, a document stating the purpose of the group posted in the two general wards, staff were encouraged to come. We were asked to limit the nursing groups to no more than 45 minutes.

Each group had a facilitator and an observer, the researcher served as the observer. The participants of the groups all wanted to be involved in the focus group discussion following the presentation at the multidisciplinary team training meeting. The nurses attended because they were given permission to attend based on unit needs.

Each focus group discussion group began with the participants receiving the focus group information document (Appendix 6) to read, it was also explained by the researcher. An explanation that confidentiality could not be assured because of the nature of focus groups was given. The researcher and facilitator respect the confidentiality of the discussion but are unable to guarantee confidentiality on the part of participants other than requesting participants to consider the discussion as confidential. The participants were also assured they could withdraw from the group if they felt uncomfortable in any way or they needed to leave because of work needs. Consent documents (appendix 7) were signed by those that chose to participate. All who came signed consent.

There were changes to the original design:

1. The focus group for doctors was aimed at the opinion of doctors who had worked for at least one year. The community service doctors asked if they could observe the process. At the end of the group, a doctor from this group made a comment around the impact of forms on a junior doctor. The focus group discussion participants encouraged the researchers to include this consideration in the data analysis.
2. The intent in the research proposal was that nurses who administered medication would be included in the group, this lack of clarity meant that not only professional nurses but also enrolled nursing assistants attended the group.

4.11 Researcher's role in the focus group discussion

The researcher observed each focus group looking at non-verbal cues and managing the iPads that were used to record each session. Field notes were taken. The focus groups were run in a semi-structured way: a discussion topic was introduced and the facilitator guided the discussion using a short list of questions as seen in appendix 5. The participants were encouraged to participate and talk about their own experience while the facilitator guided the group to stay on topic and discuss the experiences and challenges that they were currently experiencing. There appeared to be an open atmosphere of sharing at all the focus group discussions.

4.12 Development of the pain management protocol

Using data from both the file audit and focus group discussion the researcher developed a document to inform the development of the pain management protocol.

The researcher identified two external content experts for opinions, both palliative care trained doctors involved in the writing the HPCA palliative care guidelines[47]

The focus groups nominated two doctors and two nurses to draft the pain management guideline. The doctors included the doctor serving on the hospital palliative care team and the doctor responsible for development of forms. The nurses included one dayshift and one nightshift lead professional nurses.

The researcher had proposed the use of an expert in the field of pain management to help facilitate the process. Unfortunately, the first person identified was unable to participate because of timing however he raised an interesting point; why develop a protocol or guideline when there are already many in existence including guidelines written for the South African context. These guidelines[34,46,47] were used for the standard against which the clinical audit was performed. The focus group, in particular the doctors' group identified the length and complexity of the guidelines as a reason why they currently do not make use of them to facilitate excellent chronic pain management.

The doctors met with the researcher initially as work load prevented the nurses from attending. The goals for the new process were established.

1. A single page document in line with PACK guidelines should be available. PACK is an acronym for Practical Approach to Care Kit which is a compendium of comprehensive flow diagrams or algorithms with treatment guidelines mostly single page that includes from diagnosis to treatment to need for referral.

2. A document with prompts for a good pain assessment and reassessment including goals of care should be developed for use by all disciplines.
    a. Pain assessments needed to include a history, body chart and numeric score
    b. Should not be a new document if possible but rather adapt an existing form

The researcher developed two potential options to "kick-start" the process. One looked at a new form that could be used to document chronic pain management, the other an algorithm that would guide practice. Both methods are used in other contexts to enhance practice. These were sent to the participating members of the team prior to meeting.

The group of six professionals met for two one-hour sessions and the final products (see appendix 8 and 9) were sent to the external expert not available locally.

The form was sent through the hospital forms committee and approved. The algorithm was discussed with all the staff. The final document was laminated and posted in key areas. Implementation of the form was agreed by hospital management and the hospital's normal procedure for new forms was followed to formalize the introduction of this protocol.

4.13 Phase-2 file audit

This phase was initiated once the guideline had been in place four weeks. The researcher used the same file audit tool used in phase-1. The file audit took place over 3 visits, 3 days apart to maximize productivity because of bed turnover. The hospital had fewer admissions and an additional visit was necessary in order to reach the sample size.

The researcher reviewed every patient file in the male and female ward to determine the files to be used in the audit.

The files were studied at the patient's bedside; the file was scrutinized for information. A patient label was saved for future identification of files should it be necessary. The data was captured directly into an electronic spread sheet, where patient identifying information was removed.

4.14 Ethical Considerations

Ethical approval was obtained from the Human Research Ethics Committee of the University of Cape Town (HREC 666/2016), (see Appendix 1). Permission was obtained from the Chief Executive officer at the Hospital. A letter describing the study was given (See Appendix 2). Ethical approval was also obtained from the Western Cape Department of Health using the National Health Research Database (see Appendix 3). Permission was also obtained from all the managers, doctors and nurses involved in the study.

Confidentiality of the information collected during the file audits was ensured by not using the patient's name, or the treating staff member. There was no medical intervention and no alteration was made to the patient's treatment.

Informed consent was obtained from all of the focus group participants. An information document about the study was given out and explained to all the participants. (See Appendix 7) A review of the expectation of privacy was discussed with all the participants and the fact that all information shared would be anonymous.

4.15 Data Analysis

The data collected in the Phase-1 file audit was scrutinized and frequencies were calculated in order to present to the hospital staff. It was used to formulate the process change in chronic pain management.

The qualitative data gathered from the focus group discussions was analyzed manually by the researcher. The focus groups were recorded and the recordings transcribed. The researcher read and re-read the transcripts to familiarize herself with the content. The researcher then used colour coding to highlight phrases that were common to all the groups and prioritized the comments into themes and subthemes. The themes were developed based on the frequency of comments, the value certain comments were given by the participants, comments that related to published works and some comments that surprised the researcher. Data was further analyzed to identify data most relevant to each theme. The influence of the researcher in this process is acknowledged, however, the qualitative data is supported by the literature review and phase-one file audit.

On completion of the Phase-two file audit the data from both phase-1 and phase-2 were presented to the biostatistician for statistical analysis. Frequencies and percentages were calculated for categorical data. Means and standard deviations, medians and percentiles were calculated. The two phases were compared. The biostatistician used IBM SPSS 24.0 software package. Correlation of the data was done using Pearson's (N-1) Chi-Square test of association or Fisher's Exact test of association because of the small counts.

CHAPTER 5 - RESULTS

The results are presented in the order they were collected:

- A review of the data collected in the phase-1 file audit
- Themes that emerged from the focus groups discussions;
- Phase-2 file audit

5.1 Phase-1 File Audit

A simple analysis of the data was performed in order to present to the hospital clinical team as well as inform the research.

- 32 files were audited based on pain established in the EC and an appropriate diagnosis. The three files used in the pilot phase to assess completeness of the data extraction sheet were included in the analysis.

Day	Number of files reviewed	
	Female	Male
(Pilot)	0	3
1	6	7
2	8	8
Total	**14**	**18**

Table 2: Phase-1 file audit

- The average age of the patients was 50 and the mean age was 48 years
- Patient's diagnosis

Diagnosis	Number	Percentage
Cancer	14	44%
Organ failure	3	9%
Extra Pulmonary TB	9	28%
Other	6	19%

Table 3: Phase-1 Diagnosis

- Eight patients (25%) were also HIV positive

- Pain was documented by the admitting doctor in 84% of patients, the nurses admitting patients documented pain 100% of the time.
- Pain was reassessed by doctors in 59% of cases, and by nurses in 69% of cases. Treatment changes occurred based on reassessment findings that were made although there was no evidence that a discussion had taken place between doctors and nurses resulting in an alteration in the treatment plan.

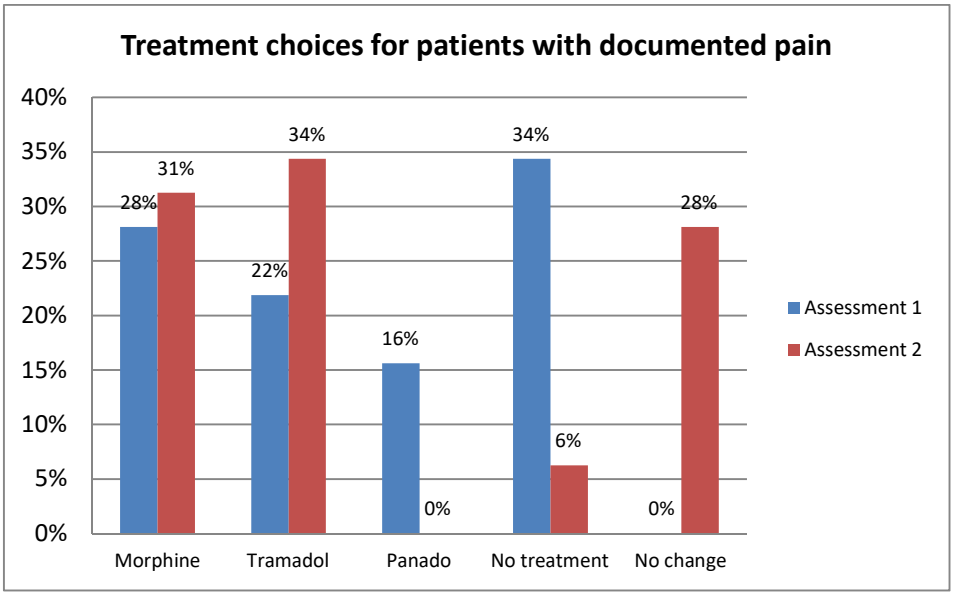

Chart 1: Phase-1 Treatment Choice

- Side-effects of the pain treatment noted in 56% of patients.
- Treatment for side effects was noted for 59% of patients.
- Pain appeared to be treated according to the WHO analgesic guidelines however there was no documented indication for the changes to the pain medication.
- Only 25% of the patients were on more than one pain medication.

5.2 Focus Groups

The three focus groups were recorded, the recordings transcribed then analyzed thematically. The themes presented are supported by quotes. The quotes will be written in italics and the speaker identified by discipline and number e.g. Doctor 1 or Nurse 2. There were 2 nursing focus groups the participants are numbered sequentially with the first nursing group participants 1-7 and the second group participants 9-18

Group	Length	Medical Doctors	Professional Nurse	Enrolled Nurse	Nursing Assistant
Doctors 14/12/16	55 min	10			
Nurses 1 13/1/17	36 min		5	1	1
Nurses 2 20/1/17	38 min		4	2	3
		8	9	3	4

Table 4: Focus group participants

5.3 Focus group Themes

The following table indicates the themes predominant themes extracted from the focus group discussions. The researcher hoped to include the processes that the participants felt they did well, unfortunately no agreement was reached instead the positives were seen as inconsistent and an opportunity to develop therefore enablers rather than positives was included.

The patient issues will be discussed under the barriers and barrier facilitators or reducers.

Themes	Barriers	Addressing barriers	Patient issues

Sub-Themes	• Lack of knowledge and experience
	• Poor communication
	• Lack of trust
	• Morphine issues
	• Workload
	• Staff attitude
	• Laws
		• Guidelines
		• Education
		• Staff experience
		• Good communication
		• Pain scales
		• Staff attitude
		• Non-pharmacological interventions
			• Communication including:
			  ○ Language barriers
			  ○ Information sharing
			  ○ Discrepancies in reporting
			• Cultural factors
			• Late referrals
			• Fear, anxiety

Table 5: Focus group themes and sub-themes

5.3.1 Barriers

Several sub-themes were identified as barriers to effective pain management

5.3.1.1 Lack of knowledge and experience:

All the groups identified that different levels of knowledge exist amongst the staff, this results in varying prescribing patterns. The doctors said this made them fall back on what they did know.

One doctor described it as

"there are a lot of methods or a lot of different sort of cultures in prescribing morphine inherited from wherever we worked first" ….. "at the moment, we all prescribe differently or you thumb suck and think this guy might need it this way. Sure there are different ways, strengths and dosages based on pain threshold" – Doctor 1

This practice created frustration for the nurses whose feelings can be heard in the following quote:

"find a doctor that knows what pain medication to prescribe…some don't know so they stay away from the patient and we can't get help for him" Nurse 14

They commented that only one doctor ever writes up breakthrough doses and if the patient experiences breakthrough pain, they often have long waits to get the prescription they need.

"if the doctors could prescribe extra limits (breakthrough doses) for patients then we can give it as the patients don't need pain, it sometimes takes long hours to get extra pain stuff for patients that need it" - Nurse 1

The staff recognized that there is no consistent prescribing method used for patients. The doctors said they felt competent to manage acute pain and felt the nurses followed through well. This impacted not only the choice of medication prescribed but also the route selected.

"IM morphine is the fall back pain management and nurses are happy to call for additional pain management" –Doctor 2

Just as the nurses felt the doctors had varying levels of knowledge about prescribing pain medication, the doctors felt similarly about the nurses varying level of competence.

"I think it's sometimes it's individualized depending on the quality of the staff members themselves. Some will not defer from the prescription, some would apply logic and ask for the telephonic prescription for stronger medication" - Doctor 1

Both the doctors and the nurses agreed that they feel more comfortable treating acute pain than chronic pain.

"our acute management is good but I think where the problem comes in is more when it is long-term, whether the pain is then being managed" – Doctor 4

"we manage acute pain well because it is optional but chronic pain we do not manage that well because that needs regular pain analgesics and I think that takes a mind shift" – Doctor 2

The nurses also recognized that they did not all know how to assess pain properly. This impacts on their ability to report pain well.

"some people, well most of us don't really know how to assess pain, sometimes you see it on their (patients)faces so you act but other times well it could be missed" – Nurse 4

"if we don't see the pain we don't report it then perhaps the patients suffers" – Nurse 11

All the participants of the focus group discussions agreed that education across the disciplines would be helpful.

5.3.1.2 Poor Communication:

A consistent sub-theme that came through all the focus group discussions was that poor communication hindered effective care. This deficit was seen in communication of plans from one doctor to another, between doctors and nurses and between the health professionals and the patients.

"The doctors don't tell us <u>why</u> they are doing something" – Nurse 5

"Good frequent communication between you (the doctor) and your nursing staff inform them about what is happening about the pain, I think sometimes we just brush it off" – Doctor 2

Communication with patients was also seen as lacking. One doctor summed it up when she said:

"I think a big shortfall there actually is, is you don't communicate to the patient and you don't actually explain to them what you are going to do for their pain, what different medications are for and why you prescribe so many things" – Doctor 7

With poor communication between disciplines lack of trust becomes more evident.

5.3.1.3 Lack of trust

The doctors expressed a lack of trust in the nurses to carry out the prescription. They spoke about, if a patient has pain their first thought is that pain medication has not been given as prescribed. There was a discussion about laziness and the nursing staff being uncooperative:

"nurses don't want to go through the trouble to manage someone's pain" – Doctor 3

This distrust between doctors and nurses is further compounded by a lack of trust between staff and patients.

"some of the patients won't tell you they have pain because they have no relationship with you" – Nurse 4

"it is difficult to believe them when they say they have pain so when in such cases (patients that don't look as if they have pain),you can't say whether the patient has pain or not" – Nurse 1

The lack of trust between staff members highlighted issues with the administration of morphine.

5.3.1.4 Morphine issues:

Generally, it was felt that most staff members were comfortable prescribing and giving morphine although morphine injections were the first choice for severe pain. The doctors did not feel the nurses understood that the half-life of morphine is four hours. This led to a discussion on prescribing patterns:

"But that is also the way it is written up, I don't think everybody writes it up 4-hourly, some write it up for 6-hourly, I've seen 8-hourly so it starts with the doctor who is not prescribing correctly" – Doctor 5

This led to a discussion on the logistics of giving morphine four hourly when medication rounds are six and eight hourly. This fact is compounded by the fact that morphine is locked up and not kept on the trolley.

"if you make it easier for the staff when you prescribe to administer morphine you would probably get better results for pain management" – Doctor 1

However, many felt this was not an acceptable excuse comparing it to paracetamol which is kept on the medicine trolley.

"so even though morphine is locked up, they (the nurses) don't do it for paracetamol and it's on the trolley and it's a tablet" – Doctor 6

Another issue raised was patients' reluctance to have morphine because the side-effects are not adequately managed.

"then they say 'I am allergic to morphine and I just puke my heart out when I get morphine', then I feel bad because I don't always remember an anti-emetic or a laxative" – Doctor 2

The nurses focused on the delays that scheduled drugs result in because of the need to write it in the register, and the need to wait on the doctor to prescribe breakthrough doses. They had no comments on the management of side-effects related to morphine administration.

The doctors and nurses recognized that there were myths around morphine and patients needed to be educated specifically in order to give effective pain management.

"there are a whole bunch of myths that need to be dispelled so that patients cooperate in that ideal treatment" – Doctor 5

Drug availability in the state sector was also discussed by the doctors who felt if other options like long acting MST, a twice daily tablet would relieve the nursing staff of many of the complications they now experience.

5.3.1.5 Workload

The male and female wards are very busy with medical and surgical, as well as acute and chronic patients; the staff workload was seen as a barrier to the staff being able to provide effective pain management.

The doctors spoke about their workload hampering the ability to effectively communicate with nurses and patients; they also saw communication as an essential fix to the problem.

Most of the time we don't do good frequent communication with the nurses about what is happening with the patient - sometimes we do and sometimes we don't but we leave and they have to carry on, sometimes we don't even ask how it went we just carry on" – Doctor 2

The doctors recognized the workload of the nurses and the discussion can be summed up by this statement:

"it is very overwhelming to our nurses and they struggle to keep up with the demands of the patients so to control their pain is something else and forgotten" – Doctor 1

The nurses were conflicted with some feeling that they were able to closely monitor patients with pain and others feeling they were too busy to do that.

"at the moment pain management is fairly good in the wards because we can observe them closely and see the response to pain (medication)" - Nurse 3

Other nurses disagreed

"I think we are too busy to always see (patients in pain)" – Nurse 9

5.3.1.6 Staff attitudes:

Pain management is not seen as a priority was a consensus amongst the doctors.

"I don't think it is a priority unfortunately for a lot of staff members" – Doctor 3

Nurses felt that mostly they tried to make a plan in order to provide pain management.

"the attitudes of nurses is really important so we do our best to focus, provide a calm atmosphere which helps together with the meds" – Nurse 7

There was also discussion on the lack of ownership of the pain management process.

"Nurses execute the order and doctors don't always see the result" – Doctor 3

Most of the doctors felt that the nurses didn't take responsibility for their part of the pain management process.

"if you get the nurses to take ownership of pain management and not say that this is what is prescribed our hands are tied… if you can get them to take control of the pain management and feel that they have the power to do it because they have something to back them up like education or a protocol, it might actually work and benefit the patient" – Doctor 1

There was concern by the participants that patients may be stigmatized as nuisances if they asked for their routine pain medication. In a discussion in the doctors' focus group discussion around

educating the patient to ask for their morphine four hourly there was consensus when the following statement was made:

"if you do not get it (morphine) ask but then the patient is stigmatized as a difficult patient just because he asks questions" – Doctor 5

Patients are not always believed if they are able to perform activities of daily living and requests for pain management was seen as drug seeking behaviour, treatment is withheld.

"it's difficult to believe them when they say they have pain so when in such cases you can't say whether the patient has pain or not and it's busy you prefer to just go on with your work because this is a psychiatric case so he is probably just trying to test me and wants to get out of something" – Nurse 1

The doctors also believed if they had a personal experience with pain it strengthened their prescribing ability.

"pain management is such an intimate experience that having that understanding will definitely effect prescribing habits" – Doctor 8

5.3.1.7 Laws

The legal requirements for scheduled drugs were seen as a barrier and had implications in most of the other barriers. The logistical problems identified were:

- It is locked up
- It needs to be double checked so two people are needed to give one patient treatment
- Only professional nurses can administer it
- It is an effort when busy

"there are some logistical sort of obstacles that have to be overcome because morphine has to be locked up and someone has to check it with you, then you have to draw it up, then you have to administer it, it's

an effort to do it especially if you are the only sister allowed to give the morphine….it's a very valid point if you make it easier for the staff when you prescribe to administer morphine that would probably get us better results for pain management" Doctor 1

There was discussion about keeping morphine syrup at the bedside and how educating the patient to manage their own morphine, as they will at home, would eliminate many of the barriers. Unfortunately, this is against hospital policy.

5.3.2 Addressing barriers

There were also several sub-themes that developed around what would reduce the barriers to effective pain management.

5.3.2.1 Guidelines

The introduction of pain management guidelines was seen as potentially an effective way to manage the barriers explored. Both doctors and nurses thought it would help to standardize practice.

"certainly having a guideline, it would be easy to say stick to the guideline" – Doctor 4

The doctors also related positive experience with guidelines in the Emergency Centre (EC) and for the management of antibiotics. The EC uses a triage form that includes a pain assessment this serves as a prompt and gives direction to the nurses.

" in the EC pain is picked and managed really well the triage form directs the nurses so they know when to come" – Doctor 7

"Even when it is really busy and it's an unseen patient, they (the nurses) will point it out to you and ask if they can give morphine, it has never been an issue" – Doctor 8

A guideline was seen as getting all disciplines "onto the same page"

" I think it would make it easier to have everyone on the same page and doing the same thing, not just the doctors but the nurses as well. You know then everyone knows this is how we prescribe drugs , this is

our pain ladder, this is our step up, this is what you do if a patient has breakthrough pain, I think it will make it easier for everyone and probably better for the patients" – Doctor 1

Introducing a guideline was also seen as extra work that some of the doctors and nurses saw as another opportunity to be overwhelmed.

"we are stretched already and to have another piece of paper for each and every individual and then the sister is phoning us because we've forgotten and you've got to run and assess or reassess and do these things" – Doctor 10

This led to a discussion on what was the goal of having a guideline and all agreed it was to provide prompts to remind the doctors and nurses to assess and reassess pain.

"adding into our daily clinical notes will be a reminder but may not help the nurses because I don't think they read our notes always" - Doctor 3

The guideline if designed for multidisciplinary use as tool that will enhance team work.

"one single guideline that is used by the whole multidisciplinary team whether OTs, nurse or doctors it would be helpful thing" – Doctor 4

5.3.2.2 Education

In all the focus group discussions there was an appeal for specific regular training in pain management for staff and for patients because they lack the knowledge:

"I think most of it is probably education that's lacking or understanding of how to manage that (pain)" – Doctor 1

"training sessions help" - Nurse 14 and Doctor 2

"if both us and the nursing care is at the same level then we can actually help each other" – Doctor 2

Not just class room sessions were identified as helpful but also on the job training and bedside mentoring.

Patient education was seen as lacking but also a key to the process of effective pain management.

"I think patient education is also important because they are sometimes the obstacle in good pain management" – Doctor 1

"If a patient knows how and why to take his painkillers then he is compliant" – Nurse 8

Better communication between the healthcare professionals as well as with the patients was seen as essential for patient education.

5.3.2.3 Staff Experience

The nurses commented several times that if they wanted to help their patients they needed to find a doctor with experience in pain management.

"find a doctor that really knows what pain medication to prescribe like doctor P, some don't know so they stay away from the patient and we can't get help for him (the patient) but when the pain comes really bad if he (the doctor) really knows then he gives the right thing (pain management) that will help even on discharge" – Nurse 2

The doctors saw experience in pain management as bringing confident accurate prescribing to patient care that could help those less experienced to gain experience if it was documented.

"patients with a plan documented by an experienced doctor then the doctor who is not very comfortable will feel more able to continue the plan or at least know who to ask if they are unsure" – Doctor 5

The doctors felt that if a nurse with palliative care experience was working, the patient in pain would receive a different level of care.

"someone that has a bit of palliative care experience is excellent managing pain but then you get someone who is not comfortable with that then you see the patients pain management isn't that well managed" – Doctor 2

5.3.2.4 Communication

The nurses were clear that if the doctor communicated the pain management plan it was easier to communicate with both the doctor and the patients.

"if it is a CA(cancer) patient then the doctor tells us we've got to 'onderdruk daai pyn' (suppress that pain) we do it, if it doesn't work we have freedom to call him and the patient has freedom to call us" - Nurse 3

The doctors wanted the nurses to communicate and even challenge them because they were with the patients all the time while they come and go making the nurses better positioned to assess the patients' pain.

"getting our nurses on the same level so they can also challenge us in our work sometimes it (patient care) is misguided in how it works because you (the doctor) write the order but they (the nurses) execute it and they are keeping the standard of care" – Doctor 3

5.3.2.5 Pain Scales

Visual analogue scales used to measure pain are currently only used in paediatrics. The use of pain scales to measure pain was seen as useful in the assessment of pain. The doctors saw the introduction of pain scales to score pain as a means of evaluating treatment efficacy.

"we used it (visual analogue scales) on almost every patient to see progress from treatment to treatment and day to day sometimes moment to moment. It gives you a bit more objective understanding of pain" - Doctor 5

"if you put that on a form … you can look at it and save time because you can see and say 'oh I see you have pain today why is that' or 'your pain is better'" - Doctor 2

The nurses did not mention visual analogue/pain scales in either of the discussions

5.2.3.6 Non-pharmacologic methods

In the nurses' focus groups the participants identified that while pain management is generally managed using medication at the Knysna Provincial Hospital; the nurses recognized that there were many other ways to manage pain. They use a variety of methods with good results especially if they have to wait for a prescription to be written.

"while we are waiting for the medication or the doctor because at the hospital we are more focused on the medication as the main method we use but we can use a lot of other methods like massage, heat, cold, music, and even my presence" - Nurse 1

Both groups of nurses used non-pharmacological methods in conjunctions with medicines. They saw the importance of recognizing the benefits of a calm environment and a comfortable bed as seen in the following quotes:

"the patient if he is not comfortable there can be more pain, the patient has to be comfortable only then can the pain medication work" Nurse 2

"… a calm environment also reduces the pain. If the ward is very busy and there is a lot of noise going on it contributes to pain….also your approach to the patient if you hurry to do everything quick quick quick and are not calm you can make him(the patient) worse." – Nurse 5

5.3.2.6 Staff attitude:

Staff attitude was seen as both a barrier and a way to address barriers. The nurses spoke about an open attitude enabling a relation to develop with the patient which is a good predictor of how the patient will communicate fears, anxiety and pain which allows the nurses space to help them. When discussing the role of calm, focused attention on a patient in pain one nurse said:

" you don't always get an accurate answer until the patient knows you can be trusted, then he or she will be able to tell you more exactly but if they see you are in a hurry they will say 'no no I will wait for so and so'" – Nurse 1

The doctors discussed their role in reducing anxiety and thus reducing pain in many instances by paying attention to the patient, also mentioned was being kind and taking time to build rapport with the patient.

"I think the other big thing is to manage a patient's anxiety on different levels because it helps and decreases the pain threshold" – Doctor 2

5.3.3 Patient Issues

Patient issues were seen mainly as a barrier to effective pain management.

5.3.3.1 Communication

Communication with patients was identified by the staff as a barrier to care. Communication includes both giving and receiving the message.

"Or they refuse the Panado because they feel like no I fine and then they complain of pain later. So if your patient doesn't understand how their pain needs to be managed then they not going to be managed either" – Doctor 6

Communication breakdown with patients included the following:

5.3.3.1.1 Language barriers

As the participants discussed communication they identified that even with the intention to communicate the pain management plan with the patient it may be hindered because they don't speak a common language even though the staff is multicultural and most of the languages spoken by the patients are also spoken by at least one member of staff on duty.

"unfortunately if someone doesn't speak your language that well there's a lot of communication gaps that happen." – Doctor 2

5.3.3.1.2 Information sharing

The focus group participants appeared to believe that if information was shared with patients as well as each other there would be an improvement in the pain management process. One doctor's comment summed up the comments of other contributors

"*if you educate the patient on their problems then everyone speaks one language so they participate. We have a very uneducated patient group still a lot. I am still shocked if someone asks me a question related to their illness. So sometimes we are it, us and the nurses are actually we are we are actually guiding the patient so to so that if they were educated we would all be on the same page." - Doctor 2*

"there's a there seems to be an in built stoicism that makes people reluctant to complain and so if you are on morphine, there are a whole bunch of myths need to be dispelled so the patients cooperate in that ideal management" - Doctor 4

5.3.3.1.3 Discrepancies in reporting

The groups also identified gender issues that result in discrepancies in reporting for example:

"patients also talk to their doctor differently if it is a woman or a man, information given is not the same" – Nurse 2

Discrepancies in reporting were also noted in patients' acceptance of their pain as well as those patients who hide their pain for a variety of reasons.

"sometimes they don't react to pain so that they can go home" – Nurse 4

"patients that would fear an injection may report no pain so they don't have to have the injection" – Nurse 3

The fact that pain is subjective and experienced differently was also recognized and discussed with some disagreement.

"someone is able to bear pain even when the pain is extreme but others even if it is just the slightest pain she will respond like the pain is so terrible" – Nurse 5

"I don't know how to solve the problem, how are you going to know that even though he is not responding (exhibiting pain behaviour) the same way but they should have the same management. The doctors don't tell us why" – Nurse 4

5.3.3.2 Cultural Factors

Similarly, all the groups identified cultural difference affecting patients' report of pain. The nurses also commented on gender in relation to culture

"and culture and differences in culture effect the responses differently" – Nurse 4

" like men, men are not allowed to in our culture (Xhosa) are not supposed to show their pain like children, they should be strong" – Nurse 8

5.3.3.3 Late Referrals

Late referral where patients are admitted in the final hours of their lives and in pain was also identified as a barrier to being able to deliver acceptable pain management.

"the patient is almost on their way out, when they are sent to hospital, for that last terminal care it's hard to care for them never mind their pain ….and unfortunately if someone doesn't speak your language there's lots of communication gaps and the patient suffers in more ways" – Doctor 2

5.3.3.4 Fear and Anxiety

The focus group participants also recognized that certain factors lowered or raised the patients' pain threshold. Fear and anxiety was specifically mentioned in all the groups.

"They also looked at um associated anxiety levels and anxiety associated with pain increases the pain stimulus over someone who is relaxed and doesn't have anxieties experiences a lot less pain as opposed to someone with anxiety." – Doctor 6

"you get people who eventually become depressed because of pain, they get anxiety disorders, pain significantly effects all aspects of their lives then it takes it over" – Doctor 2

The nurses saw how their involvement with a patient could reduce anxiety and relieve pain.

"Developing the relationship with the patient to make him less afraid and anxious by using a calm and happy environment helps the patient to cope with their own pain" Nurse 9

5.3.4 Conclusion:

To summarize the themes staff at the Knysna Provincial Hospital identified as barriers to effective pain management included staff competence effecting prescribing and administering medication to patients with continuous pain. The workload and the shifts worked by staff added to the difficulties experienced by the health care providers.

Education is seen as an essential part of the process to up skill and empower staff especially the nurses. The doctors would welcome the active participation of the nurses in the pain management process. Both doctors and nurses recognized that good communication on the treatment plan and goals of care was currently lacking and effort to improve that needed to occur. The use of tools such as a protocol and visual analogue scales would help in the process.

5.4 The Protocol Development

The revised treatment chart was approved by the forms committee and printed. The new form was introduced to all the staff using the hospital's process for implementing changes in forms. It was implemented in August 2017.

5.5 Phase-2 File Audit

The Phase-2 file audit was commenced 2 months after the new form had been implemented.

- 34 files were audited based on pain established in the EC and an appropriate diagnosis.

Day	Number of files reviewed	
	Female	Male
1	4	6

Day	Number of files reviewed	
	Female	Male
2	6	6
3	7	5
Total	**17**	**17**

Table 6: Phase 2 File Audit

- The average age of the patients was 51 and the mean age was 47 years
- Patient's diagnosis

Diagnosis	Number	Percentage
Cancer	10	30%
Organ failure	2	5%
Extra Pulmonary TB	10	30%
Other	12	35%

Table 7: Phase-2 Diagnosis

- Sixteen patients (47%) were also HIV positive
- Pain was documented by the admitting doctor in 100% of patients, the nurses admitting patients documented pain 94% of the time.
- Pain was reassessed by doctors in 71% of cases, and by nurses in 50% of cases.
- Side-effects of the pain treatment noted in 29% of patients.
- Treatment for side effects was noted for 18% of patients.

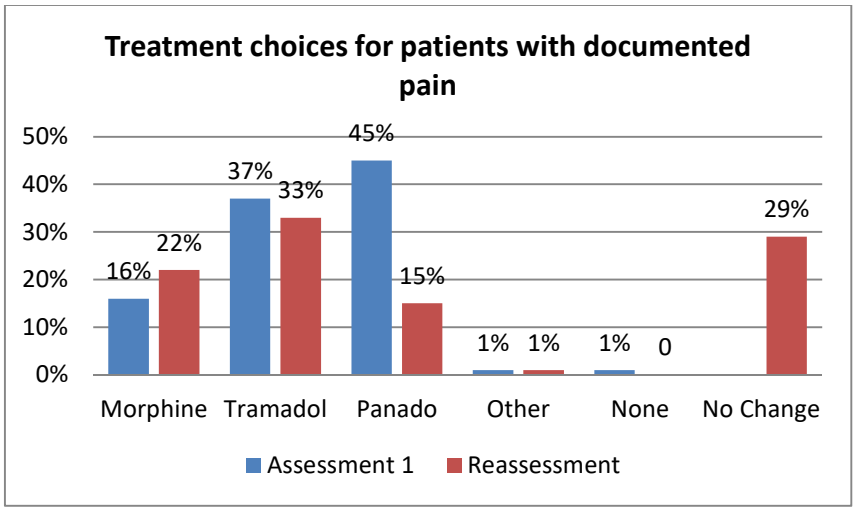

Chart 2: Phase-2 Treatment Choices

5.6 Correlation of data between phase-1 and phase-2

The software used was IBM SPSS 24.0.

The researcher wanted to test the relationship between the healthcare professionals' pain management behaviour and the implementation of the new guideline. The Chi-Square test is commonly used for testing relationships. The comparison of proportions used the Pearson's (N-1) Chi-Square test of association or Fisher's Exact test of association because of the small counts were encountered. The following results were obtained, testing the proportion of times pain was assessed, the pain score used, and pain was reassessed before and after the implementation of the new form. This was completed for the Doctors and Nurses. This was done to identify whether there was a significant difference in the proportion of times the pain was assessed before and after the implementation of the intervention. The proportion of successes (as a percentage) was assessed since in some cases with all the responses were Yes (1) or else No (0). In these cases, the traditional Fisher's test couldn't be performed therefore the Chi-Square test was performed of the proportion of successes.

Doctors	PRE (N=32)	POST (N=34)	P-value
Pain assessed	27 (84.4%)	34 (100%)	0.0173476
Pain Score Used	0 (0%)	20 (58.8%)	0.0000003
Pain Reassessed	19 (59.4%)	24 (70.6%)	0.3430234

Table 8: Comparison of assessment performed by doctors in pre and post implementation

The p-value was identified as significant at 0.05.

Nurses	PRE (N=32)	POST (N=34)	P-value
Pain assessed	31 (96.9%)	32 (94.1%)	0.5937740
Pain Score Used	0 (0%)	10 (29.4%)	0.0009491
Pain Reassessed	22 (68.8%)	16 (47.1%)	0.0769922

Table 9: Comparison of assessment performed by nurses pre and post implementation

Due to the fact that the new form was only used in 12 of the 34 cases (phase-2 audit), the post audit assessment results were correlated with the number of times the new form was used. This was to identify whether there was a positive significant correlation between behaviours. This was done for doctors and nurses.

Doctors	New form used	Pain score used	Pain reassessed
New form used	1		
Pain score used	.493**	1	
Pain reassessed	.477**	0.116	1

Table 10: Correlation of doctors' behaviour with implementation of the new form

Nurses	New form used	Pain reassessed	Pain score	Pain assessed
New form used	1			
Pain reassessed	.537**	1		
Pain score	.739**	.555**	1	
Pain assessed	0.185	0.236	0.161	1

Table 11: Correlation of nurses' behaviour with implementation of the new form

The correlations highlighted in red were significant at either the 5% or 1% level. The following guidelines can be used to interpret the correlations: If the absolute value is less than or equal to 0.3 it represents a small correlation; an absolute value of between 0.3 and 0.5 indicates a medium correlation; and an absolute value equal to or greater than 0.5 indicates a large correlation. Within the nurse's results, a strong positive correlation was identified between the variables Pain reassessment, New Form Used, and Pain Score Used. Within the doctor's results the variables Pain assessment was not included as in all cases the pain was assessed. The remaining correlations indicated a medium positive correlation between the Pain Score Used, Pain reassessment and the New Form Used; while the correlation between Pain Score Used and Pain reassessment was insignificant.

The results of this study will be discussed and interpreted in the next chapter.

CHAPTER 6 - DISCUSSION

In evaluating the process of pain management at the Knysna Provincial Hospital, the author studied the hypothesis that the implementation of a guideline will improve chronic pain management at the Knysna Provincial Hospital. A clinical audit process was used to measure the process using recognized chronic pain management practices. The researcher followed the Deming's quality improvement process of Plan, Do, Check, Act (PDCA) for the write up[45].

6.1 Planning

The researcher reviewed current practice through the examination of patient files. However, using a purely quantitative analysis of patient files has limitations principally that the communication between staff as well as that between staff and patients may not be written down so key evidence is lost. For this reason, the qualitative analysis of focus groups was added to the phase-1 methodology. Barbour describes using focus groups to understand cultural sensitivities, barriers and ways to work together [51]. This method allowed the author to study the issues frankly and in detail as themes began to emerge.

The researcher sought the identification of current barriers to effective pain management as well as ways to promote good practice in this regard for the development of the hospital specific pain guideline. This interpretive method is suitable for this study as it afforded the researcher the ability to establish the experiences of the Knysna Provincial Hospital clinical team and their role in effective pain management. The results of this process of eliciting staff experiences and opinion also validated the results of the clinical audit[52].

The problem addressed in this study needed both the analytical research techniques and the subjective judgments of the researcher to create a change in the process of pain assessment and management at Knysna Hospital.

Kitzinger emphasizes the role of generating as well as testing theories in group work[49]. The focus group guideline (appendix 5) was designed to test the theories emerging from the literature review process including developing an understanding how well staff at the Knysna Provincial Hospital felt they managed patients with chronic pain, and recognizing the barriers and facilitators of improved pain management. The role of non-pharmacological interventions used by the nurses and the need for mentoring education in pain management was an unexpected find during the process.

The information gathered from the focus group participants was essential to the development of a tool that could be used to improve the process of managing pain specifically at the Knysna Provincial Hospital. The focus group discussion process also created an opportunity for the researcher to identify staff that could champion the change process and participate of the development of a guideline.

6.1.1 The initial pain management process Knysna Provincial Hospital

The male and female wards at the Knysna Provincial Hospital were used for the purpose of this study. Both wards are used for the care of patients with acute and chronic conditions as well as psychiatric patients. It is a primary level hospital. This creates a level of complexity for the staff, who need to individualize care in order to accurately treat all patients regardless of condition.

The number of acute patients; health care professional opiophobia, that creates a reluctance to prescribe opioids; and workload, which leads to long delays for prescriptions for breakthrough pain; all contributed to a propensity to treat all patients as if they had acute pain which often leaves the patient with chronic pain suffering. Pain poorly managed during a hospital stay can result in a prolonged length of stay, poor clinical outcomes and decreased patient satisfaction[19].

6.1.2 Acute vs. chronic pain

One of the differences between managing acute pain and chronic is timing of medication administration. One expects acute pain to improve so it is necessary for the patient to wait for pain medication so that improvement can be measured. Pain medication selected in the treatment of acute pain is stepped down the WHO pain guideline ladder rather than escalated up as in chronic pain. The priority in the hospital setting is acute pain because of the volume of acute patients. This is reflected in comments in the focus group discussion such as *"we are comfortable with IM morphine*" when one of the principles in chronic pain management is to give analgesia "by the mouth"[10,45]. The nurses' lack of awareness when observing patients with chronic pain was also evidence of staff being unfamiliar with chronic pain management as seen in comments made in the focus group discussions such as "*this patient has no expression of pain*, *I ask myself is that patient in pain or is he not in pain is he used to it (morphine) or not.*"

The goal in chronic pain management is to relieve the patient's pain so that they can continue with their routine activities of daily living as much as possible thus the goal of an effective pain management plan is for the patient to have little or no pain and able to be involved in day to day activities and have a good night's sleep[46,47]. The patient who has been in pain for an extended

period of time may not experience the physiological changes such as tachycardia or diaphoresis that a patient in acute pain does; they adapt and continue to function often in extreme pain, this phenomenon, if unknown, can cause the patient's report of pain to be disregarded[53]. de Rond et al. showed that patients who did not communicate their pain or show their pain were not taken seriously[53].

6.1.3 Education

The lack of knowledge and need for education on pain management was a common thread at all the focus groups. The doctors that participated in the study, had all worked at the hospital for a year or longer. The literature identifies the knowledge gaps in pain management as a result of deficits in basic training frequently combined with failure to keep current with new information [17]. The local Hospice provides annual training (a one-hour class) in chronic pain management, for the doctors and nurses, as part of the weekly in-service or continuing professional development training plan. The staff wanted more education and felt the shape of the learning had to encompass both classroom and bedside learning to be effective. The participants of the doctors' focus group had all attended at least one training session provided by the hospice yet lacked confidence to apply the training, a mentorship approach will be considered by Hospice for future training. The literature reviewed indicated that while education has an impact on the process it may not be sustainable because the information is not retained or maintained by those educated. Voshall et al. indicated in their study that in spite of training in pain management less than 50% felt able to treat patients based on that education. They also found that the information taught was often outdated [17]. Cummings et al. showed that effective improvements in pain

management education required the time and resource intensive process found in a mentorship strategy[11]. Ista et al. and Luckett et al. looked at the incorporation of a guideline or protocol to add structure to the learning[12,39]. Ista et al., in particular, supported an interactive learning process such as desired by the Knysna Provincial Hospital staff but felt having a system that guided good practice is essential to improve the adoption of concepts taught[39]. Van den Beuken-van Everdingen et al. suggests incorporating a guideline will result in up to a 27% improvement in the process[1]. The researcher used the method described by Luckett et al. to inform the process developed for the Knysna Provincial Hospital[12].

6.1.4 Communication

The participants also recognized there is a lack of focused communication around goals of care in general, and especially pain management. In her research, Van Niekerk documents the benefit of all staff having a clear picture of the goal of the pain management plan[18]. The focus group participants appeared to concentrate on spoken communication rather than written communication or documentation. Purser et al. spoke about improving documentation of patient assessment and treatment plans as vital step improving pain management[22]. The current system of nurses' notes and doctors' notes created some of the problem; nurse would look at the doctors' notes but not vice versa. Verbal communication between healthcare professionals and between healthcare professionals and patients clearly happened as changes in the prescription occurred without documentation reflecting the reason. The hospital has a plan to strengthen the clinical team and the academic ward rounds are used as a formal opportunity for multidisciplinary team work however the nurses while attending do not communicate in the

larger group. A strong healthcare team improves the quality of the care delivered. A clear plan was not documented.

Communication between professionals was seen as a barrier as well as a means to address barriers. Language difficulties were seen as a problem between health care professionals and patients in all the focus groups. However, none of the healthcare professionals saw language as an issue between staff. That the staff is multicultural and there are at least three different languages spoken with varying degrees of expertise was not mentioned as a barrier to effective communication between healthcare professionals in any of the focus group discussions. Van Niekerk et al., comments that language comprehension, not including medical jargon, between the staff prevents effective communication which can be further exacerbated when there is a perceived delay in service, such lengthy waits. Such delays may cause a breakdown in the relationships between disciplines[18]. The nurses did speak about "the sometimes long delays" when needing breakthrough medication to be ordered, this did not appear to influence the relationships within the team but created an opportunity to look at non-pharmacological methods to treat pain.

The nurses spoke about not understanding the pain management plan for the patient, this fact appeared to translate into a lack of belief in the patient complaining of pain rather than an issue with the doctor, as seen in a common statement in the nurses' focus group, *"it's difficult to believe them when they say they have pain and don't look like it".* The impact of not believing

the patient, besides under treatment of pain, creates anxiety which the doctors recognized as contributing to a lower pain threshold. A lower pain threshold can also be misinterpreted as attention seeking or drug seeking behaviour on the part of the patient[53].

Improving communication between healthcare professionals in order to facilitate "ownership", understanding the goal of the pain plan and ensuring all staff is "on the same page" was seen as essential. The doctors vocalized that empowering the nurses through education and mentoring is essential to improving communication, the outcome of which was anticipated to be improved pain management. This fact is supported in the literature; Maree et al. showed staff training needs in pain management, especially recognizing and assessing pain order to treat it, is necessary to improve the management of patients with HIV[25] and many authors showed the benefit of current ongoing training in pain management to improve the patient's experience[11,17]. However, de Rond et al. showed that if communication between the patient and the multidisciplinary care team around the patient's pain did not occur the nurses were slow to react[53].

6.1.5 Legal and administrative constraints

Legal and administrative constraints were also identified as a hindrance to the administration of timely analgesia for patients. It was noted that medicine rounds are 6-and 8-hourly while morphine should be administered 4-hourly for greatest efficacy. It appears that a patient requiring 4-hourly morphine would receive it if s/he asked for it or demonstrated pain behaviour. It should also be noted that patients who asked for their morphine 4-hourly were seen as drug-

seeking and stigmatized as a nuisance. Both the doctors and the nurses in the focus group discussions verbalized this as demonstrated in the following comment - "but then the patient is stigmatized as a difficult patient "*want hy vra"* (because he asks). This was compounded by the lack of awareness in chronic pain behaviour.

There was debate whether the legal (Medicines and related substance amendment act 14 of 2015) and administrative requirements of morphine that include drug checks by two professional nurses or a professional nurse and a doctor and specific documentation in a scheduled medicine register are a real issue or not. That morphine is administered 4-hourly and requires several steps to check and meet regulatory requirements was acknowledged however was not seen as an unmanageable problem. The identified staff champions felt there would seldom be more than four or five patients (10-15%) on morphine at any given time in the wards. This was not measured as part of the study. One doctor in the focus group compared morphine administration issues to routinely prescribed Paracetamol that requires none of the checks but is still given PRN (pro re nata or when necessary) instead of routinely when so prescribed.

The focus groups identified the lack of availability of doctors mainly at night as another barrier to effective pain management. The nurses describe having to wait "*long hours*" to get breakthrough medication; the result is a patient in pain with all the subsequent impact on suffering and quality of life. They noted only one or two doctors ever prescribed breakthrough medication routinely. Breakthrough pain may be related to voluntary movement such as walking,

it may be related to involuntary movement such as vomiting or coughing or it may be related to a procedure such as a dressing change or a bath. Developing an understanding of the need for breakthrough analgesia is an essential part of the process of managing pain[46,47].

Incident pain is seen commonly in cancer patients with bone metastasis, it is typically a pain that comes and goes and can be difficult to treat because doses of opioids high enough to manage the episodic pain may be too high when the pain is absent[47]. Trying to manage incident pain without using a breakthrough medication strategy could result in patient having increased side effects and play into the myths surrounding morphine use and exacerbate doctors' opiophobia. Lucas et al. in their work looked at issues of overdosing and side-effects linked to treatment based on a patient pain score which may not directly link to this situation however the adverse effects are common to both conditions. Managing breakthrough and incident pain correctly not only improves the patient's quality of life but promotes activity, independence and cooperation with a realistic pain management plan.

The doctors also spoke about drug availability. The basic drugs are available – Paracetamol, Tramadol and morphine syrup however access to medication such as long acting morphine tablets currently not available would be helpful as it allows a reduction in "pill burden" and the patient takes a twice daily dose vs. every 4-hourly. This improves patient compliance and nursing workload.

6.1.6 Patient related issues

The barriers related to the patient were also discussed including communication, language barriers, discrepancies in reporting, fear, anxiety and the need for education. For the purpose of this study these barriers need to be acknowledged, however the strategies identified such as implementing a patient hand-held record to facilitate communication between health care providers, developing morphine patient education pamphlets and methods to improve communication with patients regarding their pain did not form part of the guideline development. The involvement of the patient in the pain management plan is essential therefore strategies to improve communication with patients including giving written material, and the use of a palliative care diary that includes pain management has been discussed as a future plan.

6.1.7 The current pain management process

The files selected in the Phase-1 audit reflected patients where pain had been established in the Emergency Centre (EC). The EC notes were examined for diagnosis and presence of pain. That the EC has a very good triage form that provides triggers for the staff member completing the form, which includes pain description, was confirmed by the doctors participating in the focus group. The EC notes were only used to determine which files should be included in the audit; thereafter the ward notes were examined.

6.1.7.1 Pain Assessment

A thorough pain assessment is the first step in effective pain management. The literature review identifies poor pain assessment as a barrier to pain management[36]. The nurses commented in

the focus group discussion that they did not know how to properly assess pain in a patient; this was noted as a training need for the staff. The nursing admission form includes a simple pain review which was completed in 100% of the files audited. However, this assessment focused on the history and presence of pain rather than severity or type of pain, the nurses note current pain medication but not the effectiveness of that medication. The researcher performed a pilot study of the file audit tool that showed that it was necessary to review the doctors' and nurses' sections in the patient file separately because the nurses' notes were seldom looked at by other disciplines thus reducing value of their limited assessment. The presence of pain was only documented by the ward doctor in 84% of the files audited. The document used by the doctors is simple and has nothing to prompt a specific pain assessment. There was no in depth assessment of a patient's pain by either discipline. The doctors also spoke about their lack of knowledge around pain assessment in the focus group saying that it affected their ability to treat pain. This included all the steps in the process from performing a baseline assessment, treatment planning and ongoing reassessment. Kwon suggests this lack of knowledge is related to an inability to apply basic pain management guidelines in their practice resulting in an ineffective baseline assessment[36] The findings in the phase-1 audit showed that the initial pain assessment was poorly recorded. Schreiber et al. attribute an inadequate initial assessment with corresponding insufficient documentation to a lack of knowledge and poor communication[19]. Without a good basic assessment with realistic patient centred goals in treatment it is difficult to provide effective pain management.

6.1.7.2 Pain scores

Patients experience pain differently; therefore, allowing a patient to score the severity of their pain creates an objective measure of the pain. This is often seen as an impossible task balancing patient reporting, against perceived need, pain behaviour and health care professional perceptions. Pain scores were not used to document pain intensity at the Knysna Provincial Hospital during the initial phase. The literature suggests doctors are inclined to believe the patients exaggerate their pain in 30-50% of cases resulting in the under treatment of pain[(36)]. Drayer et al. discussed patient related issues that included under-reporting in order to secure among other things, earlier discharge[(15)]. The nurses in the focus group discussions commented on the influences of race and gender complicated further by the treating healthcare professional's gender and sometimes race. Patients with acute and chronic pain needs are nursed side-by-side, Lucas et al. cautions against the effects of having pain as a fifth vital sign because of over-treatment when a pain score is used to trigger a treatment intervention especially when used on acute patients[(21)].

Treatment of a patient's pain is based on the type and severity of the patient's pain. The WHO guideline recommends what analgesia to use for mild, moderate and severe pain. In 100% of the files audited in phase-1, pain had not been scored by any of the healthcare professionals. The researcher looked for any indication that pain had been assessed in terms of severity; this included the use of numbers e.g. 5/10, words e.g. mild pain or even the use of pluses e.g. pain+++. Typically, the doctors wrote "*patient complaining of pain*" or "*pain present*". In the focus group

discussion, the doctors acknowledged the usefulness of using visual analogue scales to measure and monitor pain based on their past experience.

Pain scores trigger an intervention based on the severity of the pain. The intervention could not be measured because there was no score. Van den Beuken-Van Everdingen et al. reports pain prevalence in patients with cancer as 39-66% [1] while Farrant et al. indicate 36-91% of patients living with HIV will experience pain[30]. However, when looking at the patients with a cancer diagnosis 50% of the patients were on morphine, while only 22% of those with HIV were on morphine which may be seen as treating the diagnosis rather than the patient pain need. Maree et al. suggested that patients with HIV or AIDS related pain suffered because of nurses' lack of knowledge resulting in poor identification of pain[25]; the researcher felt this statement could extend to all healthcare professionals in this context. When the patient is not involved in the scoring of their pain there is the risk that a subjective view of pain is used and the disease such as cancer is treated for pain rather than individual. The doctors in the focus group discussion describe a "thumb suck" methodology used to select the treatment.

6.1.7.3 Reassessment of patients' pain

Reassessment of the patient's pain is critical to monitoring the success of the treatment plan. The nurses reassessed pain in 69% of the audited files, this was written in the nurses' notes and there was no guarantee their documentation was reviewed by any other discipline. The doctors commented on pain when reassessing the patient in 59% of the audited files. Both the disciplines

use a structured method to document however the nurses' notes are organized based on their care plan while the doctors' is less focused. Reassessment of pain is typically done less often than initial pain assessments according to the literature, dropping from >70% to 50% between the initial assessment and first reassessment according to Cohen et al.[41].

Changes were made to the prescription indicating an escalation of pain medication and only 22% remained the same between the initial assessment and the reassessment. The documentation however, does not reflect the reason for the escalation or the lack of change, so pain may have continued to be a problem, the documentation did not reflect the decision making process.

6.2 Implementing the change (Do)

6.2.1 Developing the guideline

The group of 2 doctors and 2 nurses together with the researcher decided the PACK-type document (appendix 9) should be implemented but not alone as it did not provide enough prompts to trigger an effective assessment, but served as valuable learning tool. PACK or Practical Approach to Care Kit is a clinical practice tool designed for use in in primary care. It uses a symptom-based approach to patient care and is widely used by healthcare providers in the Knysna Provincial Hospital system. The document developed by the researcher was based on the guidelines used in the file audits. It was not adapted by any of the participants in the protocol development team. Six laminated copies were placed in the two wards, EC and the doctors break room. Copies of the three guidelines used to inform the PACK-type document were also put in

the units. Feedback on this PACK-type document has been that it should be alternated with other similar documents so that staff doesn't overlook it.

6.2.1.1 A single document

Current documentation used is separated by discipline. The nurses acknowledged they may look at the doctors' notes but doubted the doctors looked at theirs. The doctors involved in the guideline development agreed with the nurses' statement. In order to facilitate communication a single document that both disciplines used was preferred. Luckett et al. showed the benefits of using a document that prompted behaviour and improving pain management[12] and van den Beuken-van Everdingen et al. reported up to 27% improvement with the implementation of a protocol directing care[1]. The participants discussed current forms all of which were *owned* by a specialty, except the treatment chart, this document is used by all disciplines. For this reason, the group felt that the treatment chart was the best option to adapt and create a tool that prompt pain assessment behaviour amongst healthcare professionals.

6.2.1.2 The goal of care is evident

In the pre-guideline practice at Knysna Provincial Hospital, a "goal of care" is not documented, patient centred or otherwise, for pain management nor is it outlined for the reason for admission. The multidisciplinary academic ward rounds are used to discuss that goal, unfortunately, only those on duty at that time attend. The nurses often did not know what the treating doctor hoped to achieve. The recommendations in all the three practice guidelines used to inform the audit

tool is that the patient should participate in setting a realistic goal such as pain free at rest. The design team felt the goal of the pain management plan needed to be evident.

The section on the Treatment Chart designated is labeled "*Chronic pain management"*. The patient's diagnosis is included. Chronic pain is defined as "pain persisting for longer than 90 days and beyond an expected time frame for tissue healing"[46]. It was important to separate chronic pain syndromes from acute pain because of the potential to over-treat a patient with acute pain when using chronic pain management principles as identified by Lucas et al.[21]. Using this document and the PACK-type document to correctly identify the pain syndrome was seen as helpful by the group. With the implementation there remained confusion around which patients to use the new guideline for, it has been suggested that both acute and chronic pain plans are documented on the same form with a clear treatment goal. Many felt that if the form addressed both categories of pain there would be better compliance.

The next step on the new form was to document the baseline pain experience of the patient. This included an initial pain score, a body chart to document the area the patient felt the pain and words adapted from a McGill Pain Questionnaire which uses words to describe the pain felt and helps health care professionals to identify the type of pain experienced by the patient. These words would help direct the doctors' treatment choice[54]. The baseline assessment would also help all staff understand the goal of the pain management plan. When educating staff on the

form it was decided that doctors or nurses could complete the baseline assessment. The phase-2 audit showed that doctors predominantly completed the assessment.

The document would be a ward based form rather than an Emergency Centre initiated process because of the already heavy workload in the EC.

6.2.1.3 Scoring pain

Scoring pain was not practiced by any staff although all disciplines during the focus group discussions agreed it is helpful in the assessment and reassessment of pain. It was in discussing how to introduce scoring pain into the reassessment process that the group decided to move away from a separate pain form, which was causing a degree of discomfort because it was seen as additional work, and the guideline was added to the Treatment Chart. Scoring pain at the time of medication administration was seen as achievable as the medicine would be given and signed off. Purser et al. showed that only 70% compliance was achieved when adding a pain score to routine observations[22]. It was also felt that vital signs are typically done by nursing assistants and the pain score should be obtained by a more qualified staff member. The researcher recognized that ideally pain should be scored within a few hours of administration however valuable information can be realized with the proposed methodology. If a patient has significant pain at the time of administration, it could indicate an inadequate dose. The nurses felt that if a patient had significant pain at any time they would follow up, however, it may only be documented in the nurse's notes. This compromise was seen as a first step in the process to develop an excellent pain management system.

6.2.1.3 Prescribing for breakthrough pain

Using breakthrough dosing is an accepted practice in effective pain management[34,44,45]. It is used to manage pain that occurs periodically, or before or after certain activities. The focus group participants indicated a degree of familiarity with the principle however only one or two doctors ever wrote up the additional doses. The nurses indicated sometimes "*long waits"* to get the prescription for the patient experiencing breakthrough pain. A section was added to the form to encourage the doctors to proactively write breakthrough medication up.

The group participating in the development of the protocol felt the document would meet the requirements identified and to trigger improvements in chronic pain management. The staff involved agreed to champion the practice of ordering medication for breakthrough pain. The use of champions in change management practice was identified as a means of improving pain management practices[53].

6.2.1.4 The guideline developed

The new process was found in the patient's Treatment Chart. (See appendix 8) The need to write long descriptions has been avoided and a body diagram where either a doctor or a nurse can work with the patient to identify and score their pain is used. As many prompts as possible are given and the person completing the form is able to circle words rather than write them with the option if a description is not on the list to fill that in.

- Section 1 contains the patient's diagnosis and the reason the pain is considered a chronic condition.
- Section 2 is for allergies
- Section 3 identifies the patient's current pain assessment including site, severity and radiation pattern of the pain. The McGill word descriptions also formed part of the assessment.
- Section 4 is for the patient's history on pain meds or the regimen the patient had been on at home and an indication of how effective it had been.
- Section 5 is the updated pain plan including a space for constipation and nausea prevention
- Section 6 is for breakthrough dosing with the option of including "if the pain score is > then 4/10 before the next dose of insert *pain medication* then give
- Section 7 is for documenting administration of pain medication it includes a pain score with each dose.

6.2.1.5 Implementing the guideline

There was a delay in implementation of the new form and this break impacted the initial implementation. The chronic pain management section was now in a separate section and many of the doctors did not use it. The nurses did not appear to question this nor did they use it. The academic ward rounds were used to remind the staff to use the new section on the Treatment Chart. Phase-2 file audits showed only a 35% compliance with the implementation, compared to 70% described by Purser et al.[22]. Where the form was used the baseline assessment showed

treatment decisions and the scoring at the time of administration of the medication showed the efficacy of the treatment plan. One of the drawbacks to the process was pain was not documented in the doctors' notes and given the poor use of the new form there is the potential for pain to be overlooked.

The results of the phase-1 file audit and focus group themes were presented to the staff and the simple feedback that also include some education around the rationale for the study, resulted in a change in pain management behaviour amongst the staff. The results of the phase-2 audit will be discussed later however it should be noted that between the phase-1 and phase-2 audits there was a 16% improvement in the assessment of pain albeit using a simple process with 59% scoring the pain in the files audited where pain scoring had not been used before.

There was also confusion on which pain medication should be written on the chronic pain prescription. This persisted and the doctors who championed the form decided the next iteration of the document should include both acute and chronic pain with clear reference to the pain type in the baseline assessment.

6.3 Evaluating the process (Check)

The literature review supported the implementation of a pain management guideline with some authors suggesting up to a 27% improvement in the process. Grol suggests that while

implementation of evidence based guidelines is both a promising and an effective tool implementation only produces moderate results. He recommends a three step process which includes involvement of key players or champions, a rigorous strategy to implement the guidelines including multi-faceted approaches and finally it should be piloted by a small group with vested interest[55]. The participation of the hospital staff in the development of the guideline assisted in the change management process and also facilitated the identification of pain management champions. Unfortunately, the guideline was poorly adopted most likely because it lacked the rigorous implementation strategy.

There was a general improvement in the pain management process between the phase-1 and phase-2 audit whether the new process was used or not. This may be attributed to the increased awareness of chronic pain management with the posting of PACK-like tool (appendix 9) in strategic places.

Managing breakthrough pain continued to be a problem, in spite of the section on the new form designed to encourage prescribing. This was not specifically measured in the file audit and is recognized as a limitation in the research. Further study needs to be done one the effect of both healthcare provider and patient education in this regard. Prescribing breakthrough medication for the patient with chronic pain would reduce the long waits the nurses and the patients have to endure.

The small number of staff (35% of files audited) that used the guideline showed a significant improvement in the process of pain management; this includes the baseline assessment, treatment and reassessment of the patient's pain. Pain was scored and treatment decisions made, could be followed based on the information documented on the Treatment Chart. The author recommends the ongoing development of the guideline to improve compliance and the process of pain management. The process will need to be audited regularly.

6.4 Future Plans (Act)

The implementation of the new guideline while flawed did show that if used correctly could result in improved pain management for chronic pain suffering. Wrigley writing about the failed implementation of the Liverpool Care Pathway in the UK concluded that its execution while demanding and imperfect created exposure to the dying process that may not have occurred otherwise, he recognized the need for consistent and improved education communication and ethical decision making standards to create genuine advances in end-of-life care[56]. Similarly, this process was poorly adopted but has triggered a change in practice.

6.4.1 Next steps

- Develop the guideline incorporating changes to enhance the process:
    - Include all pain management on the page but differentiate between acute and chronic pain.

    - Move the location on the form to the last page it is currently on the centre page which is not easily visible.
- Implement a mentoring style pain management training in 2018 that occurs in the first quarter rather than the second as is the current practice.
    - Include communication strategies as a separate training exercise
- Evaluate the breakthrough medication ordering process as a quality improvement process.

6.5 Limitation of the study

A sample is considered biased if it represents only a specific population or there is under or over representation of sub-groups[50]. This study has an element of bias because it represents a review of the files of those patients with pain identified in the Emergency Centre and those where pain medication was administered according to the treatment chart therefore patients with unidentified pain would not have been included. This study recommends that the patient experience of pain be examined in a future study.

The study was generalized and looked an overview of the process and this creates an inherent bias as it assumes all staff has received a good education in pain management and is able to communicate effectively. This creates an opportunity to review the effectiveness of training and communication around chronic pain management. This would be a relevant endeavor given the Department of Health's new palliative care strategy.

6.5 Conclusion

The research process identified common barriers to effective pain management at the Knysna Provincial Hospital. The audits validated the themes seen in the focus group discussions. An education tool and a new section in the treatment chart which was developed to prompt improved pain management processes were implemented. The implementation was flawed and would have had better results with a more focused implementation; however, the evidence seen in the literature review did predict poor compliance[22,41]. Where the new form was used the process of pain management improved as seen in a complete baseline assessment, treatment choices could be seen based on pain type and the patient's pain scoring. Breakthrough medication was not written up consistently. Further work is needed to improve compliance.

CHAPTER 7 – CONCLUSION AND RECOMMENDATIONS

7.1 Overview

The purpose of this study was to investigate the effect of implementing a site specific chronic pain management guideline at the Knysna Provincial Hospital on the process of managing pain. The literature indicates that a process for effective pain management includes a baseline assessment, objective and frequent reassessment of the pain to evaluate the ongoing treatment. This study was done in response to a need identified by the hospital and a request for help to correct the problem.

7.2 Assessing the current process

The current process was assessed through the phase-1 and phase-2 file audit process. The gaps in the process used by health care professionals at Knysna Provincial Hospital were consistent with those found in the literature review. The use of the focus group discussions confirmed these findings.

7.3 Identifying the barriers and facilitators to effective pain management

The involvement of the staff to identify the barriers and facilitators to effective pain management at the Knysna Provincial Hospital was essential to the development of an alternate process to manage chronic pain. The themes that emerged from the focus groups were used to support the findings from the file audits but also established that the barriers were common to most institutions. Developing the guideline was seen as a means to enhance the effectiveness of the pain management process.

7.4 Developing a guideline

The guideline was developed with the input of four staff members and two experts in the field of pain management. The document developed met the needs identified in the focus group discussions while enhancing the strengths of the staff. A single page flow diagram was posted in strategic areas as reminder of best practice in chronic pain management assessment and treatment. A guideline with triggers to prompt staff to excellent pain assessment, treatment and reassessment was put in place; however, a flawed implementation resulted in a limited adoption with only 35% of the files audited in phase-2 showing evidence of use. The small number that implemented the new guideline showed a significant improvement in the process used to manage chronic pain.

7.5 Recommendations

Based on the findings of the research the following recommendations were developed:

1. Implement a mentoring education programme for pain management for doctors and nurses at the Knysna Provincial Hospital. This was identified as a need by the staff.
2. Identify and train champions in pain management on each shift and provide more in depth training in pain management or preferably palliative care depending on time available. This will help the implementation of the guideline and thus facilitate the change process.
3. Continue to develop this process and implement it as a best practice within other hospitals with the Western Cape. In spite of the flawed implantation of the guideline there

was improved pain management behaviour this is to the benefit of patients suffering from chronic pain.

4. Ongoing quality improvement in the process of chronic pain management specifically looking at the effectiveness of implementing new systems. The adoption of this process could have been better; going forward such changes could be streamlined for improved efficiency.

7.6 Future Studies

This research is the first step in improving pain management in patients experiencing chronic or continuous pain. This study recommends ongoing research in the following areas:

1. Further development of the above research to include prescribing patterns
2. An in-depth look at the pain experience of patients with HIV and TB at the Knysna Provincial Hospital
3. An in-depth qualitative study of the patients' experience in the implementation of an improvement process in chronic pain management.

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APPENDICES

Appendix 1: UCT Ethics Approval

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Human Research Ethics Committee

Room E52-24 Old Main Building
Groote Schuur Hospital
Observatory 7925
Telephone [021] 404 7682 • Facsimile [021] 406 6411
Email: noel.tsorna@uct.ac.za
Website: www.health.uct.ac.za/fhs/research/humanethics/forms

19 October 2016

HREC REF: 666/2016

Dr L Gwyther
Public Health & Family Medicine
Entrance 5, Level 2
Falmouth Building

Dear Dr Gwyther

PROJECT TITLE: AN EVALUATION OF THE DEVELOPMENT AND IMPLEMENTATION OF A PAIN MANAGEMENT GUIDELINE FOR THE KNYSNA PROVINCIAL HOSPITAL (MPhil candidate- Hilary Grey)

Thank you for submitting your study to the Faculty of Health Sciences Human Research Ethics Committee for review.

It is a pleasure to inform you that the HREC has **formally approved** the proof of concept for phase 1 of the above-mentioned study.

Approval is granted for one year until the 30th October 2017.

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on our website: www.health.uct.ac.za/fhs/research/humanethics/forms)

We acknowledge that the student Hilary Grey will be involved in this study.

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate institutional approval before the research may occur.

Please quote the HREC REF in all your correspondence.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Yours sincerely

PROFESSOR M BLOCKMAN
CHAIRPERSON, FHS HUMAN RESEARCH ETHICS COMMITTEE
Federal Wide Assurance Number: FWA00001637.

Page 2 Ethics Approval

Institutional Review Board (IRB) number: IRB00001938

This serves to confirm that the University of Cape Town Human Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical Research Council (MRC-SA), Food and Drug Administration (FDA-USA), International Convention on Harmonisation Good Clinical Practice (ICH GCP), South African Good Clinical Practice Guidelines (DoH 2006), based on the Association of the British Pharmaceutical Industry Guidelines (ABPI),and Declaration of Helsinki (2013) guidelines.
The Human Research Ethics Committee granting this approval is in compliance with the ICH Harmonised Tripartite Guidelines E6: Note for Guidance on Good Clinical Practice (CPMP/ICH/135/95) and FDA Code Federal Regulation Part 50, 56 and 312.

Appendix 2: Letter of permission

The Knysna Provincial Hospital Manager Date 18 February 2016

Dear Dr Du Plooy,
Our conversation last year on pain management at the hospital, gave me much to think about. I am doing a doing a Masters in Palliative Care in 2016/17 and wondered if I could use Knysna Provincial Hospital as the site where I do my research?

I know that pain management is a priority at the hospital but there are many barriers which include recognising pain, nurses' attitudes, and concerns about administering pain medication as well as time to write or even administer the drugs.

This is a prospective study, we are planning to use:

- A file audit to assess patients' with cancer or chronic pain and pain their management over a fixed period of time to develop a baseline of good and bad practices.
- Nurse focus groups, as the principle people administering the medication to assess what they need to empower them in pain management best practice.
- A team of experts to develop a pain management protocol for non-surgical patients with continuous pain. The panel will include designated doctors from Knysna Provincial Hospital as well as experts such as Dr Janet Stanford and others known in the pain management field.
- A follow up file audit once the protocol has been implemented

This study will not begin until we have full ethical approval. I am writing to outline some basic study information.

Who are we recruiting?

1. We will do a file audit on all non-surgical patients admitted during a designated week pre and post the protocol development.
2. Nurses from EC, and the male and female wards, both night duty and day duty will be invited to join the 40 minute focus group. The goal is to reach 50-70% of the nursing staff in those areas

What are the responsibilities of the study site?

1. We are asking you for access to patient files for the audits and help to orientate us to the file structure
2. To allow key nurses to join the focus groups, at a time that suits the wards this process will add to the process of developing best practices for both the strong and weak clinical nurses

What about study feedback?

We will liaise closely with you throughout the process. We will also produce a dissemination brief on the findings for display within your service, and this will be written in lay language.

We look forward to working with you and fixing the date for launch once we have full ethical approval, translated materials, and have identified the researcher.

Please don't hesitate to contact me should you require further information in the meantime. I will remain the Primary Researcher, throughout the study, and encourage you to raise any thoughts with me. You may raise any ethical concerns with the UCT Research Ethics Committee contact

Yours sincerely,

Hilary Grey

Dr Liz Gwyther.
Liz.Gwyther@uct.ac.za
Tel 021-4066174

UCT Research Ethics Committee:
Mrs Lamees Emjedi
E 52 Room 24, Old Main Building, Groote Schuur Hospital, Observatory
Telephone: 021 406 6338

Appendix 3: NHRD approval

Western Cape Government
Health

STRATEGY & HEALTH SUPPORT
Health.Research@westerncape.gov.za
tel: +27 21 483 6857: fax: +27 21 483 9895
5th Floor, Norton Rose House,, 8 Riebeek Street, Cape Town, 8001
www.capegateway.gov.za)

REFERENCE: WC_2016RP34_824
ENQUIRIES: Ms Charlene Roderick

University of Cape Town

Anzio Road

Observatory

Cape Town

7925

For attention: Ms Hilary Grey, Dr Liz Gwyther

Re: An evaluation of the development and implementation of a pain management guideline for the Knysna Provincial Hospital.

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.

Please contact following people to assist you with any further enquiries in accessing the following sites:

Knysna Hospital	**Dr Terence Marshall**	**044 809 2752**

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.
2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final feedback (**annexure 9**) within six months of completion of research. This can be submitted to the provincial Research Co-ordinator (Health.Research@westerncape.gov.za).

3. In the event where the research project goes beyond the *estimated completion* date which was submitted, researchers are expected to complete and submit a progress report (**Annexure 8**) to the provincial Research Co-ordinator (Health.Research@westerncape.gov.za).

4. The reference number above should be quoted in all future correspondence.

Yours sincerely

DR A HAWKRIDGE

DIRECTOR: HEALTH IMPACT ASSESSMENT

DATE: 16/11/2016.

Appendix 4: Data extraction tool

The data extraction tool was an excel spreadsheet. Data was captured directly into the tool.

					DOCTOR																			Nurse			
Number	Gender	Age	Diagnosis	Admission	Pain assessed	Pain present	Pain score used	Treatment initiated	Drug 1	Drug 2	Drug 3	Drug 4	Drug 5	Add Meds prescibed	Pain reassessed	Pain score used	Drug 1	Drug 2	Drug 3	Drug 4	Drug 5	Side effects noted	Side effects treated	Pain assessed	Pain score	Pain treated	Pain reassessed

Appendix 5: Focus Group Interview Guide

Think back over your time at the hospital and share a time when you encountered a patient in pain and describe whether you/the clinical team managed to control your patient's pain.

a. What are the things that really work well to control pain?
b. What are the things that made it difficult to help the patient in pain?
c. What tools, if any, have you tried using to assess or reassess pain?
d. What would you do if you could do anything to change the way pain is managed?
e. What could you use that will help you to manage pain?
f. What, in your opinion or experience, is the most important aspect of good pain management?

Appendix 6: Focus group information sheet

Focus Group Information Sheet

Pain Management at Knysna Provincial Hospital

Thank you for taking the time to hear about this study. My name is Hilary Grey and I am undertaking a research study as part of the requirements for MPhil degree in palliative care at the University of Cape Town.

Purpose of the focus group

We are looking at pain management at the Knysna Provincial Hospital. As a professional nurse you play a key role in the administration of pain medication to patients who have continuous pain. Your opinion will help in the development of a hospital specific pain management guideline. We will explore what works and the barriers to effective pain control in non-surgical patients. We are hoping that 70% of the nurses will participate.

Participation in a discussion group

Participation in the group is voluntary. If you agree to take part, you are free to withdraw from the group at any time. You will be asked to sign a consent form, which shows you have agreed to do take part.

What will happen if you agree to participate?

An experienced moderator will run the group, made up of about 6 nurses from the Emergency Department, male and female wards. It will last about an hour during a time that is convenient for the wards - afternoons and evenings have been identified as the best times in the past. The moderator will explain the process before starting, the sessions will be recorded so that we don't miss anything, there will also be a person making notes again so that nothing is missed. The

moderator will start with a question or two to get the conversation started. Your opinion matters, there are no wrong answers we really want to hear from you.

Benefits of the study

There are no direct benefits for participants, however the anticipated benefit is a pain management guideline to improve patient care

What are the risks?

There are no anticipated risks to the discussion group but although we request confidentiality, this is not possible to guarantee in a group setting. If you or anyone else would like to pause/stop the discussion the moderator will respect this request and will also stop the recording. She will ask whether the discussion can be resumed, whether a participant would like to leave the group or whether to abandon the discussion.

Confidentiality in the group

The information shared in the group *will* be discussed with others as the new guideline is developed. No one person's opinion will be singled out but collated into themes purely for the purpose of developing a new pain management guideline.

Feedback of results

Transcripts of the discussion will be analysed and results will be presented at the end of the period during which the discussions take place. Results of the research will also be presented to hospital staff at the end of the research.

If you need to talk to anyone about this research or the focus group, you can contact the following people:

Researcher: Sr. Hilary Grey: Telephone 082 200 4176

Principal Investigator: Dr Liz Gwyther, UCT

Email Liz.Gwyther@uct.ac.za

Tel: 021-4066707

If you are concerned about ethical or human rights issues, please contact

Mrs Lamees Emjedi

Address:

Human Research Ethics Committee

E 52, Room 24, Old Main Building, Groote Schuur Hospital, Observatory

Telephone: 27 21 406 6492

Fax: 27 21 406 6411

Appendix 7: Focus Group Consent Form

Focus Group Consent Form

Pain Management at Knysna Provincial Hospital

1. I confirm that I have read and understand the information sheet
2. I have had opportunity to ask questions and these have been answered to my satisfaction.
3. I understand that my participation is voluntary and I am free to withdraw at any time without prejudice.
4. I agree to take part in the above study
5. I agree to audio recording of the focus group discussion and understand the limitations of confidentiality due to the fact that this is a group discussion

Name_____

Signature _____ Date_____

Researcher Signature _____ Date_____

Witness Name _____

Witness Signature _____ Date _____

Appendix 8: Treatment chart

KNYSNA HOSPITAL/HOSPITAAL

TREATMENT CHART - BEHANDELINGSKAART

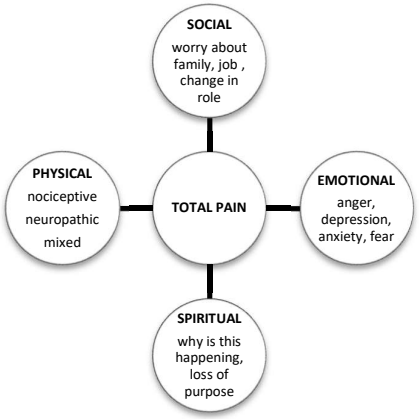
REGULAR MEDICATION - ORAL - PV - PR - TOPICAL - IV - IM

CHRONIC PAIN MEDICATION

PREMED AND ONCE ONLY DOSES
PREMED EN EENMAL DOSIS MEDISYNE

* SPECIALIST ONLY ITEMS TO BE SIGNED BY A SPECIALIST

Appendix 9: PACK-look alike tool **TREATMENT CONTINUOUS PAIN**

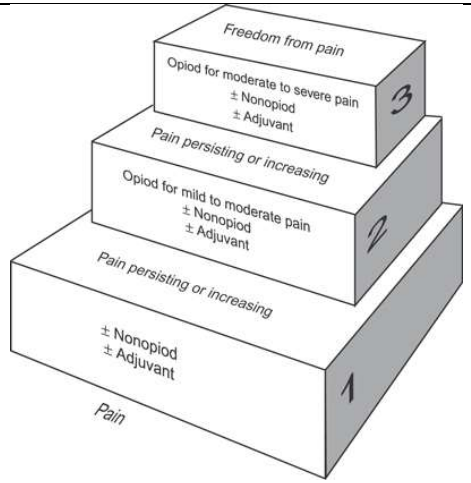


ACUTE versus CHRONIC

- Transient
- Cause can be identified
- Identifies injury/illness
- Fight or Flight reaction
  - ↑ heart rate
  - ↑ respiration
  - ↑ sweating

- Persistent >3months
- Cause may not be known
- Serves no useful purpose
- Vegetative
  - Sleep disturbance
  - Anorexia

Anxiety/Depression



MEDICATION

Step 1
Paracetamol 325mg- 1g Q6H
Step 2
Tramadol 50-100mg Q8H
Step 3
Morphine syrup starting dose 5mg Q4H
MST tablets convert morphine syrup dose over 24 hours to BD dose MST
Co-Analgesia – e.g.
Paracetamol
NSAIDS e.g. Voltaren/Brufen
Buscopan
Steroids
Amitriptyline (neuropathic pain)

GENERAL PRINCIPLES

EVALUATION

1. Mechanism of pain
   - Pathologic
   - Functional
2. Cause e.g. cancer vs. non-cancer
3. Description
   - Location
   - Duration
   - What makes it better or worse
   - Severity
   - Is it continuous or intermittent
4. Encourage the use of a pain diary especially if intermittent pain

EXPLAINATION

1. Explain the underlying conditions in simple terms
2. Discuss treatment options
3. Discuss treatment goals:
   - Relief at night
   - Relief at rest during the day
   - Relief if possible with movement
4. Discuss treatment principles
   - Round the clock dosing
   - Using the WHO ladder
5. Encourage patients to score their pain
6. Educate on breakthrough dosing

MANAGEMENT

1. Correct the correctable
2. Use drug and non-drug options
3. Use drugs prophylactically for persistent symptoms i.e. round the clock dosing vs. PRN
4. Use the WHO Ladder plus adjuvants e.g. NSAIDS
   - Step 1 – Paracetamol
   - Step 2 – weak opioids e.g. Tramadol
   - Step 3 – strong opioids e.g. morphine syrup

(DO NOT MIX WEAK AND STRONG OPIOIDS)

5. Manage side effects
6. Always use rescue doses for breakthrough pain

MONITORING

1. Assess every visit
2. Effects of pain meds – is it working
3. Side effects e.g.
   - Constipation – permanent
   - Nausea – with initiation of morphine (±3-5 days)
   - Confusion with initiation of morphine (±3-5 days)
   - Dry mouth
4. Use pain scales for objectivity
5. Document pain scores
6. Assess activities of daily living
7. Assess mood, depression often missed because symptoms are common
8. Abuse of medication is not often seen but should be checked

ATTENTION TO DETAIL

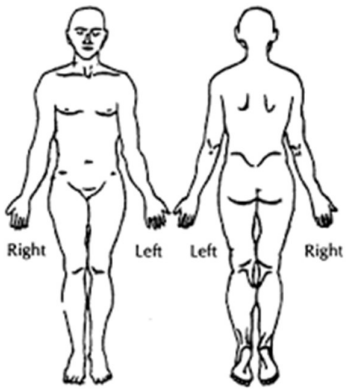
1. This is necessary at all stages
2. Do not make unwarranted assumptions
3. All symptoms are exaggerated with negative emotions
4. Where will the patient get the next prescription from
5. Who or how will they report if the pain management is not working

REFERRAL

Intractable pain is uncommon. If pain is not managed refer to Palliative Care

Appendix 10: Initial version developed

Chronic Pain Management Prescription Chart

Diagnosis	Cancer ☐ TB ☐ RVD ☐ Organ failure ☐ Other Wound present for > 12 weeks ☐	
Allergies		
Date: Current Pain	Indicate site and severity of pain, radiation pattern  Signature:	
Current Pain Regimen (on admission)	Constipation: Nausea	Effective Y or N Continue Y or N
New Chronic Pain Prescription		
Date	Doctors Order	Signature
Breakthrough Doses		
	If pain > 4/10 before the next dose of: Give	

PAGE 2 Pain Score

Pain Score

Date																																	
Time																																	
10																																	
9																																	
8																																	
7																																	
6																																	
5																																	
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SIGNATURE																																	

COMMENTS
