Falls Prevention for Inpatients:
A Case Study

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Abstract

The incidence of falls and serious injuries related to patient falls in hospitals is on the rise. This situation could potentially result in serious injuries and even death for the patient, as well as financial burden for acute care hospitals and increased workloads and stress for nursing staff.

The incidence of falls in the metropolitan acute care hospital medical ward where this study was conducted continues to be problematic. This research study investigates the factors that cause patient falls in order to maintain and enhance sustainable falls prevention management. The falls risk assessment tool used in the hospital was part of the 6-PACK Falls prevention program for patients that was developed in 2002.

A mixed method case study was employed for the research. Data was collected from a medical ward in two phases: Phase 1 analysed the quantitative falls data from the hospital RiskMan software tool and Patient Centred Care Plan (PCCP). This analysis informed the development of the qualitative research in Phase 2 which included the nurse questionnaire and nurse focus group discussions, as well as patient interviews to examine the complexities involved in falls management prevention. The triangulation of nurse and patient viewpoints of the falls prevention program, together with the administrative (RiskMan, PCCP) data, provides a fuller exploration of the contributing factors and adds to the body of knowledge in this important area.

The Donabedian model of structure, process and outcome (SPO) was adapted to form an Inpatient Falls Prevention model that could be effective in the analysis of all aspects of patient care. The data collected in the quantitative and qualitative phases was analysed using this Inpatient Falls Prevention model.

The case study identified that there were a significant number of patients whose falls risk assessment was not documented as part of their daily care plan. This

resulted in high-risk patients not having falls prevention strategies implemented in their nursing care. For cognitively impaired patients falls were much higher for several reasons, including patient-nurse ratios, time challenges and issues surrounding the management of patients with dementia, delirium, and behavioural issues. The ward and bed layout, equipment malfunction, lack of patient education, and engagement in their falls prevention plan were also identified as contributing factors to inpatient falls.

This study found that nurses failed to properly implement falls prevention strategies and management in the medical ward, and makes a number of recommendations for the benefit to all stakeholders - the healthcare system, hospitals, nurses, and most importantly, the patients. There is an increased need for professional development of nursing staff to identify and document patients at risk of falls and to modify the falls risk assessment tool. Patients need to be more actively engaged in their falls prevention plan and there needs to be better stakeholder communication: nurse to nurse, nurse to patient and nurse to allied health professionals. In addition, there is a need for more frequent PCCP auditing and immediate feedback to nursing staff. In this way, nurse knowledge of patient assessment, falls documentation and implementation strategies would assist in increasing patient safety and enhancing their hospital experience.

Student declaration of original authorship

"I, Caglayan Yasan, declare that the PhD thesis titled *Inpatients Falls Prevention: A Case Study* is no more than 80,000 words in length including quotes and inclusive of tables, figures, appendices and references. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated this thesis is my own work".

"I have conducted my research in alignment with the Australian Code for the Responsible Conduct of Research and Victoria University's Higher Degree by Research Policy and Procedures. All research procedures reported in the thesis were approved by the Ethics Committee of the Austin Hospital (HREC17/Austin2) (which was not the acute care hospital where this current study was conducted) and Victoria University Ethics Committee (HRE15-188)".

Signature   Date

Dedication

I proudly dedicate this thesis to my loving husband, Ersan Yasan, and my one and only son, Erca Yasan, who supported me throughout the PhD candidature. Thank you for your endless love, patience and understanding.

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List of Abbreviations

Abbreviation	Description
AM shift	Morning shift
EAL	English as an additional language
FRAT	Falls prevention risk assessment tool
HRT	Health Roundtable is a non-profit organisation of health services and provides opportunities for interstate and international collaboration across Australia and New Zealand to compare peer organisations' patient care and performance indicators by collecting, analysing and publishing information to improve operational practices to achieve best practice.
Nocte	Night shift
Patient education	Falls prevention education brochure to inform risks and prevention of falls for high falls risk patients. Provided on admission and documented on the PCCP with date and the initials of the nursing staff.
PCCP	Patient centred care plan
PM shift	Afternoon shift
RiskMan	Risk management software system for collection and classification of clinical incidents, risks, compliance, occupational health and safety incident, hazards and consumer feedback.
STRATIFY	St Thomas's falls prevention risk assessment tool
TNH-STRATIFY	The Northern Hospital Modified St Thomas's falls prevention risk assessment tool. The tool consists of nine items and six falls prevention interventions (Alert sign, Low-low beds, Supervise bathroom, Toileting regime, Gait-aid near patient, Bed/chair alarms).
6-PACK program	The falls prevention program utilised at the organisation which consist of TNH-STRATIFY falls prevention risk assessment tool.

Prologue

I have had over ten years' experience as a registered nurse, and worked as a quality coordinator with prior experience in quality improvement projects in the acute care hospital prior to undertaking this case study research. My interest in this topic developed from both awareness in the literature that falls are a global problem and my experience in seeing the impact of falls in acute care hospitals on elderly patients and their subsequent quality of life.

As part of this role, I am experienced in analysing RiskMan and PCCP falls data and was well known to senior nursing staff of the medical ward at the acute care hospital. I decided to undertake this case study research for my doctorate. As the positive relationship that I developed with the nursing staff while conducting PCCP audits enabled me to work with them as a researcher. This process built on my previous experience as a quality coordinator and further enhanced my knowledge and interest in understanding patient falls prevention. I endeavoured to create a relaxed and comfortable environment where nursing staff felt free to share their ideas during focus group discussions. Since 2016, I have had no direct involvement with the acute care hospital where this case study was conducted. Hence, I set out to review the situation with fresh eyes, and bring new insights into the way the falls prevention can be enhanced to improve the safety of patients in the medical ward. The issues of validity, reliability and trustworthiness of the data collected are discussed in detail in Chapter 3.

Chapter 1: Introduction

1.1 Introduction

Falls are one of the most commonly reported patient adverse events and are a national safety and quality priority due to the increased inpatient harm in acute care hospitals (Bennett et al., 2014). There is a consistent definition of a fall within Australia based on the World Health Organisation [WHO] (2018) definition of a fall as *"an event which results in a person coming to rest inadvertently on the ground or floor or other lower-level,"* and this is the definition that will be utilised in this case study. This definition is endorsed by the Australian Commission on Safety and Quality in Health Care [ACSQHC] (2009) to maintain national consistency within Australia.

In the acute care hospital setting, patient falls are among the most significant patient safety challenges (Khalifa, 2019). The WHO (2018) reports that falls are the second leading cause of accidental or unintentional deaths globally. Each year, around 37.3 million falls occur worldwide requiring medical attention due to the severity of the fall (Mekkodathil et al., 2020). In Australian hospitals, significant harm is experienced by inpatients due to a large number of falls (ACSQHC, 2018a). The Department of Health (2020) website reported that Australian and international studies have identified that around "one in three people aged 65 years and over fall each year with 10% having multiple falls and more than 30% experiencing serious injuries requiring medical attention". In 2018-2019, approximately 231,000 falls in Australia resulted in hospitalisation and 5,300 deaths (Australian Institute of Health and Welfare [AIHW], 2021) and 1,756 falls were reported in Australian public hospitals (ACSQHC, 2018a). In Victoria, from July 2017 to June 2018, 31,693 adults aged 65 years were admitted to the hospital due to a fall, and the falls related admission rate increased by 20% for adults aged 65 years and are expected to increase as the population ages (Department of Health, 2020).

Falls cause a substantial burden to patients and the healthcare system. Spetz et al. (2015) outlines the human cost of falling from the patient's perspective, including the pain and injury experienced, the loss of confidence and independence when walking, and increased morbidity and even death. Dunne et al. (2014) highlighted the increased risk of developing a nosocomial infection due to increased length of stay (LOS) in hospitals, and the premature admission to residential aged care, as a consequence of diminished quality of life due to a fall.

In Australia, the total cost of falls related injury is projected to increase from A$498.2 million per year in 2001 to A$1,375 million in 2051, due to an ageing population, and if adequate strategies are not implemented to prevent falls (ACSQHC, 2009). This places substantial pressure on healthcare organisations to improve their current falls prevention policies and procedures. If falls prevention programs are not improved, 2,500 additional beds will be required to treat injuries due to falls (ACSQHC, 2009). It is estimated that a 66% decrease in injuries related to falls are needed to maintain current health costs (ACSQHC, 2009).

A study of 12 acute medical and surgical wards in six Australian hospitals (Morello et al., 2015) calculated a cost of falls of $9.8 million, of which $6.4 million was for non-injured fallers and $3.4 million for injured fallers. The LOS for fallers was eight days more than non-fallers with an average cost of $6,669. Each additional fall was associated with a longer LOS and additional hospital costs. The mean LOS for fallers with an injury was four days longer than fallers without an injury, with meant additional costs of $568-$10,022. For patients who experienced three or more falls, the LOS was 23 days longer, with a mean increase in LOS of nine days compared with fallers without injury, and resulted in an additional cost of $21,000 with a mean of more than $7,000. The authors emphasised that acute care hospitals should focus on minimising all falls, not only the injurious falls, and this appeared to be the only study that evaluated the cost of the 6-PACK program.

Similarly, it was reported by the AIHW (2019) that the average LOS in a hospital following a fall was 10 days in 2016-2017. Higher rates have been reported in state level healthcare spending in the USA, where Haddad et al. (2019) used two different cost-estimating methods to determine the economic impact of falls prevention strategies on government funded healthcare programs. California ($US4.4 billion), Florida ($US3.9 billion) and New York ($US3.4 billion) had the highest healthcare spending for older adults due to falls, and the highest number of patients who experienced a fall was reported for Florida (56,363) and New York (38,867). The authors did not provide a breakdown of the total cost of falls, but emphasised the effective allocation of falls prevention resources, and implementation of cost-effective falls prevention strategies to cope with the growing adult population in United States. This is supported by a cross sectional survey of six Australian health services indicating that $590 million was spent on resources in Australia per year to prevent falls, and recommended resources to be used as part of evidenced-based practice (Mitchell et al., 2018). In the United States an estimated growth in the older population of 84 million by 2050 highlights the significant financial impact on the healthcare system if nothing is done to reduce the number of falls (Haddad et al., 2019). The previous two studies (Haddad et al., 2019; Mitchell et al., 2018) correlate with that of Morello et al. (2015), where the additional burden of resources associated with falls and the falls prevention programs should focus on preventing all falls, not only injurious ones. All four studies highlight research on the cost of falls and injurious falls worldwide, and the economic burden on the healthcare settings due to falls. ACSQH (2009) highlight that due to scarce hospital resources, healthcare professionals need to choose the most cost-effective program that they can afford and improve patient safety with finite resources.

In summary, falls prevention, injury related to falls and cost reduction is an important topic of research worldwide with a focus on assessment, risk factor identification and the implementation of preventive interventions. It is evident that falls and injurious falls are frequent adverse events which lead to significant morbidity and mortality, and increased healthcare costs in acute care settings.

The acute care hospital where this case study was conducted utilises the 6-PACK program as part of its falls prevention protocol, but the cost of its implementation/interventions had not been undertaken. Therefore, when considering falls prevention programs and interventions, it is important to evaluate the cost of minor, moderate and severe injuries such as fractures and deaths related to falls. By the same token, if falls prevention is effective then fractures or deaths related to falls can be avoided, improving not only patient but also healthcare outcomes.

1.2 Problem statement

Despite ongoing efforts to understand and investigate the cause and risk factors of patient falls, the incidence of falls in the acute care hospital in this case study, continues to be problematic. Despite the implementation of falls prevention strategies, there was an increase in the number of falls with injury over the two years of 2015 and 2016. One patient died in 2015 and 2016, and there was an increase in the number of fractures or subdural haematomas from two patients in 2015 to five patients in 2016.

The high incidence of injurious falls in the medical ward compared to injuries in comparable wards in the hospital prompted the study. This case study will examine the underlying reasons why patients fall in the medical ward of an acute care hospital, the factors that contribute to their fall, and how to prevent patients experiencing falls or fall related injuries. The perspectives of nurses on the barriers and enablers to implementing of the 6-PACK falls prevention interventions, as introduced later in this chapter, and patient views on contributing factors to their falls will be incorporated in this case study. The intention is to provide a series of recommendations to the hospital to improve the safety and experience of patients during their episode of care.

1.3 Aims of the study

This case study aims to examine the patient falls administrative data using RiskMan which is part of the Victorian Health Incident Management System (VHIMS) and Patient Centred Care Plan (PCCP) where nurses document patient falls prevention interventions, to investigate the existing ward experiences of falls, identify the various factors that contribute to inpatient falls and the nurses' adherence to 6-PACK falls prevention strategies. For the purpose of this case study, only the falls prevention component of the PCCP which is the falls risk assessment tool, six prevention strategies, falls prevention brochure and the RiskMan number will be audited and is referred to as the PCCP audit.

This investigation explores the nurses' perspectives to understand the factors that impact on them in the provision of falls prevention and management. It also identified the patient's experiences and understanding of their implemented falls prevention strategies and incorporated these different perspectives into the data analysis. To a certain extent, this case study could also be seen as a quality improvement investigation, as it has made a number of recommendations for future falls prevention and management in this acute care hospital.

1.4 Research questions

The overall research question is:

How can inpatient falls be reduced in an acute care hospital?

The sub-research questions are:

1. What trends can be discerned in (RiskMan) falls administrative data from the period from January 2015 to December 2016?
2. How do the number of patient falls in the hospital in this study compare with peer hospitals that use a different falls risk assessment program?

3. What are the factors that impact on nurses in the implementation of the 6-PACK falls prevention program in the medical ward?
4. What do patients perceive to be the contributing factors that led to their fall in the medical ward and how does it affect their understanding of the implemented 6-PACK falls prevention strategies?
5. How effective is the 6-PACK falls prevention program in the assessment and prevention of patient falls in hospital wards?

Patients' falls RiskMan data was collected to examine the characteristics of falls in the medical ward. Staff adherence to the 6-PACK falls prevention interventions which are included in the PCCP will construct the understanding of the implemented falls prevention strategies in the delivery of patient care. The RiskMan and PCCP is discussed further in the method and methodology chapter. The patient and staff barriers and enablers will be explored through focus group discussions and patient interviews. Also, to gain an overview of the acute care hospitals falls data, it will be compared to peer hospitals through the Health Roundtable (HRT). Table 1.1 below provides an overview of the research aims, objectives, and data collection linked to each aim.

Table 1.1: Overview of the research aims and objectives		
Study aims	Objective	Data collection and analysis
Examine patient falls data	For the period January 2015 - December 2016 examine the patient falls administrative elements for the following characteristics: total number of falls; number of falls associated with minor, moderate and serious injuries; mechanisms of falls: location and cause of fall; witnessed or unwitnessed fall; time and day of the fall; patient age and gender	RiskMan database and quantitative analysis
Measure nurse's adherence to 6-PACK falls prevention strategies	Audit of the PCCP to establish whether documented falls prevention strategies are implemented	PCCP and quantitative analysis
	Conduct a peer comparison of falls data with peer hospitals that don't utilise the 6-PACK falls risk assessment tool	HRT and quantitative analysis
Understand the factors that impact on nurses in the provision of falls prevention and management	Explore factors where a fall prevention strategy has failed as well as factors that have impeded risk reduction for falls and management	Nursing staff questionnaire (quantitative & qualitative analysis) Focus group discussion, and qualitative analysis
Explore patients' experiences of falls	Identify themes that relate to patient falls	Patient face to face interviews and qualitative analysis

1.5 Background to the study

Patient falls in acute care hospitals are serious, resulting in poor patient outcomes, severe injuries, and are one of the main courses of morbidity. Falls can result in serious injuries, such as spinal cord injuries (Cao, 2020) and fractures, and are one of the main causes of morbidity and mortality. (Zhao et

al., 2019). The injuries due to fractures, head trauma and hip fractures result in further decline in patients' levels of functionality, mobility, and quality of life (Ghaffari-Fam et al., 2015). Some of the serious injuries require surgical interventions, such as craniotomy for haematoma evacuation, tracheostomy, central venous access, and endotracheal intubation (Ismail et al., 2020).

There are also associated complications due to falls and underlying procedures which include sepsis, pneumonia, cardiac arrest, acute kidney failure, urinary tract infections and circulatory shock (Ismail et al., 2020). Additionally, the psychological consequences such as a patient's fear of falling increases their dependence on family members and restricts their daily activity and independence (Pereira et al., 2020). Furthermore, the injuries from falls increase the likelihood of being admitted to an aged care facility (Gratza et al., 2019). Due to the safety challenges that falls present for patients in acute care hospital settings, there is an increased worldwide interest in falls prevention (Lackoff et al., 2019).

In Australia, considerable efforts have been instituted to monitor, prevent, and minimise patient falls in acute care hospital settings through targeted strategies. For example, the Victorian Health Incident Management System (VHIMS) monitors and collects general information on falls, such as, who was involved, when, where and what happened and why and how it happened, and what actions were taken after the fall (VHIMS, 2020). It was developed to assist clinicians and hospital officials to monitor falls that occur during an episode of patient care (AIHW, 2018). Also, the ACSQHC (2012a) established guidelines for all healthcare services such as hospitals, residential aged care and community care on how to prevent older people experiencing a fall or harm from falling. Through the accreditation process the healthcare services are assessed against the standards to address the organisation's performance in improving patient safety and the provision of quality care (ACSQHC, 2012b). Furthermore, an array of preventative strategies, screening and risk assessment tools assist clinicians to conduct an assessment of the risk of patients' falls and implement targeted strategies to prevent harm for hospitalised older patients (Redley &

Raggat, 2017). This case study will examine the characteristics of falls through RiskMan falls database which is the acute care hospitals' VHIMS and Patient Centred Care Plan (PCCP).

The incidence of patient falls in an acute care hospital arises from multiple factors. Therefore, managing patient falls are complex and there are numerous elements which impact on the implementation of falls prevention by nursing staff. To understand the complexities of falls prevention and management in the medical ward, this case study will investigate the barriers for nurses in implementing falls prevention. These elements may include knowledge, beliefs, attitudes, and workloads of nursing staff, staff culture on the ward, environmental factors and access to required resources (Barker et al., 2015). A consistent approach in patients' falls risk assessments, implementation of falls prevention strategies and close supervision of falls risk patients are required for reducing falls (Rheaume & Fruh, 2015). As well, the clinician's expertise, the concept of provision of patient centred care in falls prevention (Tzeng & Yin, 2015) and the challenges in managing the high-acuity patients with cost-constraint nurse-patient ratios (Tzeng & Yin, 2017) present ongoing complexities in managing falls in acute care hospitals.

The nurse point of view in this case study provides an additional insight into the provision of falls prevention strategies and management. If nurses are engaged at the forefront of planning, implementing and evaluating falls prevention programs, they are more likely to be sustainable in the longer-term. Consequently, it is important for nurses to be actively involved in the design and implementation of falls risk reduction strategies.

Patients too, have an important role to play in preventing falls and the harm arising from them. Patient centred falls prevention education with staff training can improve patients' understanding of their identified falls risk and safety (Rheaume & Fruh, 2015). This will, in turn, empower inpatients to make decisions to prevent risk taking behaviours and improve the therapeutic relationship between them and the healthcare professional (Hill et al., 2015).

Foremost, patient feedback after a fall can provide a better understanding of the reasons for falls incidents, such as issues with current systems; as well as providing insights into how falls can be minimised and prevented. The patient's point of view in this case study provides an additional level of clarity about the reasons behind falls incidents.

Although considerable collaborative efforts among clinicians have been directed towards management and prevention of patient falls in the acute care hospital setting, the incidence of falls remains problematic. In the setting, where this case study was conducted, local falls incident reports tend to suggest that ongoing collaborative efforts are required to reduce the incidence of falls and to achieve desirable outcomes for patients.

1.6 Setting

The setting for this mixed-methods case study is a major teaching hospital in Melbourne, Victoria, Australia. The organisation was established in 1998 and is situated in a major growth corridor, where the population is expected to grow by 58% (over 228,000 people) between 2016 and 2031. It is crucial for this acute care hospital to adapt to the needs of the increasing diverse community to improve patient outcomes and safety by reducing the incidence of patient falls.

The acute care hospital has a clinical school for nurses, allied health and medical students to complete their training, which includes a broad spectrum of services such as medical care of women and children, mental health and aged care. The case study was undertaken in a medical ward compromising of 28 mixed needs beds: four stroke beds, 16 dementia specific beds in a secure area, four dialysis beds and four general medical beds. This ward was chosen because it had the highest number of serious injuries. Despite the implementation of quality improvements by the hospital, no reduction in the rate of falls was achieved in this ward between 2015 - 2016.

1.7 Research design

To achieve the overall aims of this research, a mixed method case study design combining quantitative and qualitative approaches was utilised. This design was chosen to understand patient safety challenges related to falls prevention and management in the medical ward. As Liamputtong et al. (2017) assert, a mixed method approach which combines two methodologies, provides additional value for complex clinical challenges, such as understanding the various factors which hamper nurses' ability to adhere to the implementation of falls prevention strategies. Further, the mixed methods approach provides additional value to the more frequently used quantitative approach to falls analysis. Within the acute care hospital where this case study was conducted, quality improvement strategies tend to monitor falls using robust, statistical explanations. While this approach is useful for monitoring; further in-depth qualitative information is required to bring a deeper meaning to quantitative data and patient and nurses behaviours surrounding patient falls. With the additional level of qualitative data from patients and nurses that this research provides, the underlying reasons for and influences of the increased number of serious injuries related to falls may be better understood than using a quantitative approach alone. Thus, combining these two methodologies will enhance understanding of the complexities surrounding falls prevention, and the challenges faced by nursing staff in reducing inpatient falls and serious injuries related to falls.

1.8 The 6-PACK falls risk assessment tool

This section provides a brief overview of the 6-PACK falls risk assessment tool which is commonly used by acute care hospitals in Australia and New Zealand to prevent patient falls and will be further discussed in Chapter 2. This tool allows clinicians to conduct comprehensive and multidimensional falls risk assessment, to identify the patient's falls risk factors, and to develop an individualised patient centred falls prevention plan to mitigate harm and promote patient safety.

1.8.1 Falls risk assessment tool and preventative strategies

The 6-PACK falls risk assessment tool was developed in the acute care hospital where this case study was conducted. It is a nine-item, nurse-led, easy to use, six-step falls risk assessment tool, and hence the reason it is called the 6-PACK program. Nurses' assessment of patients' falls risk level and implementation of the targeted falls prevention strategies and patient education are documented on the PCCP, as the 6-PACK components are situated on the PCCP. The PCCP also consists of patients' other daily requirements of nursing care such as: alerts, frequency of observations, dietary requirements, pressure injury and frequency of skin assessment, cognition, sensory and mobility aid requirements, continence, hygiene/mouth care, intravenous therapy and other access details.

1.8.2 Patient education

Patients who are identified as high risk of falls and their families/carers are provided with an education brochure to inform them of the risk and prevention strategies for falls on admission to the medical ward. The purpose of the brochure is to actively engage patients in their daily falls prevention plan by understanding their knowledge and perception of their falls risk and how to mitigate the risk of falls.

Figure 1.1 illustrates the components of 6-PACK falls prevention program on the PCCP: a falls prevention risk assessment tool (TNH-STRATIFY), the six falls prevention strategies, falls prevention brochure, RiskMan number documented post a fall, nurses' documentation and implementation of falls prevention strategies.

Figure 1.1: The 6-PACK falls prevention program

1.9 Donabedian's conceptual model

In this case study, the Donabedian quality of medical care model (1966) (Donabedian, 2005) is utilised as a framework to examine the effect of organisational characteristics and nursing staff uptake of falls prevention interventions on patient outcomes. This model serves to improve healthcare quality and has three elements: structure, process and outcome (SPO) which assist in conceptualising the complex relationships in healthcare organisation and delivery. According to the model, improvements in both the structural components and/or clinical processes should improve patient outcomes. In the

model, the s*tructure* (S) of care comprises healthcare organisational characteristics and attributes; for example, staffing levels of nurses, the equipment, services/training, ward culture, staff perceptions about the current falls prevention program, and the adequacy of communication between staff and patients (Cary et al., 2018). *Processes* (P) comprise all of the direct care activities such as implementation of falls preventions strategies by nurses (Cary et al., 2018). *Outcome* (O) measures in the Donabedian model are the end result of patient care (Cary et al., 2018).

In the current case study, the care processes reflect how patient care is delivered, and include nurses' assessment, planning, implementation, evaluation and documentation of the 6-PACK falls prevention program. The outcome measures are the direct patient care outcomes. Also, in this study the key outcomes are the falls rate, identifying the reasons for patient falls in hospitals, and putting forward recommendations to reduce the falls rate, as well as improving the patient experience in hospitals.

In the course of this investigation, the Donabedian model was adapted for in-patient falls quality improvement and used as the conceptual framework for the Inpatient Falls Prevention model which analyses the results and provides a meaningful presentation of the findings in relation to patient falls on the medical ward. The findings are presented in Table 1.2 below. The Inpatient Falls Prevention model examined the falls data with the following dimensions: *Care Setting* (identified as structure in the Donabedian model), and *Delivery of Care and Care Coordination* (process) which potentially impact on patient falls and *Quality of Patient Care* (outcomes) and patient experiences. The medical ward's resources, staff attitude/perceptions of the current falls prevention program, the barriers and enablers will be explored through the provision of patient care, are included in the *Care Setting* dimension of the model. The *Delivery of Care and Care Coordination* examined in this case study are: patient assessment, implementation of individualised falls prevention strategies identified on the 6-PACK falls prevention plan, staff communication regarding patients' falls risk

and implemented preventive measures relevant to nursing staff. The *Quality of Patient Care* measures are the falls rate collected from the administrative (RiskMan) data, and the patients' understanding of the implemented falls prevention strategies and their perspectives of the contributing factors to their falls.

Table 1.2: Inpatient Falls Prevention model distilled from the Donabedian framework (structure, process and outcome)		
Care Setting (Structure)	Delivery of care and care coordination (Process)	Quality of patient care (Outcome)
Ward culture/adaptation of falls prevention program	Assessment: Patients' falls risk assessment and identification of the individual falls risk factors	Patient Experience: Patients' understanding of the implemented falls prevention strategies
Staff perception of current falls prevention program/tool	Plan: Which falls prevention strategy to implement	Patient Experience: Patients' perception of the contributing factors to their fall
Contributing factors that prevent nursing staff from implementing falls prevention strategies	Intervention: Implementing the relevant falls prevention strategy; the 6-PACK falls risk assessment tool is a process enhancement	Patient Experience: Patients' perception of their falls risk
Falls prevention resource allocation	Evaluation: Each shift nursing staff assess the patients' falls risk and adapt the falls prevention strategies accordingly	Patient falls administrative data
Communication between staff and patients	The 6-PACK falls prevention consists of the following processes: alert sign, alarms, bed/chair, toileting regime, gait aid; low-low bed, supervise bathroom	

1.10 Significance and potential benefits of the study

It is anticipated that this case study will contribute to the ongoing effort, initiatives and innovations that have inspired collaborative improvement directed towards reducing inpatient falls in the acute care hospital setting. It will shed light on the administrative factors associated with falls and cross-reference results with nurse and patient perspectives. Also, it will contribute to the body of knowledge regarding the effectiveness of the 6-PACK falls prevention risk assessment tool, the viewpoints of nursing staff in the implementation of the identified 6-PACK falls prevention interventions, and patients' perspectives on the contributing factors that led them to fall and their understanding of the implemented falls prevention strategies.

The impact of falls on the healthcare system, the total cost of related injuries, and patient safety outcomes and patient experiences are growing concerns in acute care hospitals. The literature highlighted that the 6-PACK falls prevention program was developed and deemed effective in this acute care hospital (Barker et al., 2009). The subsequent Randomised Control Trial (RCT) which was part of this program's continuing research, demonstrated a negative effect (Barker et al., 2016). The number of falls and injurious falls did not differ between the control and intervention groups. This case study will examine whether the program had maintained or lost its effectiveness in the acute care hospital where it was initially developed.

Nurses' and patients' perceptions of falls prevention programs in acute care hospitals are essential. This case study will include their views to gain a better understanding and contribute to knowledge in this area. The nurses' perceptions and experiences with the current falls prevention program and the factors that influence the delivery, prevention and management of inpatient falls are pivotal in maintaining patient safety and improving the provision of quality patient care. Nurses' evaluation of the falls risk assessment tool and its usefulness in the provision of patient care, and outcomes is imperative in nursing staff cooperation in the falls prevention program. Patient perspectives of the contributing factors to their falls and understanding their falls risk in the

medical ward is vital in improving current clinical practice and the effectiveness of the 6-PACK falls prevention program. By incorporating patients into the decision-making processes related to falls risk and prevention plans will minimise the patients' participation in risk taking behaviour, and optimise their autonomy and the therapeutic relationship between nursing staff and patients. In this way, the patient experience in a hospital setting will be more positive.

This case study aims to raise awareness of the issues associated with inpatient falls in the medical ward, and by employing a more specific tailored intervention approach (which is put forward by the recommendations) at a local ward level, examines whether the provision of quality patient care and safety can be improved.

A further intended outcome is to improve the provision of quality nursing care by analysing assessment, documentation, and implementation of falls prevention strategies in the PCCP. This will, in turn, improve the management of staff workloads and staff satisfaction. Furthermore, this case study will enhance staff satisfaction by engaging staff and adapting staff knowledge to improve current practice, which will then impact on the long-term sustainability of falls prevention and management.

1.11 Organisation of the thesis

This research study comprises seven chapters.

Chapter 1: This introduction establishes the importance and the context of the study investigating patient falls in an acute hospital ward, using the Donabedian model as a framework. The Inpatient Falls Prevention model is the application of the Donabedian model to analyse quantitative and qualitative inpatient hospital falls data. Falls are of serious concern in the hospital sector with serious and high-cost ramifications to the patients, staff, the organisation and the industry.

Chapter 2: This chapter reviews the literature pertinent to the case study: the 6-PACK program and effectiveness of this program, the contributing falls risk factors, the impact of falls on patients and the healthcare system, Australian standards in falls prevention, the nurse's role in up-taking falls prevention strategies and the factors that support or hamper the ongoing reduction of falls. The chapter concludes that despite a wealth of research conducted on falls prevention, it remains an issue worldwide.

Chapter 3: This investigation is a mixed method case study that incorporates statistical data as well as information from nurse and patient perspectives. The methodology and methods chapter describes the data collection process, an analysis of the different phases of the case study, participants, and ethical considerations, limitations and conclusion.

The sequential explanatory design assisted with quantitative and qualitative falls data collection from RiskMan, PCCP, HRT, nurse questionnaire, nurse focus group discussions, and patient interviews. Data analysis is achieved through Chi-Test, statistical analysis, thematic analysis, and the Inpatient Falls Prevention model as a framework for triangulation of the data.

Chapter 4: The research findings of this case study are illustrated using Inpatient Falls Prevention model (*Care Setting, Delivery of Care and Care Coordination* and *Quality of Patient Care).*

Theme 1 *Care Setting* consists of quantitative and qualitative falls data providing their overall characteristics, ward structure and culture of falls prevention and management. The quantitative falls data of the medical ward obtained from the RiskMan database. The qualitative data obtained from the nurse questionnaire and nurse focus group discussions.

Theme 2 *Delivery of Care and Care Coordination* provided results from PCCP audit, nurse questionnaires, focus group discussions, and patient interviews to explore the staff adherence to patients' falls risk assessment and perspective of the reasons for increased number of falls and the effectiveness of the current falls prevention program. Patient interviews after a fall provided the patients' view of the fall experienced.

Theme 3 *Quality of Patient Care* consist of RiskMan falls data, HRT, patient interviews and nurses' recommendation. The Inpatient Falls Prevention model is used to describe the relationship between *Care Setting, Delivery of Care and Care Coordination,* and *Quality of Patient Care.*

Chapter 5: The statistical data and the questionnaire and interview findings within the Inpatient Falls Prevention model are discussed for their contribution to falls prevention in acute care hospitals. The lack of resources, malfunctioning equipment, and communication breakdown between nursing staff, nursing staff and multidisciplinary team and patients are some of the findings in this case study.

Chapter 6: This chapter provides several recommendations that could improve the current 6-PACK falls prevention program in the medical ward. Communication strategies between nursing staff, nursing staff and multidisciplinary team and patients are recommended to decrease injurious falls and improve patient hospital experience and safety.

Chapter 7: The final chapter discusses the research findings and outlines the limitations and recommendations for future studies. The case study revealed that the patients had minimal understanding of the implemented falls prevention strategies and were not engaged in their falls prevention brochures/plans. There are multiple factors such as lack of resources, breakdown of communication, patient's diagnosis that impacted the delivery of nursing care.

The nursing staff require further professional development to identify and document patients at risk of falls, and how to accurately connect the bed/chair alarms and item six (Age) on the falls risk assessment tool requires modification to reflect the current patient cohort.

1.12 Conclusion

Inpatient falls remain a significant safety issue in acute care hospitals worldwide, including in the medical ward where this case study was conducted and provided the impetus for this research. The study is a mixed methods case study which aims to identify the contributing factors to inpatient falls in the medical ward. It identifies one overarching research problem with five sub-research questions which are placed in the context of an acute care hospital setting in Victoria, Australia. It describes the issues surrounding nurses' adherence to the 6-PACK falls prevention program, their perception of the contributing factors to inpatient falls, and patients' perceived factors that led them to fall in the medical ward. This will, in turn, improve patient safety and the provision of quality patient care by decreasing the serious injuries related to falls in the medical ward.

Various factors contribute to inpatient falls in an acute care hospital. The Inpatient Falls Prevention model of *Care Setting, Delivery of Care and Care Coordination and Quality of Patient Care* measures was employed to understand the organisational, nursing and patient contributing factors. For instance, patient falls can be caused by the level of nursing staff knowledge, the culture of the ward, environmental factors, and available resources. The patient's perception of their falls risk, behaviour and active engagement in their falls prevention plan all contribute to them experiencing a fall.

The following chapter, **Chapter 2** is the literature review which focuses on falls in the acute care setting, the issues surrounding falls, the contributing risk factors, and the identified (6-PACK program) falls prevention risk assessment tool, patient falls prevention brochures, and the six falls prevention strategies. It

also examines the barriers and enablers from the nurse, and patient perspectives on falls prevention and management are included and provides a critique of the literature relevant to this research study.

Chapter 2: Literature review

2.1 Introduction

The literature review examines the various patient risk factors which contribute to inpatient falls and their cost to acute care hospitals globally. There is strong agreement in the literature that nurse documentation, knowledge, and attitude play an important role in patient falls prevention, as does the components of 6-PACK falls prevention program used in Australian acute care hospitals (Barker et al., 2016).

Patient perspectives on what contributes to their fall, and how this information is utilised in shaping the acute care hospitals' falls prevention and management programs are discussed. Furthermore, the literature review explores the recommendations of the ACSQHC, the reliability and validity of the 6-PACK program, and commonly used falls risk assessment tools. The chapter also explores the Donabedian model as a framework in falls prevention and management.

2.2 Narrative review of the falls literature

To identify the literature for this case study, a narrative review was conducted. Narrative reviews are broadly used in medical literature (Baethge et al., 2019) and in a wide range of disciplines (Bastian et al., 2010). They enable the researcher to investigate and present individual and collective experiences in all their complexity and richness (Mertova & Webster, 2020).

The narrative review allows the researcher to consider and critique the body of existing literature (*Systemic Reviews & Other Review Types*, 2020), the current gap in knowledge and combine it into a comprehensive discussion

(Frederiksen, 2017). The PICOT (participants, interventions, comparisons, outcomes, time) framework commonly used in evidence-based practice in medicine and nursing (Casey et al., 2017; Bosch & Lorusso, 2019) was utilised to formulate keywords and search terms. It can help formulate clinical question/s and literature reviews and can be applied to both quantitative and qualitative approaches with slight modifications (PICO: population, interest and context) (*Systemic Reviews in Health Sciences*, 2020).

A thorough search of the literature on falls prevention was conducted as part of this review. The databases explored were PubMed (Medline), CINAHL (Cumulative Index of Nursing and Allied Health Literature) via the EBSCO platform and Scopus from 2000 onwards. From the literature search, a reference list of all relevant full copy articles of the 6-PACK falls prevention risk assessment tool studied the origins of, and developed knowledge about the topic, and identified experts and organisations that specialise in using this tool. The 6-PACK falls prevention risk assessment tool, the organisations who used this tool and the identified experts who studied this tool was further checked through a comprehensive search of two databases. First, the Google scholar search engine was searched for relevant articles to expand on the knowledge of the topic and identify new ideas to assist with its development. Then, to ensure there was no omission in the key articles, the Victoria University Library's Unified Search Engine (https://www.vu.edu.au/library) was utilised to carry out a basic keyword search on the main topic of *falls prevention,* for English language, research-based articles and peer reviewed journals.

This search resulted in over 1200 peer reviewed full text articles. A comprehensive search was conducted via the following keywords and terms with MeSH (Medical Subject Headings) within CINAHL and Medline using the Boolean Method of OR and AND. The key words and search terms are identified in Table 2.1 and helped to pinpoint relevant databases best suited for this case study.

The Donabedian model search term resulted in five hundred and thirteen peer review full text articles via CINAHL, MEDLINE Web of science. The search was further refined by Donabedian AND falls prevention or preventing falls or prevent falls or reduce falls and resulted in four full text articles.

Table 2.1: PICOT framework for literature review			
Acronym	**Definition**	**Keywords**	**Search terms**
P	Patient, population or problem	*Inpatients who experienced a fall, medical ward, acute care hospital*	Falls* OR inpatient OR adults OR hospital* OR "acute care" OR falls prevention OR risk factors AND
I	Intervention, exposure and interest	*6-PACK falls risk assessment tool, nurses' documentation*	6-pack falls risk assessment tool OR "6-pack program" OR "risk assessment tool" nurses OR nursing staff OR documentation AND
C	Comparison or control group and context	*Falls rates and comparison of falls rate with peer acute care hospitals, patients' experiences and nurses' perception*	falls OR "accidental falls" OR wounds OR injuries OR fractures OR patient experiences OR patient attitudes OR Nurses perception AND
O	Outcome	*Falls outcomes, patient experiences*	Reduced number of inpatient falls OR "Accident Prevention methods" OR "Accidental Falls prevention and control"
T	Time frame, duration	*Within past 20 years*	2000-2020

2.3 Falls risk/contributing factors

There is substantial literature both in Australia and internationally on patient falls in hospitals. The literature identifies a number of risk factors that contribute to patient falls in an acute care hospital, and that the risk of patient falls increases as these risk factors accumulate (ACSQHC, 2009). Sillner et al. (2020) examined seven USA and three Australian studies highlighting the

complexity of the relationship between delirium and falls, and the issues related to risk assessment tools, and concluded that it was impossible to identify or link a single definitive risk factor to patient falls.

There are two types of risk factors which contribute to patient falls: intrinsic and extrinsic. Intrinsic factors are classified as internal to the patient's system such as balance disturbances, sensory impairment, weakness, gait dysfunction (Murphy et al., 2008), increased age (Bhattacharya et al., 2016; Ravindran & Kutty, 2016) previous falls, mental status, acute or chronic illnesses (Tzeng & Yin, 2008), delirium, dementia, urinary impairment and incontinence (Slade et al., 2017; ACSQHC, 2009). The extrinsic risk factors are external to the patient's system and are associated with the environment, such as inappropriate footwear, design of the toilets or bathrooms (Tzeng & Yin, 2008), medications (Browne et al., 2014) and more than 19 days hospitalisation (ACSQHC, 2009). A more recent study highlighted the importance of patient trust and found that some patients may not have confidence in the healthcare clinician, and therefore would refuse to comply with health promoting activities (Bowden et al., 2018). The patient's fear of falling (Gettens et al., 2018) and impaired nutritional state (Lackoff et al., 2019) could potentially increase the risk of falls.

Most falls are caused by the interaction of intrinsic and extrinsic patient risk factors in the hospital setting. A retrospective case-control study conducted in Norway revealed that patients' risk of falls increased with age (50%), poor balance (21%), very poor balance (19%) mobility and use of antidepressant /antipsychotic and antiepileptic drugs, compared to patients who did not experience a fall (de-Groot et al., 2019). These findings are consistent with the studies of Poh & Shorey (2020) and Kim et al. (2019) and indicate that the most clinically important risk factors were age, balance, and the effects of medications. These studies strongly align with this current case study, as the patients who are admitted to a medical ward are between the age brackets of 60-89 some of whom require assistance with ambulation due to impaired

balance. Also, the impaired balance and mobility are included in the TNH-STRATIFY falls risk assessment tool which is part of the 6-PACK program. As nurses are the primary clinicians who update the tool, this case study will identify nurses' perceptions of the barriers to implementing falls prevention interventions in the medical ward.

2.3.1 Medications and dementia influencing falls prevention

Medications and dementia are important contributing factors in patient falls. Browne et al. (2014) found that 80% of medications which required interventions to prevent falls were among anti-emetics, opioid analgesics, anti-cholinergic agents acting on the bladder and benzodiazepines/hypnotics. Similarly, a systemic review conducted by Seppala et al. (2018) suggests that anti-depressants, antipsychotics, and benzodiazepines significantly increase the risk of falls. The 2019 Beers Criteria published by the American Geriatric Society (2019) recommends avoiding anti-epileptics, antipsychotics, benzodiazepines and related medications, hypnotics, tricyclic antidepressants, selective serotonin reuptake inhibitors, and opioids in older people with a history of falls and fractures. Khalifa (2019) advocates reducing the dose or close monitoring of patients who are on sedatives, as these medications cause reduced sensorium and impaired balance. The ACSQHC (2009) guidelines recommend that patient medications are reviewed on admission, during hospitalisation, on discharge and after a fall. A multi-centre case-control study by Maly et al. (2020) investigated the effects of pharmacotherapy on the risk of falls in a hospital setting and found that certain medications increase patient risk of falls and linked the medications with patient diagnosis such as dementia.

Patients with dementia are at significant risk of experiencing a fall. Dementia is defined as a syndrome which impacts on the person's memory, behaviour, cognitive functioning and ability to undertake activities of daily living (WHO, 2020). Visual impairment, urinary incontinence, spatial or memory functions as well as the use of walking aids are all contributing factors to falls for patients

with dementia (Maly et al., 2020). A prospective study conducted by Wolf et al. (2018) examined the frequency of hospitalisation among cognitively intact compared to cognitively impaired patients in eight German hospitals and found that patients with dementia had higher complication rates such as falls, incontinence, increased behavioural and psychological symptoms, the necessity for tranquilizers and psychiatric consultations and increased length of stay in hospital.

A systemic review by de Vries et al., (2018) found that loop diuretics significantly increases the risk of falls. However, a recent study conducted by Noh et al. (2021) found diuretics excluding loop diuretics were associated with increased inpatient falls. These studies are relevant to this case study, because the medical ward has a secure section for patients who have dementia and behavioural issues, as well as a section allocated for dialysis patients who are on multiple medication and diuretics. So, it is imperative to identify which medications could potentially increase inpatients' risk of falls.

It was reported by de-Groot et al. (2019) that antipsychotic and antidepressant medications were found to increase the risk of falls, possibly because antipsychotic medications are used for patients with dementia, confusion, restlessness and sleeping disorders; but the study did not correlate this with increased risk of falls due to antipsychotic medications. The study (de-Groot et al., 2019) further asserted that at the time of the falls, the risk factors can be the state of the patient's confusion and physical weakness. Similarly, a nationwide study of 906,422 Norwegians found that hip fractures increased for patients who used antidepressant medications (Bakken et al., 2013). Therefore, the diagnosis and use of antipsychotic, antidepressant and hypnotic drugs can be an indicator when assessing the patient's risk of falls in the medical ward, where this current case study was conducted.

Evidence on medication-related falls risk is not integrated into all falls risk assessment tools. A two-year retrospective study conducted by Michalcova et

al. (2020) found that medications were not included in the routine falls risk assessment and recommended incorporating a medication-related falls risk indicator in the risk assessment tools. Callis (2016) highlighted that the three most commonly used falls risk assessment tools (Hendrich Falls Risk Model II (HFRM II), Morse fall Scale (MFS) and St. Thomas Risk Assessment Tool (STRATIFY) did not include any indicators to prompt nursing staff to assess medications such as opioids, hypnotics, cardiac medications, and diuretics. Medication assessment is not included in the 6-PACK falls prevention risk assessment tool that is used in the current study. Incorporating medication-induced fall risk in assessment tools could improve the accuracy of fall risk assessments and reduce the falls rate.

2.3.2 Organisational factors, supervision, and unsafe acts

A multi-case analysis by Watson et al. (2019) in an acute care hospital revealed four categories (*organisational factors, supervision, preconditions and unsafe acts*) as contributing factors in the occurrence of patient falls. Watson et al.'s study closely aligns with this current case study, as both studies utilise a case study approach with multiple falls data analysis. The findings from this case study are discussed in detail below as it provides a useful model in relation to falls prevention and management in acute care hospitals.

Watson et al. (2019) identified organisational factors as a major contributor to inpatient falls. They examined nurse workload, patient-nurse ratios, high-risk areas and time in order to allocate resources to maintain patient safety. They found that staffing levels should be tailored to patient needs during high-risk times, and in high-risk areas such as neurology and medicine (Watson et al., 2019). A cross-sectional study conducted by Staggs and Dunton (2014) agreed that lower nursing staffing levels were closely associated with unassisted falls and increased falls rates experienced by inpatients in the medical units compared to surgical and rehabilitation units.

Similarly, studies conducted by Bowden et al. (2018) and Kim (2019) assert that the number of falls decreased when patient-nurse ratios were met. Bowden et al. (2018) further found that falls occurred even with experienced nurses providing care and were not limited to just novice nurses. It was of note that Watson et al.'s (2019) study utilised a workload analyst along with administrators to examine the nurses' workload, patient-nurse ratios, the high-risk areas and times according to patient needs to reallocate resources to maintain patient safety. This could be an effective strategy for reducing falls in all acute care hospitals; hence these factors have been included in the current research.

A further organisational factor was a *lack of clear policy concerning restraints and the use of bedrails* (Watson et al., 2019). Restraints were commonly used by hospitals to prevent falls and injuries related to falls in patients with cognitive impairment to control intrusive/disruptive behaviour or even to compensate for the shortage of nurses (Chou et al., 2020). Patient transfer to another bed or ward was also a contributing factor to inpatient falls because with each patient move to a different room or ward, their risk of delirium increased, which in turn increased their risk of falls (Watson et al., 2019).

However, the ineffectiveness of restraints, the ethical issues around disrespecting a patient's independence and dignity and the injuries sustained due to restraints, have all led organisations to use bed/chair alarms (Wong Shee et al., 2014). The ACSQHC (2009) states that due to the shortage of nursing staff, patients with dementia should not be subjected to alarms, and when alarms are employed, patient autonomy should be maintained. Staffing levels, moving patients to different rooms and using restraints are interconnected in this case study, as cognitively impaired patients in the medical ward are nursed in tub-chairs in front of the nurses' station, until a patient 'sitter' or 'special' is accessed to supervise them.

2.3.3 Clinician communication challenges

Watson et al. (2019) identified ineffective communication among clinicians and patients as a key factor to inpatient falls, and the lack of awareness of patient needs meant that staff were unfamiliar with the contributing falls risk factors for patients. Tzeng et al. (2011) also found a relationship between inadequate communication and injurious falls, while Carroll et al. (2010) recommended more effective communication between nurses and patients to minimise falls. Communication failure within the multidisciplinary team could potentially increase errors and reduced patient outcomes due to inadequate treatment plans. Watson et al. (2019) suggested the use of a new communication tool called Communication Enhancement Model (CEM) to promote patient safety, but they failed to provide statistical data to prove its validity and reliability. Consequently, comprehensive patient care depends on effective communication among healthcare professionals, patients and their families. Therefore, patient-nurse communication methods are addressed in this research study.

Patient mobilisation from bed to chair without nurse assistance, and improper use of the call-bell are contributing factors to inpatient falls (Watson et al., 2019). Tzeng et al. (2012a) investigated the contribution of call-bell response time in predicting falls and injurious falls, and found a correlation between the two, suggesting call-bell monitoring should be incorporated into evidenced-based practice guidelines. Comfort rounding, a structured process that involves checking and providing the fundamental care requirements of patient every one to two hours (Sims et al., 2020), was suggested. It focuses on six "Ps" (pain, personal care, positioning, pumps, possessions and promise) and aligns with the approach of many organisations to patient safety to prevent patient mobilisation without nurse assistance (Watson et al., 2019). In contrast, LeLaurin and Shorr (2019) highlighted that despite implementation of rounding across organisations, difficulties with adherence and sustainability due to increased workloads, incomplete documentation, competing priorities and lack of buy-in by nursing staff were widely reported.

Watson et al. (2019) demonstrated the importance of answering patients' call bell in a timely manner; in one instance the *"patient rang the call bell 19 times"* before they attempted to walk unassisted and fell (Watson et al., 2019). Hill et al. (2015) also identified the call bell as a critical component in maintaining ambulating safely and the importance of placing the patients' call bell within reach. The effectiveness of the rounding conducted by night nurses and the impact of patient call-bells on injurious falls in the medical ward is specifically addressed in the nurse focus group discussions and patient interviews to ascertain their significance in an Australian context in this current research study.

A greater understanding of the setting and behaviour surrounding patient falls helps identify the risk factors, so that falls prevention programs can be effective and sustainable. The multi-case study conducted by Watson et al. (2019) provides valuable insights into the contributing factors of falls and offers an effective approach for inpatient falls and policy and intervention reforms required to reduce falls.

2.3.4 Delirium and falls risk assessment tools

Delirium is described as cognitive impairment, where a patient concentrates on one aspect of the environment and ignores other stimuli (Sillner et al., 2020), and as "rapid onset of variables and fluctuating changes in mental state" (ACSQHC, 2009, p. 50). Patients with delirium are at high risk of falls. The inconsistent meaning of the term "delirium" among falls risk assessment tools, and clinicians' under-use of delirium screening tools makes it difficult to compare across the healthcare system (Sillner et al., 2020). Babine et al. (2018) found that a cognitive deficit increases the patient's risk of experiencing a fall, based on a retrospective observational study performed over three months (11/2009-1/2010 and 8/2012-11/2012) in two different intervals. The study revealed that patients who experienced a fall often showed signs of delirium, either at the time of the fall or one day prior to fall, but the nursing staff had

difficulty recognising the fluctuations of delirium (in acute care settings) because continuity of care was interrupted by shift work. These studies closely relate to the current case study, where many inpatients admitted to the medical ward have cognitive impairment. The falls risk assessment tool includes assessment of patients' 'Mental State' which includes the terms 'confused, agitated, intellectually challenged or impulsive' to identify the patients' risk of falls.

Sillner et al. (2020) and ACSQHC (2009) recommend that consideration should be given to include delirium, and to streamline the algorithms to re-evaluate the assessment, prevention and management of falls and delirium, by highlighting that it is common among patients who fall. Nursing staff are the frontline clinicians who spend the most time with patients, and the authors argue that it is crucial that nursing staff embed early identification of delirium and incorporate its prevention and treatment into their practice in the medical ward to reduce fall related injuries.

2.3.5 Fear of falling

The patient's fear of falling was identified as a contributing risk factor to patient falls. It is defined as a person not undertaking activities of daily living due to worrying about falling seriously, which in turn increases their dependence and risk of falls over time (Soysal et al., 2021). ACSQHC (2009) guidelines highlight that it is a common and frequently undetected problem, and nursing staff should focus on patients' concerns to identify their fear of falling. Spetz et al. (2015) reported that even in the absence of injury, some patients develop a fear of falling, lose their confidence, and suffer permanent loss of independence and injuries (such as fractured wrist, hip, head) that may even lead to death. A similar mixed methods study by Boltz et al. (2014) found that fear of falling adversely influenced the patient's physical activity, mobility and functional performance. Honaker and Kretschmer (2014) found that 78% of patients avoided activities inside the house (such as cleaning, gardening) and 92% outside the house (such as dancing, dinners or attending sporting events) due

to the fear of falling. In addition, patients reported that increased support was required from family members to assist with activities of daily living and for some, the fear of falling consumed their day.

Gettens et al. (2018) found that patients had different points of view regarding their fall. Some considered themselves as not at risk of a fall even though they were identified as high falls risk and had a fall, and these patients were aware of their risk of fall. Patients explained that having nursing staff around provided a sense of security. The findings of the previous two studies (Honaker & Kretschmer, 2014; Gettens et al., 2018) were supported by Lim et al. (2018) who found that some patients refused to believe they were at a high risk of falls and described their fall as "sitting down" instead of falling down. Moreover, they were reluctant to tell their family members about their experience to avoid worrying them. Some patients did not seek assistance from nursing staff due to not wanting to be a burden the nursing staff because they were busy attending to other patients. Patient retention of falls prevention education was identified as low. As these studies highlighted the need to examine patient education, this current research study will investigate the effectiveness of the patient falls prevention education.

Boltz et al. (2014) found that the fear of falling had an impact on patients' physical functioning from admission to discharge. Fearing vulnerability, maintaining autonomy and independence and interpreting risk also featured in McMahon et al.'s (2011) study. Fearing vulnerability had multiple dimensions such as fear of falls, the fear of pain due to falls, the fear of physical functional loss, the fear of loss of independence and the personal failure and feeling of embarrassment when asking for assistance. It was evident in-patient interviews that they stopped undertaking activities such as gardening and asking for assistance from their family and friends due to embarrassment. Maintaining independence was important for patients in order to engage in their desired activities, which often took precedence over taking the risks. If patients considered there might be a threat to their autonomy, self-control or

independence they did not adhere to their falls prevention plan (Hill et al., 2016). In the current case study these barriers are explored during the patient interviews and focus group discussions with the nursing staff on the medical ward.

One of the greatest fears of nurses is patients falling and sustaining an injury. A study by Kirkpatrick et al. (2014) found that nurses fear patients falling in bathrooms and cluttered environments and experienced a tension between maintaining patient autonomy, privacy and safety. Fitzgerald et al.'s (2016) longitudinal study observed a close relationship between nurses' fear of patient falling and restraint use, which in turn resulted in patients sustaining a fall-related injury. Also, nurses fear of patients falling hindered patient ambulation (Chan et al., 2020). It is evident that not only patients' fear of falling, but also nurses' fear of patients falling plays an important role in patients' quality of care and falls prevention.

To minimise hospital falls, a shift from injurious falls prevention to a new paradigm of falls prevention is required. The 6-PACK RCT revealed that in order for falls prevention to be successful, acute care hospitals should shift their focus from falls with injuries to developing falls prevention strategies that will address all falls, because the increased length of stay (LOS) and healthcare cost are related to both falls and injurious falls (Morello et al., 2015). When a patient experiences a fall, their treatment plan and discharge plan changes regardless of whether or not they sustained an injury. As described previously, when a patient experiences a fall, they develop a fear of falling and loss of confidence and independence which subsequently impact on their recovery time and discharge. Interestingly, Morello et al. (2012) speculated that falls are due to patients' LOS, and reflection of determination in an individual's health rather than cause it.

In summary, studies indicate that falls occur due to various factors; hence the reason why best practice guidelines recommend falls prevention interventions should be multifactorial (such as placing the alert sign above the patient bed, bed and chair alarms, and low-low beds). Identifying the underlying cause of falls (such as delirium, patient/nurses fear of falling, unsteady gait) may potentially decrease the patient experiencing a fall in acute care hospitals. Changing the focus point might be the first step towards achieving greater success in falls prevention. Since nursing staff are the frontline clinicians who assess patients' falls risk, it is crucial for nursing staff to understand the intrinsic and extrinsic patient risk factors, as well as the ward culture and behaviour of the patient to mitigate the risk of falls associated with serious injuries and prevent the occurrence of a future fall.

2.4 The Australian National Safety Quality Health Service Standards and falls prevention management

The Australian National Safety and Quality Health Services Standards (NSQHSS) (2011) is a framework that sets the benchmark for all hospitals to align their quality improvement programs. The standards have heavily influenced the actions, processes and quality improvement projects that hospitals are required to undertake. In the context of falls prevention in an acute care hospital setting, standards have been developed to help reduce the incidence of patient falls and minimise harm from falls when they occur.

The ACSQHC (2009) published the *'Preventing Falls and Harm from Falls in Older People - Best Practice Guidelines for Australian Hospitals'* to minimise falls and harm from falls to inpatients. In response, in 2011 the first edition of "The National Safety and Quality Health Service [NSQHS] Standards" were developed by the ACSQHC in consultation with the Australian Government, state and territories, clinical experts, and patients (ACSQHC- *Safety and Quality Improvement Guide Standard 10*, 2012a). The aim of the ten NSQHS Standards was to improve quality healthcare by indicating the required level of

care and structures of all healthcare organisations to deliver outstanding patient care. Standard 10, Preventing Falls and Harm from Falls, provided guidelines for organisations and clinicians on falls prevention and management. In 2017, the second edition of the NSQHS Standards addressed the identified gaps in the first edition and condensed the standards to eight NSQHS Standards (ACSQHC- *National Standards and Quality Health Service Standard*, 2017). There has been increasing pressure on Australian hospitals with the new NSQHS Standards to deliver patient focused care and falls prevention. The standards have also identified the barriers and enablers which are a significant part of the solution for hospitals. In the second edition, falls prevention was incorporated in Standard 5 - Comprehensive Care. The search of the literature did not uncover any critiques of the robustness of these standards; rather, the studies focus on alignment with the national standards.

The ACSQHC (2009) guidelines report that most falls occur during the day when staffing levels are at their highest and there is an increase in concurrent workloads. However, there are slight discrepancies between the ACSQHC (2009) guidelines and current research literature. An observational study reviewing the electronic incident reporting system and medical records conducted in medical, surgical and rehabilitation wards by Decalf et al. (2019) found that the incidence of falls was high with nocturnal toileting. Similarly, a recent systemic review by Sillner et al. (2020) and a multi-case analysis by Watson et al. (2019) indicates similar results. The guidelines do not address falls occurring at nights due to nocturnal toileting. Consequently, this issue is investigated as part of this current research study.

The ACSQHC guidelines do not include the nutritional status of patients and the link to inpatient falls. Lackoff et al.'s (2019) five-year observation study identified an association between malnutrition and reduced mobility which may inadvertently increase the risk of falls. It found that malnutrition was an independent predictor for malnourished in-patients and they were eight times more likely to sustain harm from a fall. Similarly, a retrospective observation

study by Ishida et al. (2020) found that malnutrition was a contributing factor for in-hospital falls. The Victoria State Government (2016) *fall prevention in hospital* website recommends that patients' nutritional needs should be addressed and referral to dietitians should be considered. However, malnutrition is not reflected in current falls prevention in the ACSQHC-NSQHS and best practice guidelines.

The feasibility of the implementation of the NSQHS Standard is examined in the two following research studies which address the implementation of the first and second edition of the NSQHS Standards. Twigg et al. (2013) asserted that the implementation of the NSQHS Standards depended on the characteristics of nurses' uptake of falls prevention and management, as 62% of hospital workforces consist of nurses. They described the significance of a shortage of nurses and how this would continue to rise from 20,079 nurses in 2016 to 109,490 by 2025, in order to draw attention to the potential risk on the healthcare system and patient outcomes. This estimate is supported by a cross sectional study across ten USA hospitals (Kalisch et al., 2011) that found a significant correlation between nursing staffing levels and direct patient outcomes.

These estimations highlight the need to increase the number of nurses internationally as well as in Australia. Support of the implementation of these national standards with an adequate number of nurses can be improved through more varied delivery programs to educate nurses, including simulated-based programs in initial education and in professional development.

Such programs are effective in achieving greater patient and staff outcomes. Andersen et al.'s (2019) paper *"Using observational simulation teaching methods in professional development to address patient safety"* reviewed the second edition of the NSQHS standards. They employed an innovative mixed-methods approach to evaluate the effectiveness of the teaching simulation video artefacts used for mandatory professional development for patient safety

and health outcomes. It included falls prevention, medication administration, hospital acquired infection control and clinical handover standards.

There is a strong evidence that simulation-based education in a healthcare setting improves patient-centred communication skills (a systematic review) (Kaplonyi et al., 2017), increases team performance to improve patient outcomes (Hill et al., 2016; Low et al., 2018), and provides workshops to focus on patient-centred falls prevention strategies for health professional students to implement during clinical placement (Kiegaldie et al., 2019).The RCTs conducted by Hill et al. (2009) and Kuhlenschmidt et al. (2016) support previous studies that the effectiveness of video simulation-based education on patient uptake of information about falls prevention is greater than a paper-based leaflet. The results of this study indicate that there was an overall significant reduction of falls in all clinical safety areas. As nurses are the forefront clinicians, it is vital that education in-service should focus on staff knowledge deficits to address patient safety measures to improve patient outcome.

Overall, in the context of safe delivery of health care, the NSQHS Standards frameworks are imperative in preventing the patient and community from injury and improving the quality of health service provision. However, further research is required to measure the feasibility of implementation and to test the effectiveness of the criteria identified under falls prevention (national) standards to assess if there is a reduction in the incidence or number of patients' falls or whether the harm from falls is minimised. Also, the impact of patient nocturnal toileting and malnutrition on falls and injurious falls needs to be investigated.

This comprehensive analysis of the literature has identified the contributing falls risk factors and the cost of falls to healthcare system. The chapter will now explore the different falls prevention risk assessment tools and the 6-PACK program.

2.5 Falls prevention risk assessment tools

There are several falls prevention risk assessment tools used, in Australian hospitals: STRATIFY, TNH-STRATIFY, Ontario Modified STRATIFY (OM), Henrich Fall Risk Model II (HFRMII), Austin Health Falls Risk Screening Tool' (AHFRST) and Falls Risk Assessment Tool (FRAT). These tools are essential in identifying and mitigating patients' falls risk by implementing strategies and STRATIFY is the most researched and effective of these tools. According to ACSQHC: Implementing the Comprehensive Care Standard (2018b), there are many risk assessment tools available but their variations restrict the ability to compare them. The other concern is the reliability and validity of tools that have not been validated. It was reported in Australia (ACSQHC, 2009) that many hospitals use non-validated falls risk assessment tools that organisations developed themselves which can be detrimental because they may not classify high falls risk patients accurately. In summary, the ACSQHC were unable to recommend one comprehensive risk assessment screening tool due to variations between them, or to suggest if the tools currently in place were efficient in contributing to better patient outcomes.

When evaluating falls risk assessment tools, there are four components. The level of assessment of the patient's risk of fall is indicated as low or high and considers if the patient fell during the current admission. This level of assessment is described as *accuracy* by DiGerolamo & Davis (2017). This *accuracy* is further evaluated by *sensitivity,* which measures the patient's risk of fall and if the patient has fallen. *Specificity* evaluates how well the tool identifies the patient as having a low risk of falls and the patient does not fall. There is also, *positive* and *negative predictive value. Positive predictive value* predicts the probability that a patient who is scoring as high falls risk will experience a fall during current admission and *negative predictive value* predicts the patients who is classified as low risk will not experience a fall (DiGerolamo & Davis, 2017).

STRATIFY is commonly used in acute care and subacute rehabilitation settings as it has demonstrated to have accuracy in classifying high falls risk patients (ACSQHC, 2009). Therefore, this case study will focus on St Thomas's Risk Assessment Tool in Falling Elderly Inpatients (STRATIFY) because the TNH-STRATIFY falls risk assessment tool (which is part of the 6-PACK program) is derived from STRATIFY. The STRATIFY falls risk assessment tool was developed by Oliver in England (Oliver et al., 1997) and is used by Australian, European and Canadian hospitals as part of patients' falls prevention plans (Oliver et al., 2008). It consists of a 0-5 scoring system, with Yes indicating 1 and No as 0. A score greater than 2 or more identifies the patient as high risk of falls (Oliver et al., 2008). The tool assesses whether the patient is admitted with a fall or had a fall during current admission. It reveals if the patient was agitated or if there are any visual impairment which impacts on their activities of daily living. A patient's need for frequent toileting, transfer and mobility is also assessed using a score of 3 or more with the Barthel scoring system (Webster et al., 2009).

The STRATIFY tool is very useful as it identifies the risk factors for falls. Oliver et al. (1997) conducted a control case study in a 700-bed teaching hospital in London and found that STRATIFY identified elderly patients who were at low risk of falls and predicted the patients who were not at risk of falling. Correspondingly, a meta-analysis conducted by Aranda-Gallardo et al. (2013) demonstrated STRATIFY had a higher diagnostic validity in assessing the risk of falls among hospitalised, acutely ill adult patients. The high predictive accuracy of the tool resulted in its being recommended for use in best practice guidelines (Barker et al., 2011a), and is the main reason why it was adapted as part of this investigation. However, there are a few drawbacks with STRATIFY. A meta-analysis conducted by Oliver et al. (2008) demonstrated that it had a lower ability to predict fallers than an earlier study conducted by Oliver et al. (1997). The author concluded that STRATIFY is a generic falls risk assessment tool that can be used with elderly patients with multiple comorbidities. However, patients that present with other risk factors, for example patients with diagnosis of stroke, require more disease specific predictors in falls assessment and

STRATIFY needs to be adapted to capture these patients (Smith et al., 2006). Another criticism of Oliver's STRATIFY study was that Castellini et al. (2017) found the risk assessment tool was not adequate in identifying two thirds of fallers in a teaching hospital in Italy, and so the predictive accuracy and external validity was not transferable to every hospital inpatient population. It therefore leads to unnecessary implementation of limited falls prevention interventions. Despite mixed findings of the validity and effectiveness of the tool, STRATIFY was recommended in the regional guidelines of the Italian Health Ministry's proposal as a reliable tool.

In summary, the ACSQHC (2018b) mandates organisations to utilise a validated and reliable falls risk assessment tool to identify on admission hospital patients who are at risk of falling, and in turn implement targeted falls prevention strategies to reduce the number of falls and fall injuries. However, there are significant discrepancies between studies and recommendations among findings with the STRATIFY falls risk assessment tool, identified by the ACSQHC-Implementing the Comprehensive Care Standard Report (2018), as one of the most reliable tools. The STRATIFY falls risk assessment tool has been subjected to multiple validation studies since its development, and these studies have demonstrated that the inconsistent predictive accuracy of the tool. As 6-PACK program utilises the modified STRATIFY falls risk assessment tool, the following will explore the 6-PACK program.

2.6 The 6-PACK falls prevention program

The 6-PACK nurse led falls prevention program consists of a nine-item TNH-STRATIFY Falls Risk Assessment Tool, six strategies and patient education. Falls prevention programs, risk assessment tools and patient education are identified as key elements in the prevention of falls in acute care hospitals.

The 6-PACK falls prevention program has been studied since its implementation in acute care hospitals. Following Barker et al. (2009) claim of the effectiveness of this program, in 2011 its efficacy was tested as part of the world's largest falls prevention randomised controlled trial (RCT) among 24 wards in six hospitals in Australia. The TNH-STRATIFY falls risk assessment tool was implemented as part of the 6-PACK program. The aim was to determine the cost effectiveness in reducing falls and fall related injuries, identifying the barriers and enablers, and sustainability of the program (Barker et al., 2017). If the program was deemed effective, it would be implemented across acute care hospitals to prevent fall related injuries (Barker et al., 2011b). The case study therefore explored the effectiveness of the 6-PACK program in a medical ward.

Barker et al. (2011b) describe the 6-PACK program as being successful in reducing injurious falls in acute care hospitals, and this is based on their earlier observational study over a nine-year period (Barker et al., 2009). The authors reported a 25% reduction in the first year of implementation, which was followed by further 50% reduction in the second year with a sustained decrease in the number of fall related injuries for five years with 271,095 patients (Barker et al., 2011b). However, the study conducted by Barker et al. (2009) demonstrated a fluctuation in the falls rate over the nine years, and no change was observed in the falls rate between pre and post implementation of the program. This then challenges the effectiveness of the tool. Barker et al. (2011b) failed to mention in that the total number of falls increased throughout the study period (from 300 in 2002 to 404 in 2007) as demonstrated in the Barker et al. (2009) publication. The authors speculated that the reason for this increase was improved nurse awareness of patient incidents and reporting. In addition, all reported falls that were incorporated into training sessions and the incident reporting system was changed from paper to computer-based reporting.

One of the aims of the 6-PACK cluster RCT was to assess if the program would reduce the number of falls and injuries related to falls. The findings from the 6-

PACK cluster RCT revealed that there was no change in the number of falls and fall related injuries between the control and intervention wards (among 24 wards, in 6 different Australian hospitals), despite staff compliance with completion of the risk assessment tool and implementation of the strategies (Barker et al., 2016; Morello et al., 2017). Barker et al. (2016) believe there was no contamination of data because the rate of falls was similar to the pre-trial baseline report.

For falls prevention to be successful, an important factor is the engagement of nursing staff. After conducting nurse focus group discussions and a survey, Barker et al. (2017) suggested that nursing staff believed that the 6-PACK program was suitable, practical and beneficial for their designated hospital. Therefore, nurses' perception of the effectiveness of the 6-PACK program is a key component of this current investigation and is explored during the nurse focus group discussions in the study.

2.6.1 TNH-STRATIFY 6-PACK falls risk assessment tool

The basis for acute care hospitals using a risk assessment tool is to identify patients who are most at risk of falls, and implement falls prevention strategies in order to prevent injurious falls; but it is challenging to find a valid and reliable risk assessment tool for acute care hospitals. There have been a number of risk assessment for falls tools developed and modified internationally.

In 2002, the hospital where this case study was conducted developed the Modified TNH-STRATIFY Falls Risk Assessment tool (TNH-STRATIFY) based on the St Thomas's Risk Assessment Tool in Falling Elderly (STRATIFY) as part of their falls prevention program. THN-STRATIFY was developed with the aim of improving faller prediction (sensitivity) by incorporating local falls risk factors to meet the hospital's needs (Barker et al., 2009). The TNH-STRATIFY Falls Risk Assessment tool is employed as part of the 6-PACK falls prevention

program and all future studies in regard to this program were to be conducted by Barker and her team at the Monash Hospital, in Melbourne.

In Australia, The Northern Hospital and the Austin Hospital modified the STRATIFY risk assessment tool to meet their needs by incorporating local falls risk factors, with the aim of improving the sensitivity and specificity of their falls risk assessment tool. A prospective cross-sectional study conducted by Said et al. (2017) demonstrated the predictive validity of 'Austin Health Falls Risk Screening Tool' (AHFRST) compared to 'The Northern Hospital Modified St Thomas's Risk Assessment Tool' (TNH-STRATIFY). The findings demonstrated TNH-STRATIFY (67%) had a better classification than AHFST (55%) in identifying patients as having a high risk of falls and higher sensitivity in indicating the patients who fell. However, both tools had low positive predictive values, as a small proportion of patients were classified as high falls risk and experienced a fall. The study was unable to compare the predictive validity of both tools. The main concern for this study was that for one out of every seven patients the AHFRST risk assessment was not conducted by nursing staff. Taking into consideration that the main driver for the three-item risk assessment tool was to maximise nurses' assessment and documentation compliance, it would have been beneficial if the authors investigated the reasons for non-compliance. Although the TNH-STRATIFY falls risk assessment tool has a better sensitivity in identifying high falls risk patients, the interventions did not produce lower rates of falls and fall-related injuries in the medical ward where this case study was conducted.

Falls are challenging the healthcare system and researchers believe that identifying patients' falls risk may prevent them from falling. For this reason, STRATIFY has had the most extensive prospective validation. Also, other tools were developed such as Ontario Modified STRATIFY (OM), STRATIFY (St Thomas's Risk Assessment Tool in Falling Elderly Inpatients), and The Northern Hospital Modified STRATIFY (TNH-STRATIFY) to improve the

sensitivity and specificity of the STRATIFY falls risk assessment tool (Latt et al., 2016).

To examine the validity of three commonly utilised falls risk assessment tools in Australian acute aged care units, Latt et al. (2016) analysed the OM, TNH-STRATIFY and STRATIFY and clinical variables such as the use of antipsychotic medications and patient presentation with a fall in predicting falls. The OM had similar sensitivity, but significantly worse specificity when compared to TNH-STRATIFY and STRATIFY, which means predicting patients at low risk of falls is an issue when using this tool. STRATIFY had similar sensitivity and accuracy to TNH-STRATIFY but significantly better specificity, which indicates there is no difference between the two tools in identifying patients as high falls risk. Despite this STRATIFY has an advantage in that it also identifies patients who are at low risk of falls, making it more effective than the TNH-STRATIFY tool. All three tools did not differ significantly in predictive value or accuracy, although STRATIFY and TNH-STRATIFY were better than OM.

In summary, although the Australian Commission on Safety and Quality in Health Care (2009) encouraged hospitals to use a validated falls risk assessment tool, it is evident from various studies that uncertainty about the accuracy of these tools in predicting the patient's falls risk makes it challenging. Various risk assessment tools have been developed by different hospitals (TNH-STRATIFY, OM, AHFRST), but no single tool is yet to be adapted globally due to their lack of effectiveness in reducing falls and fall related injuries. Radecki et al. (2018) highlight the importance of more collaborative risk assessment, due to incompatibility between the risk assessment tools identifying the patient as high falls risk, and the patient accepting this risk. The results from the largest RCT, the 6-PACK program and other studies indicate that the falls risk assessment tools have no effect in reducing falls and injurious falls in acute care hospitals. It is evident that the TNH-STRATIFY falls risk assessment tool which is part of 6-PACK program is the most effective falls risk

assessment tool. As the 6-PACK is a nurse-led falls prevention program, with falls being classified as multifactorial, it could be timely to develop a more adaptive tool that engages physiotherapists, social workers, and doctors in the assessment and prevention of falls in acute care hospitals.

2.6.2 The 6-PACK falls prevention strategies: supervise bathroom, toileting regime and walking aids

One of the falls prevention strategies of the 6-PACK program is to make sure high falls risk patients are supervised in the bathroom, toileting regime is commenced with patients who require frequent toileting, and their walking aid is within reach to prevent injurious falls. However, during the 6-PACK RCT focus group discussion nursing staff raised several concerns about bathroom supervision: supervising a patient meant that other patients were left unattended; it was important to maintain privacy of the patient even though this was uncomfortable for some patients and the nurses; and time restraints and practicality of supervision were also mentioned (Barker et al., 2017). The odds of sustaining an injury related to falls in a bathroom was greater compared to other locations (Venema et al., 2019).

In regard to the toileting regime, there were conflicting views between the senior staff and nursing staff. Nurses believed that bedpans were more practical, whereas senior staff believed that a toileting regime was more beneficial (Barker et al., 2017). As indicated in a previous study (Pesonen et al., 2020), there is a strong association between toileting at nights and falls and fractures. A systematic review found that nocturia increases patients' risk of falls by a further 20% and fractures by 32% (Pesonen, et al., 2020). Therefore, as long as patients' toileting regime is maintained, this will in turn eliminate the patient wanting to ambulate without supervision to toilet.

Toileting, in particularly, increases the inpatient's risk-taking behaviour. Radecki et al. (2018) found that the biggest barrier for patients following their falls prevention plan was waiting time for toileting. Even though patients believed that they were at high falls risk, they were willing to take the risk of ambulating to the toilet alone. Haines et al. (2012) concurred that risk taking behaviour was related to toileting. Patients who are prepared to take the risk are of concern because their action of ambulating to the toilet unsupervised, could potentially result in a fall or injurious fall. The extent to which toileting is an important factor in falls will be explored during patient interviews and focus group discussions to understand the reasons why patients may decide to take this risk.

The proximity of patient walking aids was identified as an issue in falls prevention. The 6-PACK RCT focus group discussion revealed some concerns around the benefits of cognitively impaired patients having their walking aid within reach. Some nursing staff viewed this intervention as dangerous as patients could trip over their walking aids, while other nursing staff considered the walking aids gave patients something to hold on to when attempting to walk (Barker et al., 2017). Al-Ani et al. (2010) concur; they found that patients with cognitive impairment preserved their walking ability post-femoral neck fracture when discharged to rehabilitation after surgical intervention. Consequently, cognitively impaired patients benefit from the use of their walking aids within reach when they are an inpatient, and this current case study will further assess their usefulness and the reason for patients to ambulate without assistance.

2.6.3 The 6-PACK falls prevention strategies: Low-low beds and bed and chair alarms

Although 80% of the nursing staff reported that low-low beds were effective in reducing the impact of patient injuries, there were concerns about the practicality, and potential increase in patient and nursing staff injury during focus group discussions (Barker et al., 2017). It was recommended by The Joint

Commission (2017) to 'use beds that can be raised and lowered close to the floor to accommodate both patient and health care worker needs' and to place mats next to the bed if the patient is at high risk of falling, providing the mats do not create a risk of accidents. However, a cluster RCT conducted by Haines et al. (2010) indicated that low-low beds (which is one of the 6-PACK falls prevention strategies) were ineffective in reducing falls and fall related injuries in acute care hospitals. This issue will be explored during focus group discussions and patient interviews.

As falls mostly occur in patient rooms and are associated with exiting a bed or a chair, hospitals commonly use bed and chair alarms (Potter et al., 2017). A pressure sensor pad is placed under the mattress or chair cushion to alert the nursing staff when the patient is exiting the bed or chair in order to avert the fall (Timmons et al., 2019). There were varied views among nursing staff about the benefits of bed/chair alarms. The 6-PACK RCT focus group discussion revealed some nursing staff believed that it was useful in conjunction with other interventions while others argued that the time taken in implementation and trying to fix the broken alarm, and the effort required to rectify the situation was too time consuming (Barker et al., 2017). Shorr et al. (2012) concur; they found that despite increased use of bed alarms in the intervention group, there was no statistically significant effect on the rate of falls, injurious falls and patient restraints. However, a cross-sectional observational study conducted by Potter et al. (2017) demonstrated bed sensor alarms were effective in reducing falls.

The nurses' concerns (supervising bathrooms, low-low beds, bed/chair alarms, toileting regime) raised during the RCT can be viewed as a potential barrier to implementation and achieving the expected outcome for the RCT, but the authors used this information to further develop implementation of the RCT plan (Barker et al., 2017). The implementation of falls prevention intervention is a key component in reducing the number of falls, fall related injuries and maintaining patient safety. However, a study by LeLaurin and Shorr (2020) indicated the lack of reporting on "how the interventions were implemented in published

studies" (p.279) made it difficult to identify which interventions were effective. The implementation of the all six (6-PACK) fall prevention interventions (alert sign, bed and chair alarms, low-low beds, ensuring walking aid is within reach, bathroom supervision and toileting regime) will be explored during the PCCP audit, focus group discussions and patient interviews in this case study.

Barker et al. (2016) highlight those interventions (such as supervising or assisting patients in bathrooms and scheduling toileting regimes and ensuring that walking aids are within reach on the patients' preferred side) are basic care requirements; but there is no evidence from their RCT to suggest these strategies are effective. The studies conducted by Barker et al. (2016), Morello et al. (2017) and Haines et al. (2010) indicate that the 6-PACK falls prevention strategies are not effective in reducing falls and fall related injuries.

2.6.4 Patient education

Falls can have physical and psychological consequences for inpatients, which can lead to different types of impairments: mobility, balance, anxiety, depression (Tse et al., 2019), increased medication use (pain relief), activity restrictions, increased risk of future falls, decreased quality of life (Huang et al., 2015) and increased risk of re-admission (Naseri et al., 2020). Falls can also result in serious injuries in acute care hospitals; for example, hip fractures, subdural haematomas and may even lead to a patient's death (Southerland et al., 2016).

There is minimal literature on patients' perceptions of their falls risk, their understanding of the implemented interventions, and the contributing risk factors in acute care hospitals. This is a gap in the literature. As falls have such a detrimental impact on a patient's quality of life, the reasons for patients not to follow their falls prevention plans in a hospital setting will be part of the patient interviews in this case study.

Patient understanding and perception of their falls risk impacts on their falls prevention program. Sonnad (2014) reported that some patients are reluctant to participate in falls prevention programs, while Hill et al. (2015) highlighted that patients, especially younger male patients who perceived themselves as low risk of falls were unwilling to follow their falls prevention plan. Sonnad (2014) found that nine out of 10 patients who believed they were at risk of experiencing a fall had a previous fall, or were feeling dizzy related to vertigo, or expressed concern due to the equipment that was attached to them. The remainder of the patients believed that they were not at risk of falls and may have overestimated the ability of the nursing staff in preventing their fall. The author emphasised that patients may develop a false sense of security due to outstanding nursing care and not properly understanding their risk of falls (Sonnad, 2014). Heng et al. (2020) agreed that patients perceive the hospital environment as modified for safety and the nursing staff being there to assist them when needed and lacked basic understanding of the factors that contributed to falls. Previous studies (Sonnad, 2014; Hill et al., 2015; Heng et al., 2020) are supported by a prospective qualitative survey conducted by Hill et al. (2016) that found a significant number of patients (64.3%) were reluctant to participate in their falls prevention plan due to their own perception of their recovery process and desire to be independent and self-sufficient. Clearly patients' perceptions of their falls risk impacted on falls prevention and management, and this will be explored in this case study.

However, semi-structured interviews conducted by Radecki et al. (2018) highlighted that patient participants in the falls prevention program were those identified as a high falls risk. Sonnad (2014) concurred; adding that it was usually patients whose physical limitations impacted on their capacity to ambulate independently that participated in these programs. Shuman et al. (2016) found that patients' perception of their risk did not match the actual risk and thought that nursing staff would keep them safe. This is an important finding and there is a scarce literature on this topic; the present case study will address patients' perception of their falls risk and if they actively participate in their falls prevention plan.

Patients' perceptions of falls risk can be influenced by increasing their awareness. One-on-one patient education revealed that falls could be reduced among cognitively intact patients by setting goals and modifying activities to suit their needs (Haines et al., 2012). Similarly, a scoping review on patient education noted a correlation between patient outcomes and the delivery and quality of the education by nurses (Heng et al., 2020). These authors highlighted the importance of well-designed education programs for increasing patients' awareness of their falls risk and empowering them to take ownership in reducing their risk of falling.

Tzeng and Yin (2015) reviewed patient engagement in hospitals and strategies to decrease the number of falls and fall related injuries and found that patient engagement and patient centred falls prevention care could reduce the number of falls and fall related injuries. To promote patient uptake of a falls prevention plan, the authors argued that the nurses needed to understand patient centred care, and shift from being an expert to being an enabler by encouraging elderly patients to maintain an optimum level of health and independence. Silva and Hain (2017) analysed the incident reporting system of 13 medical-surgical and rehabilitation units to identify what preceded patients' falls and to identify patterns. During the implementation phase the nursing staff encountered difficulties with educating and convincing independent patients of their temporary risk of falling due to their perception that they would not fall, and hence took the risk to ambulate. Therefore, patient falls prevention education is incorporated in this case study.

The patients' perceptions of staff impact on their participation in certain tasks. For example, they may be reluctant to ask for assistance from their allocated nursing staff because they believed they are 'too busy', or 'over worked' or 'looking after sick people and they did not want to burden them more' (Haines et al., 2012; Radecki et al., 2018). Similarly, Kirkpatrick, et al. (2014) found that patients did not want to bother their nurse because they were busy looking after sick patients. Therefore, they were reluctant to take part in self-care activities

that required the nurse's assistance or time (Chan et al., 2020). It is evident that patients' perceptions of the workload of health professionals increases their risk-taking behaviour and undertaking self-care tasks.

2.7 The role of nurses in falls prevention intervention

The literature identifies several issues related to nursing care of patients. Koh et al. (2008) explored the nurses' perspective, in particular the barriers to falls prevention implementation which were classified as the lack of nurses' knowledge and motivation, the changes in the health status of the patient, the difficulty in obtaining support from other nursing staff, and access to resources. Tzeng (2011a) found that nurses' lack of knowledge and a caring attitude was an underlying barrier to falls prevention interventions. Porter et al. (2018) emphasised other factors that impede the implementation of falls prevention strategies, including communication breakdown between healthcare professionals, patient-nurse ratios, and the ward layout. In addition, some initiatives of the healthcare team were not effective, such as falls risk documentation in the electronic health records (EHR) and written patient whiteboards. Placing a patient lifting device near the patient's bed was not an effective method of sharing information that the patient was a high falls risk for nursing staff (Porter et al., 2018). It is evident that communication breakdown among nursing staff and healthcare professionals are important elements in falls preventions and maintaining safe patient care. These three studies (Koh et al., 2008; Tzeng 2011a; Porter et al., 2018) underline the importance of falls prevention barriers from the perspectives of nurses and patients, and also the communication breakdown experienced among healthcare professionals, which will be further explored in this case study.

Unintentional falls and falls prevention remain an ongoing challenge in healthcare settings. As the impetus for using risk assessment tools by the Australian Commissioner on Safety and Quality has increased, there is added pressure for nurses to maintain patient safety, as falls prevention programs are

predominantly nursing centred. According to the ACSQHC report (2009), staff who are reporting a patient fall often feel anxious, guilty and blame themselves. To achieve safe and truthful reporting of falls, the culture of the healthcare setting needs to shift from shame and blame to seeing reporting as a quality improvement process (ACSQHC, 2009). For this shift to be successful, barriers and requirements at a local level need to be identified from a nursing perspective.

Nurse-patient ratios are an important factor and have been identified as a barrier in implementation of falls prevention interventions. The ratios differ across all public and regional hospitals, depending on the level of the hospital and specialty areas. In 2000, The Fair Work Commission introduced mandated nurse-patient ratios in public acute general medical/surgical wards to be one nurse to every four patients (1:4) for morning and afternoon shifts, and one nurse to eight patients for night shifts (1:8) at a level one hospital (Australian Nursing & Midwifery Federation, nd). Nurses and nursing assistants pointed out the difficulty in attending to more than one patient who needed assistance and it was identified as a barrier; as one nursing assistant explained, despite the patient alarm ringing, they were unable to attend to the patient because they were busy with another patient (Porter et al., 2018, Koh et al., 2008). Everhart et al.'s (2014) longitudinal study supports the two previous studies that found nurse-patient ratios have a direct impact on patient falls.

The nurses' workloads and patients' ambulation are barriers in falls prevention. There is a link between impaired staffing and patient ratios due to workloads or nurse absenteeism and increased falls rates (Dunton et al., 2004; Kim et al., 2019). These studies highlight the correlation between the increased rate of falls, and the reduced nursing hours in medical units. The authors suggested that organisations increase the nursing staff in medical units in order to reduce the number of patient falls, through higher levels of monitoring and assisting patients who are ambulant. Similarly, by using the Donabedian model, Upadhyay et al. (2019) found a direct correlation between staffing levels and

patient outcomes, teamwork and safety culture perceptions. Kalisch et al.'s (2011) study across ten hospitals observed that ambulation was one of the frequently missed areas of care reported by nursing staff. Assisting patients with ambulation was a time-consuming task which may require additional support from other nursing staff, and ambulation was not documented in the patient notes. During the nurse focus group discussions, the influence of nurse-patient ratios on falls and patient ambulation will be investigated.

2.8 Ward layout

The patient's immediate environment or the organisation of the ward potentially contribute to inpatient falls. Although new hospital unit designs aim to facilitate open workstations to increase nurses' ability to see their patients, the layout can be a barrier for nurses attending to their patients in a timely manner (Porter et al., 2018). This is supported by Bayramzabeh et al.'s (2019) exploratory case study that found patient's physical environment was closely associated with an increased number of falls. Porter highlighted the difficulty of nurses observing high falls risk patients when they were placed in a single isolation room. The patient was responsible for adhering to their falls prevention action plan and relied on available nursing staff to provide timely assistance (Porter et al., 2018). Joolaee et al. (2019) agrees that there is a significant link between patients experiencing a fall and nurses' work environment. Watson et al. (2019) recommended a checklist to ensure that the patient environment was free from clutter. In the current case study, the administrative falls data of the medical ward will be examined to determine the extent to which ward layout is a factor in patient falls.

An exploratory study by Tzeng and Yin (2009) found that the environmental clutter from bed to bathroom were contributing factors to patient falls. This is supported by ACSQHS best practice guidelines (2009) that state an assessment of the hospital room or the patient's environment will reduce the risk of falls. Gu et al. (2016) concur and found the environment should be well lit

and free from obstacles to prevent falls. Clearly, environmental factors can predispose patients to falling and at the same time there are situations that may promote risk taking behaviour. Both of these factors can be influenced by patient knowledge, self-perception of risk factors and active engagement in their falls prevention plan.

In summary, nurses are at the forefront of patient care, and spend the most time with patients, which ultimately makes them responsible for maintaining patient safety and falls prevention and management. Implementing falls prevention strategies may sound simple, but it has multiple dimensions: ward layout and design, patient visibility, patient adherence to falls prevention, the bed height and width, patient physical environment/clutter, and availability of nursing staff. To ensure improved patient outcomes, it is imperative to understand the patient's physical environment, and barriers at the point of nursing care delivery. This case study used Donabedian's conceptual framework to form an Inpatient Falls Prevention model to assess the relationship between the patient environment, nurses' uptake of the 6-PACK program and the medical ward.

2.9 Donabedian's model as a framework for falls prevention

Donabedian's quality of medical care model of structure, process and outcome is employed as a framework to form the Inpatient Falls Prevention model to understand the underlying phenomenon of falls prevention and management. Avedis Donabedian's "Twenty Years of Research on the Quality of Medical Care (1885) reflects his work from 1964 -1984 and the relationship between structure, process, and outcome on the quality of medical care. It is evident that all three criteria are intertwined and cannot be separated. Donabedian notes that the process profoundly relies on medical records, and the accuracy and completeness of these medical records impacts the quality of patient assessment and clinical management, as well as the structure either impacts the process of patient care or outcome (Donabedian, 1985).

Several studies suggested the use of the Donabedian model for similar investigations. A retrospective longitudinal study by Okeorji (2017) used Donabedian's model and provided new approaches to improve current falls prevention, while Cary et al. (2018) applied Donabedian's model as a framework to minimise falls in short-stay nursing home patients by developing strategies in preventing falls, highlighting the perceived barriers and the differences in falls prevention strategies between short-term and long-term nursing home patients. Similarly, a systemic review conducted by Kehinde (2012) applied the Donabedian model as a framework to investigate the relationship between falls rate and falls risk factors. Consequently, several authors (Tuinman et al., 2021; Cary et al., 2018; Okeoriji 2017) have found the Donabedian model useful in strengthening falls prevention practices and management, and it has therefore been adopted in this case study.

There are number of models used to analyse and implement falls prevention and management programs. Dolan and Taylor-Piliae (2019) used The Health Beliefs Model as a theoretical framework to understand the experiences of falling and the complexity of the underlying problem related to inpatient falls. This study provides a comprehensive framework on the qualitative component of inpatient falls by exploring patient experiences of falling. This model is not suitable for the current case study, as quantitative falls data will be explored to understand the characteristics of falls in the medical ward. Breimaier et al., (2015) evaluated the effectiveness of Consolidated Framework for Implementation Research theoretical framework and found that although it is a useful framework, it requires local features to achieve comprehensive outcome. However, the Donabedian framework does not require supplemental local features to understand the underlying phenomenon. Shaw et al., (2021) used a 4P education model (Presage, Planning, Process and Product) and found it effective in changing nurses' practice by increasing their knowledge on falls risk assessment, and implementation of relevant falls prevention strategies to mitigate patients falls risk. These three models are comprehensive and effective in its approach, but it is not suitable for this current case study, as it does not

address all the research aims. Hence the reason Donabedian model is the best framework for this current study.

By understanding the association between the characteristics of acute care hospitals (S) on the provision of quality nursing care (P) with patient outcomes (O), a far more detailed picture of the underlying problem of why falls occur will be revealed, rather than relying on the statistical data alone. Moreover, through the Donabedian model each element could focus on more than one dimension (Begicheva, 2019).

The SPO model supported by Donabedian is used in health care organisations as part of quality assurance and improvement (Kobayashi et al., 2011). According to this model, the three key elements have a strong interconnecting relationship; that is, structure (S) influences both P and O measures and the quality of processes envisages patient safety outcomes (Sund et al., 2015). It is presented as a sequence of three boxes connected by unidirectional arrows in the following diagram (Figure: 2.1).

Figure 2.1: Donabedian model sequence

(McDonald et al., 2007)

Donabedian evaluates the assessment of structure through the administrative processes that support the provision of patient care. For example, equipment,

qualification of medical staff, and administrative structure and operations of the organisations' programs (Donabedian, 1966). Also, he notes that structure influences "either the process of care or its outcomes" (Donabedian, 1985, p. 257).

The process of care is evaluated as criteria that rely on "appropriateness, completeness, and redundancy of information obtained through clinical history, physical examination and diagnostic tests" (Donabedian, 1966, p.169). He emphasises that evaluating the care process is complex, and focus should be given to identifying the relevant dimensions and "values and standards" to be used in the assessment (Donabedian, 1966). Also, when evaluating results, to be mindful of whether assessing the quality of care is based on what appears on the record or the actual care provided. This can be separated when the administrative falls data is triangulated with the nurse and patient perception of falls prevention and management in this case study.

Donabedian divides outcome criteria into two categories from adverse outcomes: mortality and case fatality (Donabedian, 1985). He highlights that "…outcomes tend to be fairly concrete and …amendable to more precise measures" (Donabedian, 1966, p168). For example, the differences between postsurgical morbidity and fatality among hospitals (Donabedian, 1985). Furthermore, he notes that "…patient attitudes and satisfaction, social restoration and physical disability and rehabilitation" are not clearly defined and not easy to measure, and patient outcome is an "ultimate validator of the effectiveness and quality of medical care (Donabedian, 1966, p.169).

2.10 Conclusion

Falls are one of the most commonly reported adverse events in acute care hospitals. The literature highlights the impact of falls on healthcare costs. Consequently, falls prevention and cost reduction is an important topic worldwide, with focus on patients' falls risk factors, risk assessment tools, patients' perceptions of the contributing factors and the influence on nurses in the provision of falls prevention and management. However, the challenge for most organisations is translating this knowledge into practice in order to achieve sustained falls reduction.

There are multiple risk factors which contribute to patient falls such as balance disturbances, previous falls, incontinence (intrinsic factors), ward layout, patients' fear of falling, medications (extrinsic factors) and as the patient's falls risk factors accumulate, it increases their risk of falling. Therefore, falls prevention programs and risk assessment tools are multifactorial in order to prevent patients experiencing a fall. However, several studies have identified that falls risk assessment tools alone are not effective in reducing falls or fall related injuries. Nurses' clinical knowledge and clinical decision-making skills, patient cooperation and active participation need to be incorporated along with the risk assessment tool for falls prevention and management to be effective. As well as nurses' clinical decision-making skills, patient education in the hospital setting is pivotal when developing a successful patient centred falls prevention plan. Although, the ACSQHC (2018b) states that falls prevention is everyone's responsibility, it still remains a nurse sensitive indicator.

There is scarce literature on patients' perceptions of their falls risk, understanding of the implemented interventions and the contributing risk factors. This case study explores the patients' and nurses' perceptions of falls in order to develop more robust patient falls prevention plans. It was evident that the independent patients insisted on maintaining their independence and privacy and took the risk of falling. Patients wanting to maintain their autonomy,

privacy and functional ability are important elements for nurses to consider, when building a therapeutic relationship to maintain a safe patient environment.

Therefore, this case study will explore both nurse and patient engagement and participation in falls prevention management in relation to the 6-PACK program. It will also examine the effectiveness of the 6-PACK falls prevention program in an acute care hospital, in particular the crucial role of nurses performing assessment, implementation and documentation of patients' falls risk and implemented strategies.

Chapter 3 discusses the application of a mixed methods methodology for data collection and the adaption of the Donabedian model to form the Inpatient Falls Prevention model to analyse the statistical and qualitative data.

Chapter 3: Methodology and methods

3.1 Introduction

This research study aims to examine the reasons for patient falls in a medical ward through a mixed methods case study of the 6-PACK falls program. The staff questionnaire, nurse focus group discussions and semi-structured patient interviews were utilised to explore the research questions (Creswell et al., 2011) to provide further insights into why and how falls occur in order to understand their impact on patients, nurses and hospitals and to make recommendations to improve patient safety and their hospital stay.

The analysis of the statistical data (RiskMan and 6-PACK falls prevention components on the PCCP) collected by the hospital, and the perspectives of nurses and patients identified the key issues that impact on the implementation of falls prevention strategies in the medical ward are presented employing the Inpatient Falls Prevention model. The Donabedian conceptual model of SPO is adapted to present the Inpatient Falls Prevention model for contextualising and analysing patient safety and outcomes.

The chapter discusses the validity, reliability and generalisability of the quantitative data and trustworthiness of the qualitative data collected from this investigation and explores ethical considerations and the limitations of the study.

3.2 Problem statement and research questions

In the hospital where this case study was conducted, there was a significant increase in the number of serious injuries for the period of January 2015 to

December 2016. This case study is part of a quality assurance initiative by the researcher and supported by the hospital to investigate in greater detail the way in which falls, especially injurious falls could be prevented. A case study would enable a better understanding of the phenomenon. It is important to identify the reasons why patients fall in a medical ward because of the effect on patient recovery, and on costs and finite resources in hospitals.

The overall research question is: How can inpatient falls be reduced in an acute care hospital? The various sub-research questions have been outlined in Chapter one section 1.4.

3.3 A mixed methods research methodology

A mixed methods, case study was chosen for this research study to provide a better understanding of the underlying phenomenon (Morse & Niehaus, 2009) and is deemed suitable for health research (Creswell et al., 2011; Guetterman et al., 2018). For example, putting forward the patient's point of view about falls prevention, comorbidities and environmental factors on nurses' practice offers a more complete picture than relying on statistical data. There has been recent interest in the mixed methods approach (Creswell & Sinley, 2017) which suits this investigation because it complements both quantitative and qualitative data collection approaches.

Quantitative data collection is an objective systematic process and in healthcare it is utilised to measure or describe variables, test relationships between two or more variables and determine the cause and effect of the interventions implemented (Bloomfield & Fisher, 2019). Quantitative descriptive research is employed for this current study to uncover new findings, describe the effectiveness of the current falls prevention 6-PACK program and existing ward experiences of falls, determine the frequency or total number of falls that occur in the medical ward and categorise information in a meaningful way. While

quantitative data (RiskMan and PCCP) is reliable and measurable, thereby coercing the intended users to take the findings seriously; it does not provide an in-depth understanding of the central phenomenon (Patton, 2008). In contrast, qualitative data brings a deeper meaning to the quantitative data from the PCCP which consist of 6-PACK falls prevention strategies.

This case study collected qualitative data through the nurse questionnaire, focus groups discussions, and patient interviews. This adds 'thick description' to tease out the issues highlighted by quantitative data collected from the 6-PACK program, and it includes the perspectives of patients as well as nurses experiences of falls, to better understand the underlying phenomenon of falls in a hospital setting (Merriam, 2014). One of the advantages of qualitative data is that it provides details about the nature of what is being investigated (Richardson-Tench et al., 2018). Qualitative data in this thesis examines the reasons behind the quantifiable falls data in relation to the 6-PACK program from the nurses' and patients' perspectives, rather than speculate as to what they would be.

3.3.1 Case study

A case study is chosen for this research study because it provides for an in-depth description and analysis of the current issues associated with the 6-PACK falls prevention program within the medical ward. A case study explores the issues resulting from serious injuries due to a fall, and by concentrating on one ward and analysing a number of factors from nurse and patient perspectives there is an in-depth and focussed gathering of data, that similar studies may have neglected or missed. Case studies can penetrate situations in ways that are not always predisposed to numerical analysis (Cohen et al., 2017) which means this case study will provide a greater understanding on the provision of patient care in the medical ward, and the patients and nurses behaviour surrounding falls prevention and management. A rich description of the nurses' and patients' perspectives of the 6-PACK falls prevention program is important

because it presents their point of view, ideas, feelings and motivation through their own stories and experiences (Abma & Stake, 2014) of both working in hospitals, as well as being patients in wards.

A case study approach explores how people address issues of a particular phenomenon (Creswell, 2015) to gain more understanding of the case/problem. The findings presented in rich and thick descriptions can illustrate its complexity and uniqueness of the phenomenon (Cohen et al., 2017). In this case, investigating the reason for patient falls in a hospital is not a simple straightforward matter; it is complex study of a variety of factors. To explore the sub-research question three (the factors that impact on nurses in the implementation of the 6-PACK falls prevention program in the medical ward) and sub-research question four (the patients perception on the contributing factors that led to their fall and how does it affect their understanding of the implemented 6-PACK falls prevention strategies), a case study provides a deeper understanding of how inpatients view their falls risk, implemented preventative strategies and how nurses identify them, and what they consider as barriers in the provision of falls prevention and management. In this way, more contextual information is gathered (Abma & Stake 2014) to understand and ask further questions during patient interviews and focus group discussions.

A case study combines well with a mixed methods approach because it pursues a more complete understanding of the information by amalgamating quantitative and qualitative data (Guetterman & Fetters, 2018). The case study approach directly focuses on the phenomenon in its actual context (Yin, 2015; Stake, 2005), a hospital ward, and explores subjective information (thoughts, feelings and desires) obtained from the perspectives of both patients and nurses. This approach enables the researcher to elaborate on the statistical data (Yin, 2015), by examining the reasons behind the increased number of serious injuries due to patients' falls and also compare the relationship between nursing staff, patients and the environment (Stake, 2005). Falls are caused by multiple factors

such as, environment, impaired mobility, patient age, lack of resources and each of these factors might have its own context, and a case study helps to understand each of these cases (Abma & Stake, 2014) and the complexity surrounding falls prevention and management. The issues surrounding serious injuries related to falls experienced by inpatients in the medical ward compared to other wards of the acute care hospital are the impetus for this case study.

3.3.2 Sequential explanatory design

This mixed methods case study collected data in two sequential phases. The first was quantitative data from the 6-PACK program, and the second was qualitative data from nurse questionnaires, nurse focus groups, and patient interviews. This mixed methods sequential explanatory design is commonly applied to medical and social science research studies (Ivankova et al., 2006; Andrew & Halcomb, 2009; Liem, 2018). The reason for utilising sequential explanatory design is to develop specific research questions from the quantitative data to aid qualitative data collection. Furthermore, this design provides a solid platform to further interrogate the quantitative data during whole analysis phase (Creswell, 2014).

In this sequential explanatory design both methods are prioritised. The quantitative data collection occurred first and has greater weight in addressing the research question and aims, while the qualitative data explains the quantitative results and highlights key issues (Liem, 2018).

3.3.3 Donabedian model

This case study used Donabedian's quality of medical care model (1966) as a framework to adapt to form the Inpatient Falls Prevention model (*Care Setting, Delivery of Care and Care Coordination* and *Quality of Patient Care*). The Inpatient Falls Prevention model was used to analyse the quantitative and qualitative data collected on hospital characteristics (Structure), nursing staff adherence to the 6-PACK falls prevention program (Process), and patient falls

and safety (Outcome). It is referred to as SPO and applied precisely to this hospital ward.

- *S* refers to the hospital characteristics that contribute to inpatient falls (Cary et al., 2018). *S (Care Setting)* evaluated the ward structure and culture, falls prevention equipment/resource quality and allocation, patient-nurse ratios, nurses' perceptions of the 6-PACK falls prevention program, and the contributing factors preventing nurses from implementing fall prevention strategies. The *S (Care Setting)* data will be obtained from the nurse questionnaire, nurse focus group discussions, and patient interviews.

- *P* care denotes the actual care provided during giving and receiving care which pertains to the performance of the nursing staff in the medical ward (Cary et al., 2018). *P* evaluated the *Delivery of Care and Care Coordination* of falls prevention and management through nurses' adherence to the assessment of falls risk, implementation and documentation of the patient specific falls prevention strategies identified on the PCCP, patient-nurse interaction, patient involvement in decision making by being involved in their falls prevention plan, and patients seeking assistance with ambulation. The *P* (*Delivery of Care and Care Coordination)* data will be obtained from the 6-PACK falls prevention program audit of the PCCP, the nurse questionnaire, nurse focus group discussions, and patient interviews.

- The *O* includes the end result of patient outcomes and the number of falls (Sund et al., 2015). *O (Quality of Patient Care)* measures include the total number of falls, comparison of falls data with peer hospitals, and recommendations made by the nursing staff and medical ward patients. Also, the patient specific experiences of providing quality nursing care, their perceptions of the contributing factors that led them to fall, and their understanding of the implemented fall prevention strategies. Patients' experiences of their falls as inpatients will be obtained from face-to-face interviews, and the RiskMan falls data will provide the characteristics of

inpatient falls in the medical ward. The comparison of falls data with peer hospitals will be obtained from HRT. In this way, the Donabedian model informs the distillation of the Inpatient Falls Prevention model in identifying the critical elements that contribute toward safety in this acute care hospital.

3.4 Participants and recruitment

A number of nursing staff and patients agreed to take part in this research study, which consisted of a nurse questionnaire, nurse focus group discussions and patient interviews.

3.4.1 Recruitment of nurses

The recruitment process was initiated by an email sent by the nurse unit manager (NUM) to all the nursing staff on the medical ward, with a request to attend the focus group discussion sessions on current falls prevention practice. The nursing staff were encouraged by the NUM to be involved in the evaluation of relevant falls prevention strategies for their clinical ward area, so the recommendations from this study could be adopted to improve patient safety and their hospital experience.

Sixteen nursing staff from different scopes of practice (graduate nurse, clinical nurse specialist, NUM, registered nurse, and enrolled nurse) attended the focus group discussions. The participants were permanent staff working rotating shifts (AM, PM, Nocte) within the medical ward, except for an enrolled nurse from the 'pool'; she was included as she had numerous shifts in the medical ward and was very familiar with its routine. In this way, nurses participating in the focus group discussions would be more likely to adopt recommendations to improve current falls practices. As Patton argues:

> Intended users are more likely to use evaluations if they understand and feel ownership of the evaluation process and

findings [and that] they are more likely to understand and feel ownership if they've been actively involved. By actively involving primary intended users, the evaluator is preparing the groundwork for use (Patton, 2008, p. 38).

Pool nurses fill the gap in the roster to meet the required nurse-patient ratios for health care and are rostered on to replace permanent staff attending continuing education sessions. Consequently, two separate nurse focus group discussions were conducted to take this into account.

3.4.2 Recruitment of patients

The seven participants who had a fall on the ward in 2017 were included as part of this study: four were males aged 38 to 82, and three were females aged 41 to 73. Five were born in Australia and two were born overseas could speak English. There was a good balance of gender and age. There were similarities in the past medical histories of the six participants with either cardiac or respiratory conditions, but the seventh participant did not have any of these health conditions. Specific demographic data was gathered to identify any correlation between the patients and is presented in Table 3.1 below.

Table 3.1: Patient Participant Demographic Data						
Patient number	Age and Gender	Marital status	Past medical history	Country of birth	English speaking	Location of the falls
1	60 Male	Separated	Morbid obesity, Ex-smoker, Alcohol use, Type 2 diabetes mellitus (T2DM), Congestive cardiac failure (CCF), Ischemic heart disease (IHD), Chronic kidney disease (CKD), Atrial fibrillation (AF), Lower limb cellulitis, chronic pain lower back/knee secondary to Osteoarthritis (OA), Total knee replacement (TKR)	Outside of Australia	Yes	Walking to the toilet
2	84 Male	Widowed	IHD, CCF, HTN, T2DM, Gastro-oesophageal reflex disease (GORD), Depression, Vertigo, Migraines, ex-smoker-quit 1990	Australia	Yes	Fall in the bathroom
3	38 Male	Defacto	CCF, Influenza virus-H1N1, Acute renal failure (ARF)-dialysis	Australia	Yes	Walking to the toilet
4	64 Female	Married	Asthma, Chronic obstructive pulmonary disease (COPD), Hypertension (HTN), Cholecystectomy	Australia	Yes	Fall from the bed
5	73 Female	Widowed	Total thyroidectomy, Migraine, Psoriasis, Asthma, COPD, Depression, HTN, Sleep Apnoea, Iron deficiency, Cholecystectomy	Australia	Yes	Walking to the toilet
6	41 Female	Widowed	Fibroids uterus, C-section	Australia	Yes	Fall from chair
7	82 Male	Defacto	IHD, Transthoracic echocardiogram (TTE) 2017, Aortic valve replacement (AVR) 2005, HTN, AF, Osteoarthritis (OA), Shingles, Ex-smoker	Outside of Australia	Yes	Fall near the sink

3.5 Ethical considerations and ethical approval

This investigation was approved by the Ethics Committee of the Austin Hospital (HREC17/Austin2) (which was not the acute care hospital where this current study was conducted) and Victoria University Ethics Committee (HRE15-188) and deemed to be low risk. The data collected was stored on a USB and the researcher's personal computer. The findings from this research were part of a RiskMan Research Project for the acute care hospital to assist in the evaluation of their 6-PACK falls prevention program. The findings were presented to the acute care hospital's Chief Nursing and Midwifery Officer and the Standard 10 Falls Prevention Committee meeting and endorsed. The findings were provided to the acute care hospital to be made available for patients and their families via the hospital intranet and newsletter.

Informed consent was obtained from nurses at the beginning of each of the focus group discussions and at the beginning of patient interviews. Plain language statements and consent forms were provided to the nurse and patient participants (See Appendices 1 and 2). The consent form was signed by the participants and witnessed by the researcher (See Appendix 3 and Appendix 4). Participants were also advised that they could withdraw from this research study at any time and data was locked in secure filling cabinet with hard drives are password protected (Liamputtong et al., 2017).

3.6 Data collection methods and tools

The mixed methods case study approach collected electronic data, paper-based documentation and interview transcripts. The relationship between the two research phases, aims, methodology and methods are set out in Table 3.2.

Research Phases	Research aim	Sub research questions	Methodology & Methods
Table 3.2: Phase 1 and 2 data collection methods			
Phase 1	Describe patients' administrative falls data	RQ1) What trends can be discerned in falls administrative data for the period of January 2015 to December 2016?	Phase 1: Part A Quantitative / RiskMan falls data: clinicians' falls data
	Measure nurse's adherence to 6-PACK falls prevention strategies		Quantitative / PCCP audit: patients' daily falls plan documented by nursing staff Phase 1: Part B
		RQ2) How do the number of patient falls in the hospital in the study setting compare with peer hospitals that also use the 6-PACK falls risk assessment tool?	Quantitative / Health Roundtable (HRT): comparison of peer hospitals' falls data across Australia and New Zealand Phase 1: Part C
Phase 2	Identify and analyse the factors that impact on nurses in the provision of falls prevention and management	RQ3) What are the factors that impact on nurses in the implementation of the 6-PACK falls prevention program in the medical ward?	Quantitative & qualitative / sequential design/ Donabedian framework/Inpatient falls prevention model Nursing staff questionnaire Phase 2: Part A Nursing staff focus group discussion Phase 2: Part B
	Explore patients' experiences of falls	RQ4) What do patients perceive to be the contributing factors to their fall in the medical ward and how does it affect their understanding of the implemented 6-PACK falls prevention strategies?	Qualitative / Patient face to face interviews Phase 2: Part C
	Evaluate the effectiveness of the program	RQ5) How effective is the 6-PACK falls prevention program in the assessment and prevention of patient falls in hospital wards?	Triangulation of quantitative and qualitative data results

3.6.1 Phase 1: Quantitative data collection

The three components of the 6-PACK Falls Prevention Program are: the falls risk assessment tool, patient education and falls prevention strategies. On a patient's admission to the medical ward, at the beginning of each shift, nurses are required to undertake a falls risk assessment using the falls risk assessment tool to ascertain their patients' falls risk score level (Appendix 5). If the total number of the risk score level is >3, the patient is deemed high risk of falls and falls prevention strategies are implemented (Appendix 6) and a patient education brochure is provided/discussed with the patient (Appendix 7).

On admission, the patients' who are identified as high falls risk provided with a brochure as part of their patient education and to encourage their engagement with their falls prevention plan to decrease or prevent them sustaining a serious fall during current stay. The nurse documents this process by ticking the falls prevention box and initialling their credentials with the date, so it is clear that the patient has received and understood their falls prevention plan (Appendix 7). The changes to patient's falls risk score are updated by documenting the new risk score with date, time, and reason for this new score and nurses' initial (Appendix 5), followed by modifying the implemented falls prevention strategies (Appendix 6) such as alert sign, low bed, bed/chair alarm, supervise bathroom, toileting regime, and gait aid near patient. This is the normal sequence of falls risk assessment, patient education and the implementation of falls intervention strategies in the medical ward.

In Phase 1: Quantitative Data Collection, statistical data was collected from two electronic databases: RiskMan (analysing administrative falls data) and HRT (comparisons with per hospitals). The two data sources of RiskMan and HRT are utilised by the acute care hospital for quality improvement falls projects. RiskMan contains patient falls with an incident report, which is submitted by a clinician regardless of the post fall treatment requirement. However, the HRT

will only consist of falls that have a treatment outcome; for example, CT-scan, X-Ray, or if there is a significant change in the patient treatment plan.

The collection of falls data by the hospital is not a straightforward process, with both electronic and paper-based documentation being audited. The electronic data is from RiskMan (Part A) and HRT (Part C), while the paper-based information is from the PCCP (Part B). A more detailed explanation is provided below:

Part A - RiskMan data: when a patient experiences a fall during their current admission, the incident is reported via RiskMan and the date, the ward that the incident occurred in and the RiskMan number is documented by the nursing staff under *Falls during current admission* (Appendix 7).

Key measures are:
  i. Total number of falls
  ii. Number of falls associated with minor injuries
  iii. Number of falls associated with moderate injuries
  iv. Number of falls associated with serious injuries
  v. Mechanisms of falls: location and cause of fall
  vi. Time and day of the fall
  vii. Age and gender

The falls data was obtained from the RiskMan database for the period of January 2015 to December 2016. The researcher initially collected falls data which included patient details. However, during analysis of the key measures listed above, the patient details were de-identified.

Part B – Patient Centred Care Plan (PCCP) is a paper-based patient daily plan of care completed by nursing staff in the patient's medical record. Embedded in the PCCP is the 6-PACK falls prevention program, which the

researcher audited from the PCCP to reveal how well the nurses adhered to the 6-PACK falls prevention program. The 6-PACK falls prevention program audit on the PCCP was conducted by the researcher for the sole purpose of checking the accuracy of falls data in the patient records. The PCCP Audit Tool presented in Appendix 8 was developed by the researcher to extract the falls prevention information documented by nursing staff on the PCCP for all inpatients who are admitted to the medical ward. The audit tool's structure was able to assess the nurse adherence to 6-PACK falls prevention program. The audit was piloted over 20 weeks (20 July 2017 to the 30 November 2017), and this information was used to inform whether targeted falls prevention strategies decrease falls and falls related injuries in the medical ward.

Part C- Health Roundtable (HRT): The acute care hospital in this research study has used the HRT since July 2017 as part of its quality assurance program for patient safety. The HRT compares the number of injuries from patient falls in the hospital of this case study setting with peer hospitals that use a different falls prevention risk assessment tool. The HRT report is available to all clinicians who have login access via the HRT website to view tested evidenced-based innovations across all areas of the health service.

The HRT falls data is presented as the total number of falls reported by the hospitals on an excel spreadsheet. It allows hospitals to identify Hospital Acquired Complications (HAC) using their raw patient administration data according to the specifications established by the Commission without specialist statistical software (ACSQHC - Hospital Acquired Complication, 2019). They provide the organisations with data specification which is a definition manual of what the organisation needs to submit. All organisations in Australia and New-Zealand receives the same data specification. HAC is defined as "a patient complication for which clinical risk mitigation strategies may reduce (but not necessarily eliminate) the risk of that complication occurring" (ACSQHC, 2018a). Furthermore, the HRT reviews the individual organisation's falls data to predict/determine the number of falls each organisation should expect over the

time period. It enables organisations to collaborate with one another to discuss the proven improvement strategies/projects implemented by each organisation. This report is available to all clinicians who have login access via the HRT website to view tested evidenced-based innovations across all areas of the health service. These high-risk complications enable clinicians, healthcare workers and managers to mitigate risks so as to improve patient outcomes/care. The data also predicts relationships and differences between organisations who use different falls risk assessment tools. The HAC data provides an analysis of falls resulting in fracture or intracranial injury (intracranial injury, fractured neck of femur, other fractures).

3.6.2 Phase 2: Qualitative data collection

The findings from Phase 1 data collection process guided Phase 2, Qualitative Data Collection process, and helped identify key issues and devise relevant questions for the nurse questionnaire, nurse focus groups and patient interviews. This combination of data provided a better understanding of the reasons for the increased number of patient falls and serious injuries in the medical ward.

Using qualitative data, the specific causes of the falls were explored through the nurse questionnaire, nurse focus group discussions, and patient interviews.

Nurse questionnaire (Part A): A nurse questionnaire was utilised to obtain the nurse's perceptions of the current falls program (Appendix 9). It is common practice to survey nurses to gain knowledge about their daily work environment, practice and the association between the nurses' work environment and patient outcomes (Norman & Sjetne, 2017). To gain a better understanding of the views and experiences of nurses in the medical ward, a questionnaire with open-ended questions was devised. This method is relatively unambiguous, focused and can lend itself to quantitative data analysis (Godshall, 2015). Key questions were:

- Nurses' views of the effectiveness of the current falls prevention program and reasons why patients fall;

- How the acute care hospital and nurses can prevent falls;

- The workplace factors that impact on the implementation of falls prevention strategies and the availability of resources; and

- The nurses' views of the other falls risk assessment tools employed by other organisations and the effectiveness of this research study on staff satisfaction explored (please refer to Appendix 9 for the full set of questions).

Nurse focus group discussion (Part B): Focus group discussions were conducted on site with the intradisciplinary team which consisted of the NUM, nursing staff (graduate nurse, registered nurse, enrolled nurse, pool nursing staff), associate nurse unit manager, and clinical nurse specialist staff (n=16) to explore the effectiveness of the current 6-PACK falls prevention program and the factors that impede falls prevention and management. These discussions were audio taped and transcribed by transcriber (Polit & Beck, 2012) and double checked for accuracy by the researcher (Liamputtong et al., 2017). The nursing staff who participated in the focus group discussion were coded in numerical order (Nurse 1, 2, 3 etc.).

During the nurse focus group discussions the following trigger questions were used to stimulate discussion:

- What are your thoughts around the current system around falls prevention? Is it effective or not?

- Why do you believe patients fall?

- How do you think the hospital could better prevent falls?

- What do you think are the potential changes that can be made to improve current system?

- How could nurses of this medical ward could prevent falls? (Appendix 10)

The following questions arose from the nurse focus group discussions and highlighted for the researcher the underlying issues of falls prevention in the medical ward:

- Why are falls predominately occurring at night and do you do rounding at night?
- If you believe dementia is the cause of the falls at night, then why is this not impacting during the morning shift, overlap of staff or afternoon shift, but predominantly on the night shift?
- Staff perspectives of where falls are occurring and why falls severity rating 2 is on the rise?
- The reasons behind incomplete documentation of the PCCP for falls risk score, low-low beds, toileting regime, bed/chair alarms, gait aids and supervising bathrooms?
- Do you believe as nurses you can prevent the falls at the floor level? Staff perception and feelings on supervising more than one confused, impulsive patient?
- Why patients are not engaged in their falls prevention plan and how can we improve this?
- What can the organisation provide to make things more functional at the floor level?

Patient questionnaire (Part C): Patient interviews were crucial to determine not only which falls prevention strategies were implemented, but how well they were implemented by nurses. While patient care decisions were evidence-based practice, their application involved clinical decision making which includes clinical expertise as well as patient preference and values (Richardson-Tench et al., 2018).

To identify a patient's point of view about the contributing factors after a fall, a patient questionnaire was utilised to conduct a face-to-face interview on the medical ward. All seven interviews followed the same structure and were audio taped. The semi-structured interview allowed the patients to make additional

comments that could provide further insight into falls prevention strategies (please refer to Appendix 11 for the full set of questions).

Key questions were:

- What do you think caused you to fall and did you ask for assistance?
- What could have been done better to prevent your fall?
- Were you provided with the falls prevention brochure, and did you find the brochure helpful?
- Do you understand all the information presented in the falls prevention brochure?
- Do you have any suggestions to improve current practice? For example, the falls prevention brochure, current strategies for falls?

Caregivers had the option to be present during the interview, but they were discouraged from participating during the interview, so that the patients' point of view was not influenced by a significant other. However, at the end of the interview, their opinions were addressed by asking if they had anything to add. The hospital interpreters were available for patients whose preferred language was other than English to conduct the interview, but no patients required an interpreter.

3.7 Validity, reliability and trustworthiness of data

Validity, reliability and trustworthiness are crucial in ensuring that accurate results and findings can assist other hospitals to improve patient safety outcomes in falls prevention. A mixed methods case study enhances the design quality because by combining quantitative and qualitative methods, the triangulation of the data increases the overall rigor of the study (Morse & Niehaus, 2009; Bedrettin, 2018; Forero et al., 2018). Therefore, the results and findings from this case study can be generalised (external validity) to other hospital medical wards that utilise the same falls risk assessment tool in falls

prevention and management. Tuinman et al. (2021) recommends researchers to use the Donabedian SPO framework to evaluate quality of care outcomes that are related to nursing intervention as the model has been proven to be generalisable in relation to measuring quality assessment outcomes.

It was important for this study that the RiskMan falls data and the PCCP audit (please see a snapshot of the PCCP audit under Figure 3.1) were accurate, as these tools identified the characteristics of falls in the medical ward, along with the assessment and documentation by the nurses. Figure 3.1 provides criteria for the validity of the audit tool, as it accurately measures the attributes of the falls prevention program and explores the research questions (LoBiondo-Wood & Haber, 2018). The statistical data used in this study, RiskMan and PCCP, was analysed by the researcher and then cross-checked by the acute care hospital's statistician who performed a number of tests, such as Chi-square, Fisher's exact test with Student's t-test and a Man-Whitney test to ensure that rigor, validity and reliability was maintained.

Figure 3.1: Illustrates a snapshot of the PCCP audit

A	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
	Total Occupied beds	Not Documented	No	N/A	Confused	NESB	Total	Total of 2 Weeks	Total Occupied beds	Not Documented	No	N/A	Confused	NESB	Total	Total of 3 wks
UNB																
Falls this admission	2/26						2/26	4/52	2/27						2/27	6/79
Riskman no. documented if fall occurred	2/2						2/2	3/4	2/2						2/2	5/6
Staff identified as high risk	15/26						15/26	32/52	18/27						18/27	50/79
Reseracher identified as high risk	18/26						18/26	35/52	18/27						18/27	53/79
Preventive Strategies Implemented	9/18	9/18					9/18	21/35	10/18	8/18					10/18	31/53
Alert Sign in place	12/18	6/18					12/18	28/35	14/18	4/18					14/18	42/53
Low bed in place	6/18	12/18					6/18	14/35	2/18	16/18					2/18	16/35
If so, is it in lowest position	6/6						6/6	14/14	2/2						2/2	16/16
Alarm insitu									1/18						1/18	1/53
If so, is it connected correctly									1/1						1/1	1/1
Gait aid: Does pt have an aid	3/18	1/18					4/18	11/35	6/18	1/18					7/18	18/53
If so, is it close to pt	3/3	1/18					3/4	6/11	5/7			2/6			5/7	11/18
Toileting Regime commenced		0/18	9				0/18	0/35	1/18	17/18	9				1/18	1/53
Supervise Bathroom docu. on PCCP	8/18	10/18					8/18	15/35	9/18	9/18					9/18	24/53
Brochures provided if high falls risk	5/18	13/18					5/18	9/35	8/18	10/18					8/18	17/53
Discussion with pt/carer if high falls risk	0/5			1/18	2/18	2/18	0/5	2/9	1/8				4/18	3/18	1/8	3/17
Asessment completed within 8hrs	26/26							52/52	26/27						26/27	78/79

A Chi-square test enables the researcher to assess whether the nurses correctly identified the patients falls risk, and implemented the required strategies are significantly different compared to researcher's patient assessment findings. This allowed any statistically significant association (relationship) between the two to be identified (Maltby et al., 2010). The statistical significance of a small sample size can be conducted using Fisher's exact test, (Rees, 2018) while the Student's t-test compares two independent variables of the possible values under null hypothesis with its parametric counterpart (Berry et al., 2014).

According to Merriam and Tisdell (2016), testing the results multiple times ensures accuracy and validity. The researcher also checked the data by exporting RiskMan and PCCP data to a Microsoft excel spreadsheet confirming that there were no differences between the findings of the researcher and the statistician. Consequently, this provided a secure foundation for the qualitative data collection phase comprising the nurse questionnaire and nurse focus group, and patient interviews.

Qualitative data helps to explain certain aspects of the quantitative results. The multiple viewpoints of the participants strengthen this case study (Greenhalgh et al., 2020), as the falls data from RiskMan and the 6-PACK falls prevention program on the PCCP audit is triangulated with the nurse questionnaire, nurse focus group discussions and patient interviews. For example, the RiskMan falls rate data that is published monthly within the hospital, shows varying levels of falls within particular shifts. The falls rate is simply a statistical number and does not explore the associated factors with their occurrence. For this reason, an exploration of the perspectives of nurses and patients is integral to this study. The nurse focus group discussions and patient interviews were transcribed externally by the transcriber and checked against the original recordings by the researcher to ensure accuracy. In the nurse focus group discussions, the researcher summarised the main points of the discussion at various intervals for

confirmation that the ideas from the discussion were clearly articulated. The researcher concluded the main reasons for patients experiencing a fall and patients understanding of the implemented falls prevention strategies at the end of each interview. An example of the transcript of patient interviews is included in Appendices 12.

In this study the statistical data is triangulated with the nurse questionnaire, nurse focus group discussions and patient interviews. There are three different sources of information that help inform the overall research question and the causes of inpatient falls and reveal any inconsistencies between the findings to ensure rigor and trustworthiness (Bedrettin, 2018). The researcher's pre-existing clinical experience in RiskMan falls data collection and the 6-PACK program on the PCCP was an advantage, because it helped to understand the interpretation of these two data sets when devising questions and analysing findings. Consequently, the researcher's clinical experience made it possible to address the concerns of nurses that were raised during the focus group discussion. I believe that my knowledge and experience in this area enabled participants to freely and confidently express their views concerning falls prevention and management in their ward during the focus group discussion the nurses' concerns were addressed by the researcher when summarising the discussion at the end of each topic.

The discussion and reflections from the nurse questionnaire and focus groups were consistent with my experience of working in the hospital and helped to some extent to verify those ideas. As it had been two years since I had worked at the organisation, I was able to approach the problem with 'fresh eyes'. In this way, I was knowledgeable about the situation, but not part of the system (Merriam & Tisdell, 2016) and also confirmed that the findings were objective and accurately reflected the nurses' and patients' perspectives and their lived experiences which met the criteria for confirmability. In making these points, I am identifying the potential influences of my own biases (Merriam & Tisdell, 2016).

The findings from the first nurse focus group formed the basis of questions for the second nurse focus group discussion, in order to strengthen validation and deepen exploration (Redley & Raggatt, 2017). These findings helped to develop a more detailed understanding of the key issues surrounding the relationship between falls prevention strategies, the reasons behind the increased number of serious injuries related to falls, and the 6-PACK program. The data analysis was confirmed (Cohen et al., 2017) through three different data sets. The nurse questionnaire was distributed at the beginning of nurse focus groups. The trustworthiness and credibility of the qualitative data was presented by the distillation of direct quotations from focus group discussions and patient interviews. The direct quotations extracted from the nurse focus group discussions, nurse questionnaire and patient interviews establish transparency (Yin, 2015). The results were augmented with active citations and thick descriptions (Lipscomb, 2020) to support and corroborate findings. The credibility of the data analysis was improved by exploring the validity of the emerging codes and themes during focus group discussions and feedback from participants (Redley & Raggatt, 2017). The dependability (reliability) was achieved by further refinement of the coded themes which were checked by the supervisor of this case study to ensure the identification of themes was sound (Forero et al., 2018).

The findings from qualitative data can promote generalisability (Cohen et al., 2017) and transferability as thick description of the experiences of patients and nursing staff provided a rich description of the underlying phenomenon (Stahl & King, 2020). This in turn will benefit other wards of the acute care hospital regardless of their specialty, because the 6-PACK falls prevention risk assessment tool is utilised by all the wards. The triangulation of quantitative and qualitative data enhances the credibility of the findings (Forero et al., 2018) which shows a high degree of agreement in between quantitative and qualitative data analysis.

3.8 Data analysis

The RiskMan data was extracted from the VHIMS RiskMan falls database for the medical ward in the acute care hospital where the current study was conducted and transferred to a Microsoft Excel spreadsheet. The patient falls were categorised under injuries, location, time and day, age and gender and the cause of fall by the acute care hospitals statistician. Graphs were compiled to prompt nurse focus group discussions.

Over 20 weeks, the 6-PACK falls prevention program data was collected by using the PCCP Audit Tool (Appendix 8) and was transcribed to a Microsoft Excel spreadsheet weekly to verify if falls prevention strategies were implemented. A Chi-squared test and Fishers' exact tests were used to test for differences between the registered nurse documentation and the researcher audit. While continuous variables were assessed for normality, with the appropriate parametric (Student's t-test) and/or non-parametric (Man-Whitney) tests applied. All three data sets examined the results for a statistical relationship between the researcher identifying the patient as high falls risk and the nurses' documentation of falls prevention information. All analyses were conducted using STATA statistical analyses software, version 15.1 (StataCorp, College Station, TX, USA), with a two-sided p-value of less than 0.05 indicating statistical significance.

Within qualitative description, the outcome describes the phenomenon literally and the findings from the nurse questionnaire will be presented as described in the questionnaire (Bradshaw et al., 2017). The questions will be analysed by describing the nurses and patients' responses to each question using direct quotations. Thematic analysis was utilised to find common themes and patterns from statistical data, the nurse questionnaire, nurse focus group discussions and patient interviews. A six-step thematic analysis framework following Braun and Clarke was used to analyse the data (Gupta et al., 2019).

The Inpatient Falls Prevention model was used to structure the analyses of the data collected. The categories derived from the nurse focus group discussions, nurse questionnaire and patient interviews were grouped under the themes of *Care Setting, Delivery of Care and Care Coordination* and *Quality of Patient Care.*

Table 3.3 Illustrates the steps taken to analyse the nurse focus group discussions and nurse questionnaire.

Table 3.3: Illustrates phases in thematic analysis	
Getting familiar with the data	I read the data multiple times to familiarised myself with it, while noting down initial descriptors such as delirium, impulsive patient, dementia, agitated, lack of equipment, and visibility of patients.
Generating initial codes	At this stage I developed initial codes from the data so that it could be put into more meaningful groups; for example, alarms, better system, work out the alarm, ability to use the call-bell, busy, no time and special six patients.
Searching for classifications	The categories were generated in this stage from prior collated code groups which were sorted into similarities to form categories.
Reviewing themes	I further refined the coded categories and my supervisor checked to ensure the identification of the theme process was sound.
Defining, refining and naming themes	In this section, the classification was further refined, and three broad themes were identified and fifteen classifications developed.
Producing final themes	The categories are distilled into final themes.

3.8.1 The Inpatient Falls Prevention model

After reviewing the Donabedian model, it became clear that a more specific framework and model was required for falls prevention model. As a result, the Inpatient Falls Prevention model was adapted to collect and analyse falls data. It had the following features: *Care Setting* explored the ward structure, culture and nurses' perception of the 6-PACK falls prevention program. It identified the

contributing factors which prevent the nurses implementing falls prevention strategies. The *Delivery of Care and Care Coordination* focussed on the provision of care (nurses' adherence to assessment, implementation and documentation of falls prevention strategies) and patient involvement in decision making. The *Quality of Patient Care* evaluated the patient specific factors, such as, total number of falls, patient perception of the contributing factors, and their understanding of the implemented falls prevention strategies and recommendations to decrease falls. Figure 3.2 presents the components of the Inpatient Falls Prevention model.

Figure 3.2: Inpatient Falls Prevention model
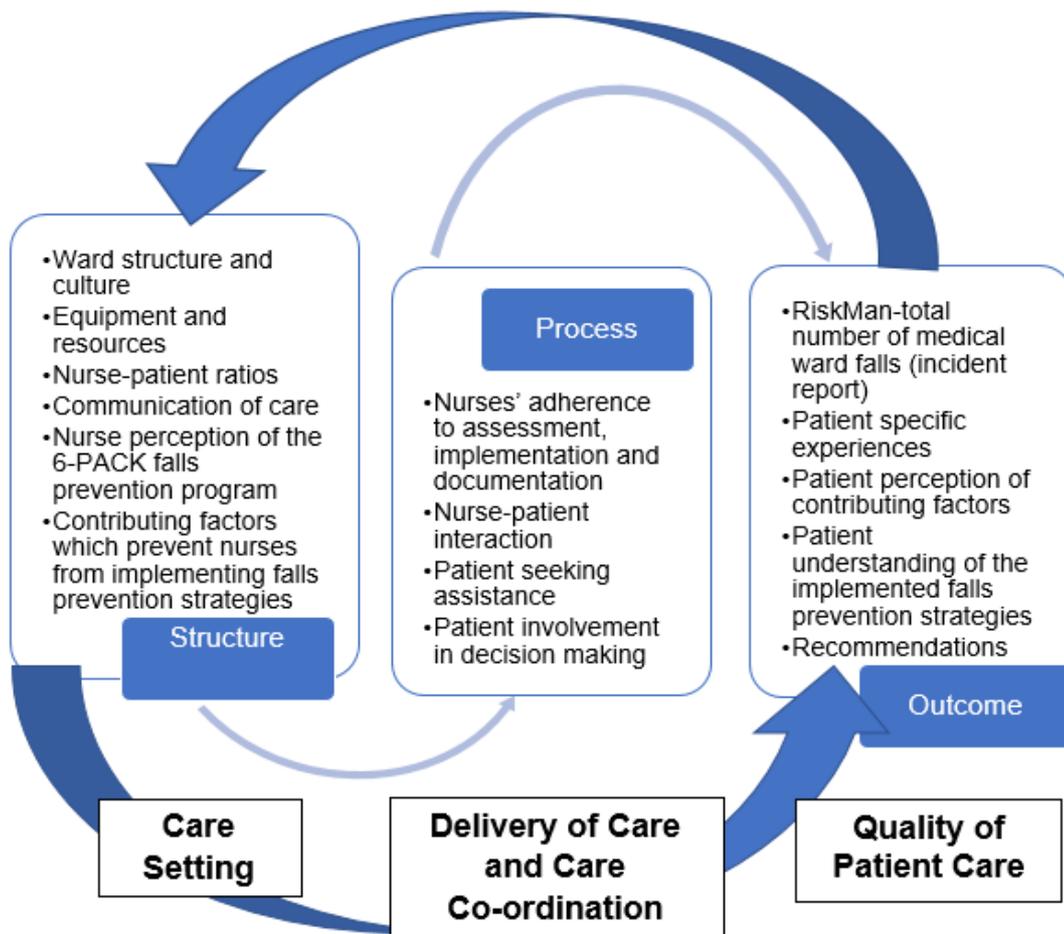
The Inpatient Falls Prevention model triangulated all the factors that contribute to inpatient falls and aid in answering the overall research question of how the inpatient falls can be reduced in the acute care hospital.

The *Care Setting* addressed the sub-research question three which explored the factors that impact on nurses in the implementation of the 6-PACK falls prevention program. *Delivery of Care and Care Coordination* will evaluate the effectiveness of the 6-PACK falls prevention program in the assessment and prevention of patient falls (sub-research question five). The *Quality of Patient Care* explored the comparison of falls of this care setting with peer hospitals (sub-research question two), and the trends that discern in falls administrative data (sub-research question one). It will also provide an insight on the patient's perception of the contributing factors that led to their falls and their understanding of the implemented falls preventions strategies (sub-research question four).

3.9 Limitations of the study

This case study has some limitations. Firstly, the falls data from the RiskMan database provided statistics from 2014 to 2019. It did not backdate the data to 2002, when the 6-PACK falls prevention program was initially implemented, so it was not possible to gain a full longitudinal understanding of the trends in falls in the medical ward, nor an indication of the impact of the current falls prevention program. Secondly, one source of data set (RiskMan falls data) was utilised to ascertain the primary falls data, despite the fact that another was available from the Classification of Hospital Acquired Diagnosis (CHADx). Unfortunately, this falls data is collected according to the codes provided by the ACHQHS-HAC code guidelines and is incompatible with RiskMan. Combining RiskMan falls data with CHADx would have provided more accurate falls data. Nonetheless, the falls resulting from serious injuries are more likely to be reported by clinicians (as it requires further investigation by NUMs and quality coordinators to determine the underlying cause with the aim of preventing similar incidents in the future); therefore, the effects of underreporting in this

case study are considered low. The other limitation is that the 6-PACK falls prevention program is a nurse led intervention, and therefore the perspectives of other health care professionals (physiotherapists, doctors, occupational therapists, and social workers) on falls prevention, management and sustainability were not included in this study.

This was a small-scale study with only one acute care hospital, with a medical ward of 508 patient admissions (20 July 2017 to the 30 November 2017). This mixed methods case study had a nurse focus group of 16, and seven patient interviews. An additional nurse focus group to include night shift nurses was planned because of the higher number of falls at night compared to other shifts, however it could not occur due to staffing levels. Nevertheless, a good combination of morning, afternoon and night shift nurses participated in the two focus group discussions.

3.10 Conclusion

A mixed methods case study approach was adopted to analyse the reasons for the number of patient falls in a medical ward, with a focus on the experiences and perspectives of patients, as well as nurses using the current 6-PACK falls prevention program.

A mixed methods sequential exploratory design was utilised to collect falls data in two phases. Phase 1 consisted of statistical data from RiskMan and the 6-PACK falls prevention program from the PCCP audit that documented daily falls. These tools helped to develop questions for the nurse questionnaire and nurse focus group discussions, as well as the patient interviews. In Phase 2, qualitative data provided insight into the complexities of managing falls prevention via the nurse questionnaire, nurse focus group discussions, and patient interviews. The Inpatient Falls Prevention model was developed from

the Donabedian quality improvement model (SPO) to analyse the data and highlight the key issues discussed in Chapters 4 and 5.

Statistical falls data was interrogated before being triangulated with the experiences and viewpoints of nurses and patients. Several categories were identified, including ward layout, nurse-patient ratios and communication. The findings from this case study could be applicable to other medical wards in acute care hospitals, as well as other organisations using the 6-PACK falls prevention risk assessment tool.

Chapter 4: Research findings

This mixed methods case study investigated the reasons for patient falls in acute care hospital. The three step (*Care Setting, Delivery of Care and Care Coordination, Quality of Patient Care*) Inpatient Falls Prevention model was developed to collect, analyse, and categorise the reasons for patient falls. This model enables the results to be presented in more meaningful sets.

4.1 Data analysis and distillation of patient falls

The Inpatient Falls Prevention model assisted in analysing and categorising themes that cause patient falls. This data enabled recommendations to be formulated to create a culture of safety and to improve the patient's hospital experience. There were three themes and nineteen categories identified. The following summarises the way in which quantitative and qualitative data was analysed:

- The theme *Care Setting* measure triangulates the RiskMan falls data, nurse questionnaire, and focus group discussions. The *Care Setting* consisted of both the patient and the nursing staff. Seven categories identified under this theme:

    1) Inadequate lighting

    2) Privacy curtains (obscure visibility)

    3) The ward layout (obscure visibility)

    4) Lack of low-low beds and ineffective new purchased low beds

    5) Ineffective and malfunctioning bed/chair alarms

    6) Shortage of specials

    7) Communication breakdown between nursing staff (handover structure, process, and handover sheet)

- The theme *Delivery of Care and Care Coordination* measure triangulates the 6-PACK falls prevention program in the PCCP audit, nurses'

questionnaire, focus group discussion and patient interviews. There were seven categories identified under this theme:

1) Communication breakdown among allied health and nurses

2) Staff knowledge deficit (bed/chair alarms)

3) Time constraints

4) Incomplete documentation (in PCCP)

5) Management of the floor during Codes

6) Staff perceptions of falls prevention

7) Effectiveness of the falls risk assessment tool

- The theme *Quality of Patient Outcome* measure triangulates the RiskMan falls data, HRT, and patient interviews. The five categories identified under this theme:

1) Health status

2) Language barrier

3) Patient's knowledge deficit (gait aid)

4) Communication breakdown between nursing staff and patients

5) Recommendations

4.2 Theme 1 Care Setting and inpatient falls

With the Inpatient Falls Prevention model as the analysis framework, the theme *Care Setting* explored the ward structure and the culture of falls prevention and management among nursing staff. It identified falls prevention resources and equipment, nurse-patient ratios and the contributing factors which prevent nurses from implementing falls prevention strategies, and established issues around the communication of care and nurses' perceptions of the 6-PACK falls prevention program. The seven categories associated with *Care Setting* which emerged from the data are *inadequate lighting, privacy curtains* (obscure visibility), *the ward layout* (obscure visibility), *lack of low-low beds* and *ineffective new purchased low beds, ineffective and malfunctioning bed/chair alarms, shortage of specials,* and *communication breakdown between nursing staff* (handover structure, process and handover sheet).

The findings indicate that patient falls are occurring from beds, chairs and while patients are walking or standing. The layout of the medical ward, inadequate night lights, lack of resources and inadequate nurse-patient ratios, ineffective communication, and patients' health status were identified as contributing factors to inpatient falls. The 6-PACK falls risk assessment tool has variable results concerning its effectiveness. Some nurses believed the tool was effective in identifying high falls risk patients and on the other hand, some nurses believed it did not apply to their patient cohort. Therefore, due to this inconsistency, the nurses were prepared to trial another risk assessment tool (Table 4.1 Care setting and inpatient falls).

Table 4.1: Care Setting and Inpatient Falls (2015 - 2016)			
Structure	RiskMan	Nurse questionnaire	Nurse focus group discussion
Ward structure and culture	Falls occurring from beds (105), chair (68) and walking (58)	(Q7) *"Ward layout, staff can't see around the corners"* (Nurse 11)	Layout of the ward impacts on the visualisation of patients, Night lights are obscured by low-low beds, Patient visibility is impaired due to privacy curtains, Ward is team orientated
Falls prevention equipment/ resource quality and allocation		(Q8) Bed/chair alarms are not functioning effectively, and low-low beds are required	Nurses suggested lack of low-low beds, crash mats and ineffective newly purchased low beds and ineffective malfunctioning bed/chair alarms are the reasons for increased serious injuries
Nurse-patient ratios			Time constraints/inadequate staff numbers to supervise cognitively impaired high falls risk patients, nurses' skill mix and allocation, management of the floor during codes
Communication		(Q7) Breakdown of communication between nurses and multidisciplinary team	Ineffective handover structure, process and handover sheet impedes communication, ineffective documentation in the PCCP, breakdown of communication between nurses and among multidisciplinary team
Nurse perception of the 6-PACK falls prevention program		(Q4) Falls risk assessment tool is considered variable in effectiveness, (Q10) Nurses happy to trial different tools	Hard to prevent falls, variable effectiveness of the falls prevention risk assessment tool and patient cohort
Contributing factors. i.e., equipment and resources		(Q5) Patients' health status, behavior, balance, knowledge deficit on correct use of gait aid, lack of resources, time restraints (Q6) Ineffective communication between nurses and allied health staff, shortage of staff, increased workloads, volunteers, floaters, lack of resources	Ward layout, inadequate night lighting, curtains, nurse-patient ratios, lack of resources and ineffective alarms, time constraints, staff knowledge deficit in correct application of bed/chair alarms, toileting requirements/antidiuretics, health status of the patient (renal impairment, sundowners, dementia, delirium), patients with behavioural issues (impulsive, agitated, non-compliant, intrusive, remove or carry their alarms), language barrier to understand instructions and delivery of falls prevention education

The RiskMan falls data revealed three main locations where patient falls occurred in the medical ward over the two years (January 2015 - December 2016). As illustrated on Table 4.2 RiskMan falls data results of the falls location, the highest number of falls (105) resulted from falling from a bed, followed by 68 falls from chairs and 58 falls while patients were either standing, walking or transferring during ambulation. Nursing staff reported nine falls that occurred when transferring patients, which could be supervised by a nurse, physiotherapist or occupational therapist during assessment or care, or when the patient attempted to transfer independently or with a family member. This data implies that the number of falls from patients' beds over this two-year period was relatively high, followed by ambulation with or without supervision from nursing staff, which could potentially increase the number of serious injuries related to falls.

Table 4.2: RiskMan falls data results of the falls location
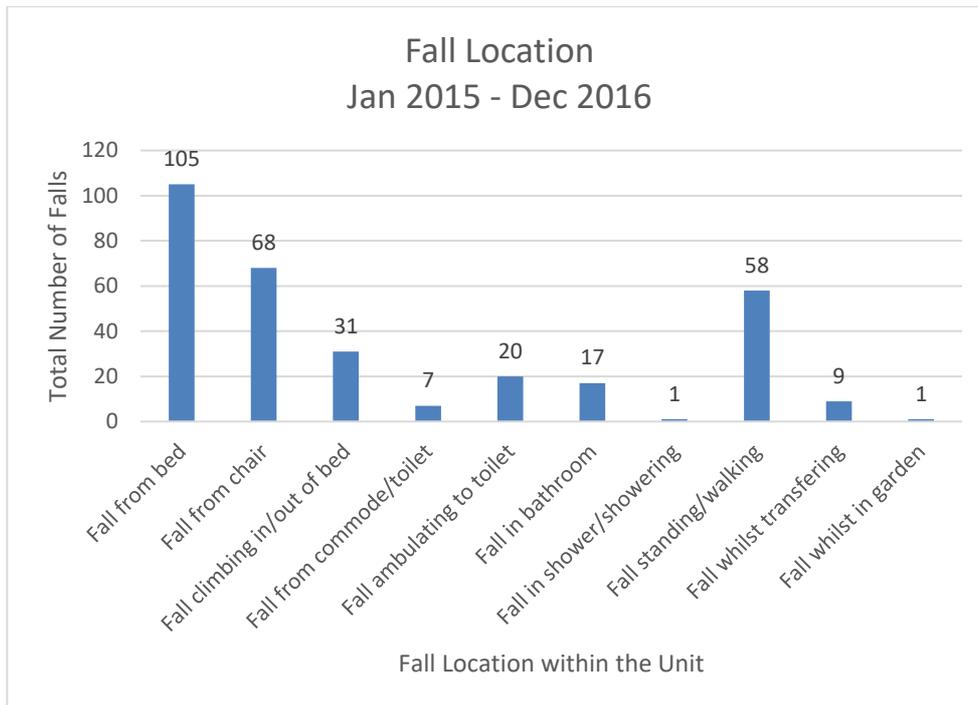
Several themes emerged from the focus group discussion and the nurse questionnaire which included the ward physical structure such as inadequate night lights, patient's privacy curtain and the layout of the ward. These were identified as contributing factors to increased falls from patient beds and chairs.

It is common practice to place a cognitively impaired impulsive patient's bed against the wall to keep them safe by minimising the exit point of the bed (Nurse 5, 16/2/2018). It reduces the visibility of the patient's immediate environment, which in turn hinders the patient navigating themselves safely at night in their environment. Furthermore, during the night nurses conduct visual observations of patients to maintain patient safety. When privacy curtains are drawn around the patient, they hinder visibility when trying to observe them. Nurse 2 said it was difficult to maintain patient privacy and ensure the patient had adequate sleep, while at the same time maintaining patient safety. It was evident that environmental factors were contributing to inpatient falls.

4.2.1 Equipment and resources in inpatient falls

Falls prevention equipment/resource quality and allocation were identified as a contributing factor to inpatient falls from beds and chairs. The bed/chair alarms are part of the 6-PACK falls prevention program. The nurse focus group discussions and responses in the nurse questionnaire identified alarms as ineffective in averting patient falls. For example, Nurse 5 explained that *"they [referring to patients] figure it out after a while"* to prevent the bed/chair alarm sounding by detaching the alarm or "…*carry the whole box [alarm] with them*". The reason for patients carrying the alarm was *"… on night shift some people [nurses] not understanding how to use falls alarms…"* Nurse 2 (16/2/2018).

In addition, malfunctioning of bed/chair alarms was a problem as Nurse 5 (16/2/2018) explained: *"…the fuses [of the bed/chair alarms] keep blowing…the cord doesn't work and then you plug it into the unit you don't know is it the cord, is it the mat, is it the unit…".* The malfunctioning equipment not only wasted the nurses' time, but also took valuable time away from assessing, monitoring or attending to patient needs. The alarms alert nurses and multidisciplinary team working in the medical ward that a high falls risk patient is exiting from their bed or chair without assistance from staff, and this requires immediate attention. However, the shortage and ineffective malfunctioning of bed/chair alarms, the

lack of staff knowledge on correct attachment of the alarm, and patients being reluctant to keep the alarm attached were hindering the effectiveness of equipment and resulting in falls.

4.2.2 Low-low beds and inpatient falls

The nurse focus group discussions and nurse questionnaire indicated that the shortage of low-low beds and the newly purchased beds had led to an increased number of serious injuries related to patient falls from beds. The nursing staff identified newly purchased low beds as unsuitable for the patient cohort of the medical ward. They considered the old low-low beds that went down to floor level were more effective. Nurse 5 (19/2/2018) commented that *"I thought they were great!"* Nurse 2 (19/2/2018) agreed, because they prevented patients getting out of the bed (19/2/2018): *"And even if they did [get out of bed], they'd just roll out onto the mat as well because they were basically on the floor anyway"*. This, in turn, prevented serious injuries related to falls *"and because they're down so low it's hard for them to get up on their feet as well"* Nurse 1(19/2/2018) noted. Lowering the bed to floor level promoted patient safety and prevented serious injuries related to falls from beds as evidenced by nurses' reflection. The shortage of low-low beds increased the frequent supervision required to monitor impulsive patients, and this in turn increased nurses' workload and reduced staff satisfaction and patient outcomes.

4.2.3 Nurse-patient ratios and inpatient falls

Staffing allocation and skill mix had a direct influence on missed care and subsequent patient outcomes. The capacity of staff to provide quality care to patients was difficult when patients were "*high fallers*" (Nurse 2, 19/2/2018), and "*… who are wanderers…*" or have *"dementia … [and are] very impulsive."* (Nurse 5, 19/2/2018). Multiple patients who were identified as high acuity needed to have a "special" nurse; that is, provided with individual attention by an allocated nurse. Nurse 5 (19/2/2018) explained that *"one other thing is*

sometimes we get a 'special' for somebody who is high falls risk, but we can only get 'specials' for one patient for the whole ward, we can't get one-on-one". The rationale for a "special" nurse is to minimise the patient's risk of sustaining an injury due to a fall. The lack of "special" nurses to provide one-on-one care for patients who exhibit behaviours of concern, poses a huge risk for high falls risk patients sustaining an injurious fall. When there are a significant number of patients who are considered to be a high falls risk, one nurse is not adequate to provide safe patient care. This poses a risk to patient safety and the provision of falls prevention and management.

The nurse-patient ratios to supervise cognitively impaired patients were identified as a contributing factor to inpatient falls. "Specials" are utilised in the healthcare settings where clinicians provide one-on-one care to cognitively impaired patients who exhibit the symptoms of delirium or confusion. Nurse 5 (19/2/2018) expressed her concern: *"we can't have one-on-one for those high falls patients",* while Nurse 1 (19/2/2018) explained, *"well, I've got one [referring to special] at the moment at the back that's for two patients so she does one and then the other one gets up".* It is evident that the common practice of cohorting/grouping together confused or delirious patients to be specialled by one nurse impacts on patient outcomes and falls prevention and management.

Nursing staff mentioned that previously they had in-house volunteers and their activities produced positive patient outcomes, as confused patients were "…*less agitated and less restless*" (Nurse 4, 19/2/2018). However, this is no longer the case (Nurse 5, 19/2/2018).

The other contributing factor to patient falls was time constraints and the associated pressure that it placed on nurses when making crucial clinical judgements, decisions and providing quality patient care. Nurse 1 explained the challenges around implementing falls prevention strategies to maintain patient safety and attending to patients' clinical needs with short time constraints:

"putting strategies in place, but it's also depending on the shift, the type of patient you get, you can be held up with somebody else and it's just unfortunate". Nurses try to adapt their provision of patient care depending on the patient cohort and treatment plan, but sometimes timely interventions may not be implemented *"… because we're stretched [referring to nurses]"* (Nurse 1,16/2/2018). Time constraints impacted on both staff satisfaction and patient outcomes. Hence, it is important to understand the mechanisms which link nursing staff levels, their perception of the work environment and their challenges in providing quality patient care and safety outcomes.

4.2.4 Nursing culture and inpatient falls

Despite high workloads and patient demands, nursing staff have developed a supportive culture within the ward to minimise staff stress levels and burnout, and also managed cognitively impaired and highly impulsive patients' safety (Nurse 4, 19/2/2018). It was acknowledged by Nurse 4 (19/2/2018) that staff allocation or ensuring adequate floor coverage during code emergencies was a contributing factor for falls. The emergency situations took priority over provisions, such as basic patient care for cognitively impaired patients with dementia and those suffering delirium who required close supervision and support.

4.2.5 Clinical handover and inpatient falls

The clinical handover structure, process and handover sheet were also identified by nursing staff as contributing factors for patients experiencing a fall in the medical ward. They highlighted that consistency in a structured handover to ensure relevant, accurate and current patient conditions and treatment plan was not met by the nursing staff, which impacted on patient safety, falls prevention and management. For example, clinical handovers were not conducted at the patient's bedside (Nurse 5, 19/2/2018); *"…we used to do handover with the other nurse like who [is] working alongside"* Nurse 1,

(19/2/2018)*; and currently *"…we don't have the ones [referring to handover] that are in other section[s]"* (Nurse 5)*. Not receiving a full handover, increased the risk of errors as critical information could be missed or not communicated.

An inadequate handover also increased the workload of nursing staff as they attempted to find relevant patient information when assisting the patient. As Nurse 4 (19/2/2018) explained *"because our handover sheets are just for our patients. We don't get a full list",* while Nurse 5 (19/2/2018) alluded to the implications of missing information: "… *so if ever I need to know what's happening with our patients, I have to go look for a handover sheet which we don't have".* A clinical handover sheet provides a quick overview of the pertinent patient information. Not having a structured bedside handover with the nursing members of the care team and a full list of patient information could potentially increase adverse events experienced in the medical ward, and further impede falls prevention and management.

The failure to investigate during admission a patient's past history and communicate the findings during handover, may result in nurses making incorrect assumptions about patient exhibited behaviours. It is essential to provide an adequate handover to ensure that relevant patient information is not missed, and individualised patient care is met, as Patient 6 pointed out:

> *I think sometimes attitudes. They shouldn't judge people because you don't know them. They didn't know why I was on benzo-diazepam, [so] they were saying, maybe she has delirium tremors that is like withdrawal from drugs or alcohol that's why she is screaming so loud, but it wasn't it and they were laughing at me, so I felt terrible.*

Patient 6 indicated that she had *"several falls, maybe 12 falls [due to] spasms, once I spasm I arch my back and then I lose my balance and I fall".* A patient's past history of falls indicates the patient's high falls risk and highlights the

importance of implementing individualised falls prevention strategies in consultation with the patient.

4.2.6 Ineffective communication and inpatient falls

Communication breakdown between nursing staff and the multidisciplinary team was also a contributing factor to the provision of continuous and safe patient care in falls prevention and management. Ineffective communication was described succinctly by Nurse 1 (19/2/2018), as *"people don't tell you stuff"*. At times, inadequate and timely communication of documented changes to a patient's treatment plan among multidisciplinary team adversely impacted on patient care and recovery, as some nurses *"… don't find out until the end of the shift"* Nurse 4 (19/2/2018). These findings indicate that ineffective communication can result in the nursing staff being unable to ensure timely implementation of patient care, which leads to decreased staff satisfaction and impedes the therapeutic relationship between the multidisciplinary team and the nursing staff as the following nurse explained:

> *… and then we get the blame for it because they're like, "You should have read your notes," but I've got other stuff to do. I'm not going to sit there and read everyone's notes. They write pages and pages, especially the physios… (Nurse 6, 19/2/2018).*

Ineffective communication was highlighted by Patient 1, a 60-year-old male who had a fall which was witnessed by nursing staff:

> *I was trying to walk to the bathroom [with] my walker and there wasn't strength in my legs and… too many people were trying to help, and I didn't notice that my walker had become entangled with my…gown.*

The patient was morbidly obese with lower limb cellulitis and during the incident had multiple nursing staff trying to assist him. The lack of effective communication between the nursing staff and patient may have contributed to this fall:

> *Too many people putting their input in and I was trying to say, no,
> I will deal with this. There is too many people touching me, [but
> they weren't listening]. That was the primary [reason] for his fall.*

To improve current practice and falls prevention Patient 1 suggested that: *"in the first place listen to me. Listen to the person who's trying to...because they know what is going on".* The patient also acknowledged the importance of this research *"I hope it helps, because I actually think that it's very important stuff that you are doing".* It was evident that ineffective communication impacted on the level of inpatient falls. All healthcare professionals need to work as part of a team to reduce the number of serious injuries experienced by patients in the medical ward due to a fall.

4.2.7 The 6-PACK falls prevention program and inpatient falls

Nurse perceptions of the current 6-PACK falls prevention program were mixed. One nurse (Nurse 8, 16/2/2018) highlighted that the effectiveness of the falls risk assessment tool *"...depends on patient's situation like age, morbidities like dementia, delirium"*, while another nurse (Nurse 7, 16/2/2018) agreed and added in the nurse questionnaire that the tool is "*effective at times, but depends on individual patient".* The falls risk assessment tool has nine items, and there seem to be two items that are of concern. Item 3: Mental State of the assessment tool does not accurately distinguish between temporary cognitive impairment and dementia, which might lead to the patient's falls risk to be downgraded from high to low risk. Item Six: Age – for example, '*Yes Patient is 80 years or older*' is a concern as the findings from this case study revealed that patients who experienced falls were usually in the 60-89 age group. As Nurse 3 (16/2/2018) explained: *"Not all strategies used are effective for all patients"* and in turn, the tool *"needs improvement".*

It was evident that nursing staff did not have an adequate understanding of the assessment tool, as they indicated that falls could be related to patients' mental

status. They also considered that the assessment tool was not user-friendly, and agency nurses and nursing students required explicit instructions from nursing staff. Consequently, patients deemed to be high risk of falling were mistakenly identified as low risk, which would not lead to the documentation of individualised falls prevention strategies on the PCCP. When asked if nursing staff would be happy to trial another falls assessment tool, Nurses 1, 2, 3 and 4 (16/2/2018) responded *"yes….as long as it's appropriate".*

4.2.8 Unavoidable falls and inpatient falls

As nurses have the most consistent contact with patients, their approach, perceptions and the culture of the ward in falls prevention can impact on reducing inpatient falls. Staff perception is that some falls cannot be avoided which increases inpatient fall rates. The management of patients with delirium poses additional challenges for nurses in enacting risk management strategies for falls prevention, as the following nurse explained:

> *well, we special them and…try…[to] follow them at arm's length so you can't get punched at the same time you're…watching them, but ...if they…push you out of the way and stagger and fall…you can't even…catch them before they hit the ground. So…it's just the nature of a lot of our patients that just make it too difficult even if they're specialled, they're just too difficult to actually control…* (Nurse 5, 19/2/2018).

As nursing staff are accountable for providing direct care to patients and adhering to the hospital's falls prevention policy, it needs to be acknowledged that some falls cannot be prevented by nurses, despite adherence to safe and competent nursing care. However, while nursing staff believe falls cannot be prevented, as indicated by Nurse 2 (19/2/2018) *"It's never like not going to happen"* or as reflected by Nurse 4 (19/2/2018), *"It's not 100% fall proof"*, falls will continue to occur in the medical ward*.*

4.2.9 Contributing factors and inpatient falls

There were several contributing factors to inpatient falls. When nurses were asked which patients tend to be high falls risk, they categorised patients with cognitive impairment and physical conditions. They identified cognitive impairment as a result of delirium, dementia and confusion, and physical conditions such as poor mobility, incontinence and renal impairment as potential risk factors for a patient sustaining a fall. The difficulties of providing frequent toileting for patients who were prescribed antidiuretics as part of their management plan for renal impairment (Nurse 2, 16/2/2018) were of concern in managing these patients. Cognitive impairment can also impact on a patient's functional ability to undertake tasks safely. Not only does the patient's health status influence their risk of experiencing a fall, but also their behaviour can result in serious injuries related to falls. As Nurse 4 explained: (16/2/2018) "*a lot of the patients are just non-compliant"* and Nurse 6 added: *"they just don't listen".* Nurse 5 (19/2/2018) succinctly summed up the situation:

> …number one [priority] is the cognitive impaired [patients]…because they are usually very impulsive…the ones that are high falls risk and who are aware, they can use the buzzer. They call us if they want to go to the toilet, but the ones that really fall are the ones that wander around and the ones that just do what they want.

4.2.10 Gait aids and inpatient falls

Gait aids and patient awareness of the correct use of prescribed walking aids contribute to patient falls. Nurse 2 expressed her concern about patients not complying with their walking aids, as they tend to get up without any assistance and their gait aids. Nurse 1(16/2/2018) reflected on the patient's perception on their ability to ambulate safety as *"it's only a short distance I'll be right".* Nurse 4 pointed out that patients might want to get up unassisted due to "*their time is spent in the bed or the chair, so they've got to get up from somewhere".* These findings indicate that patient's knowledge deficit and behaviour contributed to

their falls. Sometimes the patient did not know how to use the call-bell, and the reasons why patients failed to get assistance from nursing staff when ambulating to the toilet was another factor, *"they don't have the ability to [press the patient call] bell"* (Nurse 5, 19/2/2018)*.* Patients' correct use of their gait aid, their ability to call for assistance due to cognitive impairment and perception of their falls risk were identified as contributing factors to inpatient falls in the medical ward.

4.2.11 Language barriers and inpatient falls

Nursing staff explained that language barriers impacted adversely on effective falls prevention management. When they were not able to increase the patient's awareness of their falls risk and care because they did not speak the language, it could potentially hinder optimal patient cooperation, which in turn impacted on falls prevention, management and sustainability, as described by Nurse 1 (16/2/2018) *"…trying to explain to people you need to ask for help. How can you explain that to someone that doesn't speak English"?* It was evident that language barriers impacted on the provision of quality nursing care, patient engagement and understanding of their falls risk, and this in turn resulted in inpatient falls.

4.3 Theme 2 Delivery of care and care coordination and inpatient falls

The Inpatient Falls Prevention model was utilised to analyse and categorise the quantitative and qualitative data of the falls prevention component of the PCCP audit, the nurse questionnaire, nurse focus group discussions and patient interviews. It identified that patient assessment was not conducted on each shift and workplace factors impacted on the implementation of the targeted patient falls prevention strategies. Cognitively impaired patients were unable to seek

assistance, but also cognitively intact patients were waiting too long for nurses to attend them.

The seven categories that have informed the theme of *Delivery of Care and Care Coordination* are *communication breakdown among allied health and nurses, staff knowledge deficit of bed/chair alarms, time constraints, incomplete documentation* (in PCCP), *management of the floor during codes, staff perception of falls prevention,* and *effectiveness of the falls risk assessment tool.*

Table 4.3 below summarises the nurses' adherence to patients' falls risk assessment, the implementation and documentation of six falls prevention strategies in the PCCP, and patient education.

Table 4.3: Delivery of care and nurse care coordination and inpatient falls				
Process	PCCP audit	Nurse questionnaire	Nurse focus group discussion	Patient interviews
Nurse adherence to assessment, implementation and documentation	Deficiencies in assessment, documentation, implementation of all falls prevention interventions	(Q7) workplace factors (structure: nurse patient ratios, time restraints, ward layout, ineffective communication) impacting on the provision of implementation (Q9) falls prevention is enforced in the ward	Patient assessment not conducted each shift, copied from previous shift, time restraints	
Nurse-patient interaction	82.5% of patients are not engaged in their falls prevention brochure		Patient knowledge deficit in regard to their falls risk and use of their gait aid	(Pt1) Nurses are not listening to patient's request, (Pt6) Therapeutic relationship needs improvement
Patient involvement in decision making	17.5% engaged in their falls prevention. 25.9% of patients falls prevention strategies are discussed			Patient education is poorly implemented
Patient seeking assistance	2.6% of patients are confused and 2.6 are EAL		Some patients are unable to seek assistance due to confusion, delirium and dementia	(Pt3,7) Call-bell waiting time for nurse is too long (Pt7), not seeking assistance for ambulation

It is crucial to correctly identify the patient's falls risk, to ensure individualised falls prevention strategies are implemented in their care to avert adverse events caused by falls. As indicated by the quantitative data in Table 4.4 below, there was a difference between the nurses (53.4%) and the researcher (60.8%) in this case study in the assessment of patients at risk of falls (p=0.016), indicating

that nurses were not accurately identifying the patients falls risk using the risk assessment tool over the 20 weeks from the 20th July 2017 to the 30th November 2017. Consequently, patients were not allocated a high risk status, which impacted on their safety and in turn contributed to injurious falls.

Table 4.4: PCCP audit results of RiskMan number and risk score (20/7/2017 to 30/11/2017)

Criteria / Questions	Number	Total Occupied Beds	%
Falls This Admission	30	**508**	5.9%
RiskMan No. documented on PCCP	18	30	60%
Staff Identified Patient as High Risk of Falls	**271**	508	**53.4%**
Researcher Identified Patient as High Risk of Falls	309	508	**60.8%**

On the PCCP 16.8% of documented strategies were not implemented by nursing staff and 29.5% of high risk of falls patients had no documentation (Table 4.5 below). Of the 309 high falls risk patients, 53.7% had their falls prevention strategies implemented as documented in the PCCP. This in turn hindered the communication between nursing staff and disrupted the consistency of patients falls prevention care and management in the medical ward.

Table 4.5: PCCP audit results of falls prevention strategies (20/7/2017 to 30/11/2017)

Criteria / Questions	Number	Total Occupied Beds	%
Falls Preventions Strategies Implemented	166	309	**53.7%**
Falls Prevention Not Documented in the PCCP	91		**29.5%**
Falls Prevention Not Implemented	52		**16.8%**

Nurses' documentation of the provision of patient care plays a crucial role in maintaining patient safety, as it informs patient assessment, changes in clinical

condition, immediate care provided to the patient, and follow-up care required. There are several factors that influence nurses' adherence to the assessment, implementation and documentation of patients falls prevention strategies in the PCCP. During the nurse focus group discussions Nurse 1 (16/2/2018) suggested that patient assessment should be conducted on each shift to prevent falls occurring in the medical ward. When the researcher asked if the care plans were completed without comprehensive patient assessment Nurse 6 (19/2/2018) replied: *"that's what I'm thinking".* This suggested care plans being filled out at the beginning of the shift without a comprehensive patient falls risk assessment, which means the copying patient information from previous shifts, and not documenting or updating patients' falls risk or implementing strategies in the PCCP, all of which could potentially lead to increased serious injuries related to falls. Time restraints were also identified as a contributing factor during the nurse focus group discussion; at times patient assessment and correct documentation was not achieved as Nurse 1 explained: (19/2/2018)

> *…I know for myself I do fill out my care plans pretty early on in a shift, and usually with the idea that if there's any changes, I can change it later. I imagine sometimes I possibly have forgotten, and I think with the time constraints…I guess maybe this doesn't sit up as a – I mean I know falls are obviously important, but as a priority over filling out a care plan as to assisting someone, or giving them their medications, or if we've got a MET call or something going on this goes down further in the list and I possibly don't make the changes on the care plans myself.*

It was evident that concise, accurate and timely documentation of patients' information was not a priority in the medical ward, which in turn hindered effective communication among clinicians that could reduce inpatient falls. However, the nurse questionnaires described how workloads, the allocated skill mix and the additional burden of not being able to see or visualise confused, impulsive high falls risk patients, impeded proper patient assessment and the implementation of targeted patient interventions promptly.

Although nursing staff documented in their questionnaires that falls prevention was reinforced in the medical ward, it was not reflected in the PCCP audit. They believed that the falls prevention program was reinforced in this ward by displaying "…*Alert Signs*" (Nurse 1) to communicate a patient's falls risk, identifying high falls risk patients during "…*huddles*" (Nurse 5), using the "*communication board*" (Nurse 7) to alert staff of patients who have an alarm in-situ, open forums to discuss falls rates, monthly displays of the ward's falls statistics, discussions during ward meetings, and "…*placing patients call-bell within reach*" (Nurse 6). The nurses also highlighted yearly falls prevention competencies and documentation in the PCCP.

4.3.1 Nurse adherence to assessment, implementation and documentation of alert signs, low-low bed and gait aids

Alert signs are used to communicate the patient's falls risk. Of the 309 patients with a falls risk, 58% had an 'alert sign' displayed above their beds, but 28% did not have an 'alert sign' to indicate their falls risk documented in their PCCP. This was significantly low and was a strong indicator that if patients' falls risks are not identified/documented, targeted falls prevention strategies cannot be implemented or communicated between nursing staff.

Table 4.6 indicates the number of patients who were identified at risk of a fall and if their alert sign was documented on the PCCP as implemented above their bed.

Table 4.6: PCCP audit results of alert signs (20/7/2017 to 30/11/2017)

	Number	Total No of High-Risk Patients	%
Alert Sign			
Alert sign documented on the PCCP as implemented	178	**309**	**58%**
Alert sign not implemented	43		14%
No documentation on the PCCP	88		**28%**

In relation to the nursing intervention of allocating a low-low bed to a high falls risk patient, 71% of at-risk patients did not have the requirement for a low-low bed documented or implemented. Of the 86% of high falls risk patients requiring a 'gait aid', only 24% provided with walking aid (Table 4.7). Of this 24%, 68% of patients had their walking aid within reach. This leaves 32% of high falls risk patients at risk of fall and sustaining a serious injury as their walking aid was not within reach.

Table 4.7: PCCP audit results of low-low beds and gait aids (20/7/2017 to 30/11/2017)

	Number	Total No of High-Risk Patients	%
Low-low Bed			
Low bed documented on the PCCP as implemented	90	309	29%
If so, is it in lowest position	68		76%
No documentation and no implementation on the PCCP	219		**71%**
Gait Aid			
Total no. of high-risk patient requiring Gait aid	267	309	**86%**
Gait aid provided	63	267	**24%**
If so, is it close to patient	43	63	68%

There were six falls prevention strategies used in the medical ward that were not successful for several reasons. The failure to provide an alert sign above the patient's bed to communicate a patient's falls risk to everyone with whom they come in contact with, can potentially place staff and the patient at risk of falling. The alert sign was not documented in the PCCP which impairs the communication between nursing staff. For example, Patient 1 had no understanding of the implementation of the alert sign, or low-low bed, but did understand the importance of requiring supervision when ambulating to the bathroom. He said that the reason for the low-low bed being positioned at the lowest level (at the time of the interview) was not discussed with him and

added: *"I don't understand why it was"*. The alert sign was displayed above the patient's bed.

However, when the researcher in this current study explained (at the time of the interview) that this sign was placed there because he was at high risk of falling, the patient responded, *"I didn't realise I was"*. Similarly, Patient 2 had no understanding of the implementation of the alert sign above his bed, saying *"I never seen it"*. And added that the nurse had not explained the reasons for implementing the alert sign. Similarly, an alert sign was positioned above Patient 7's bed but he did not understand why it was implemented or why he was in a low-low bed. While there was no alert sign above Patient 6's bed, she commented that *"yesterday…she [the nurse] explained… why I'm in this [low-low] bed"*. Failure to inform the patient of the implemented falls prevention strategies or incorporate the patient in their falls prevention plan could hinder the patient's ability to make an inform decision or to take ownership of their own safety.

4.3.2 Nurse adherence to assessment, implementation and documentation of toileting regime, supervise bathroom and bed/chair alarms

A toileting regime is implemented for high falls risk patients who require frequent toileting. The findings revealed that only 2% of patients had a 'toileting regime' in their nursing care documented as commenced in the PCCP. In relation to supervising high falls risk patients in bathroom, 43% of high falls risk patients that required 'bathroom supervision' had documented as implemented on the PCCP. This is significantly low, but both these results should be interpreted with caution because the patient's toileting regime could potentially have been implemented, but nursing staff failed to document it in the PCCP (Table 4.8 below from the 20/7/2017 to 30/11/2017).

Table 4.8: PCCP audit results of the toileting regime and bathroom supervision

	Number	Total No. of High-Risk Patients	%
Toileting Regime			
Toileting regime documented on the PCCP as commenced	5	309	**2%**
Toileting regime not commenced	210		68%
No documentation on the PCCP	94		30%
Bathroom Supervision			
Supervise bathroom documented on the PCCP	133	309	**43%**
Supervise bathroom not documented	114		37%
No documentation on the PCCP	59		19%

The toileting regime and supervise bathroom on the PCCP were not documented for Patient 7. The only identified and implemented falls prevention strategies on the PCCP were as indicated above, alert sign and low-low bed, but both of these strategies not discussed with the patient, and other relevant strategies such as supervise bathroom, toileting regime, and patient brochure were not documented on the PCCP. Failure to establish a toileting regime, engage patient in their falls prevention plan and emphasise the importance of supervising bathroom visits with the patient, may have contributed to him having a fall next to the bathroom door.

Patient 2 who had a fall in the bathroom understood what was meant by 'supervising bathroom', documented on the PCCP, but toileting regime was not documented. Providing only part of the identified falls prevention strategies on the PCCP will not prevent the patient experiencing a fall. The patient had a history of falls and being left alone in the bathroom could potentially contributed to his fall.

In relation to the nursing intervention of bed/chair alarms for cognitively impaired high falls risk patients, of 128 patients who required bed/chair alarms, only 14 had their bed/chair 'alarm' in-situ, and 36% did not have the alarm connected correctly, and 64% were documented on the PCCP but not implemented (see Table 4.9 below). A significant number of cognitively impaired high falls risk patients did not have their alarm in-situ or connected correctly to prevent a fall.

Table 4.9: PCCP audit results of bed/chair alarms (20/7/2017 to 30/11/2017)

	Number	Total No. of High-Risk Patients	%
Alarm In-situ			
Total no. of high-risk patients requiring Alarm	**128**	309	41%
Alarm in-situ	**14**	128	11%
If so, is it connected correctly	5		**36%**
Documented on the PCCP but not implemented	9		**64%**

4.3.3 Nurse-patient interaction and patient involvement in decision making

The nurse-patient interaction and patient involvement in decision making about their falls prevention plan was incomplete, and it was evident that a high number of falls occurred because patients were not provided with fall prevention brochures. It seems that only 17.5% of patients were provided with brochures to prevent falls, and of those about 2.6% did not understand written English and 2.6% were confused. This data implies that most inpatients (82.5%) who were admitted to the medical ward were not engaged in their falls prevention brochure (see Table 4.10 below of data from the 20 July 2017 to the 30November 11/2017).

Consistent with the acute care hospitals falls prevention policy, the 6-PACK falls prevention brochure and strategies are required to be discussed with the patient

during the implementation phase, in order to increase their awareness of their falls risk and the reasons behind the implementation of each strategy. However, Patient 3 said *"no, definitely not, I never seen it"* when presented with the falls prevention brochure, and was not aware of the implemented alert sign which was placed above his bed. The patient interpreted the alert sign as slipping and not falling which indicates the alert sign was not discussed with him before implementation. The result of this fall, the young gentleman (aged 38) became more apprehensive about ambulating without supervision. The failure to assess and document the patient's toileting requirements post dialysis may have contributed to his fall, and which could possibly have been prevented by educating him in relation to toileting regime and falls risk, and involving him in decision making.

Table 4.10: PCCP audit results of falls prevention brochure

Criteria / Questions	Number	Total Occupied Beds	%
Falls Prevention Brochure Provided	54	309	**17.5%**
Falls Prevention Brochure Not Provided	255		**82.5%**
Risk and Strategies Discussed with Patient	14		25.9%
Risk and Strategies Not Discussed with Patient	40		74.1%
Patient Confused	8		**2.6%**
Patient EAL	8		**2.6%**

4.3.4 Patients seeking assistance

Patients not seeking assistance from nurses was a contributing factor to inpatient falls. When the 38-year-old patient (Patient 3) had a fall in the bathroom which he claimed was due to *"weakness in his legs… [post a] … dialysis"*, he said that initially he did not ask for assistance:

> *At first, no, but second time [I asked for assistance] but did not wait for the nursing staff to assist. I had to go, I needed to go to the toilet, [it took] too long…15 minutes before someone came.*

While the patient was aware that he required staff assistance with ambulation, the time taken by the nurse to respond to his call-bell led him to take a risk and fall. Patient 3 believed *"one hundred percent"* that the fall could have been prevented, if nursing staff had responded to the call-bell in a timely manner. It is evident that involving the patient in their falls prevention by ensuring regular visual observations and discussions on toileting, pain and repositioning may prevent them taking a risk to ambulate on their own. Moving forward, the patient said he would, *"… make sure I notify staff one hundred percent, especially I had a fall and all that".*

A further participant, a 41-year-old woman (Patient 6), did not seek assistance and had a fall while trying to transfer herself from a soiled bed to a chair after a spasm.

> *…I thought I'll get out of the bed and just sit in the chair. …I have been having…one spasm after the other and I thought the medication had worked…[but] I slipped off [the chair] onto my knees.*

She then called out to the nurse rather than pressing the buzzer because

> *…the room that is directly in front of the nurses' station, if someone is there, and they hear someone yelling and screaming, wouldn't they come running to see what is happening to you? They would, I do not need to press the buzzer.*

Patient education on admission on how to use the call-bell to seek assistance to prevent falls would have established a therapeutic relationship between the patient and nurse to build trust.

> *…She actually [the nurse] came in and she took the drug chart out… she just said "I'll take the drug chart and see what else you can be given, and she went off…they were laughing at me…I could hear what they were saying about me.*

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A therapeutic relationship with the patient is the core of nursing care. Not establishing this relationship from the stage of admission to discharge could hinder patient treatment outcomes, due to the patient not trusting or engaging with healthcare professionals and seeking assistance when required.

Most patients believed they were not at risk of falls and did not seek assistance. For example, an 82-year-old man (Patient 7) had a fall at night near the sink: *"my first reflection was being on the floor, over there underneath the sink asking for help and there was nobody around".* He was found next to the bathroom door after attempting to walk there without any nursing assistance. He did not identify himself as at high falls risk or having a fall. When asked why he did not get any assistance from nursing staff, he replied, *"…I wanted to pass water…I didn't get any help in that direction".* Falls prevention discussions must be conducted on admission to increase patient awareness of their falls risk and implement an agreed falls prevention strategy. However, this patient said he was not provided with a falls prevention brochure*.*

In summary, triangulation of the RiskMan falls data, the nurse questionnaire, nurse focus group discussions, and patient interviews demonstrated that there was some agreement about the reasons for increased number of serious injuries related to inpatient falls in the medical ward. These included: deficiencies in using the assessment tool, inconsistent implementation, and incomplete documentation of the six strategies. Other reasons were the time taken by nurses to answer the patient call-bell, and a lack of patient education and engagement in falls prevention strategies or involvement in decision making process which led to patients not asking for assistance.

4.4 Theme 3 Quality of patient care and inpatient falls

The Inpatient Falls Prevention model structures the quantitative and qualitative falls data of RiskMan falls data, HRT, patient interviews and nurses'

recommendations. Generally, the findings demonstrate that most patient falls occur on Tuesdays and affect patients between the ages of 60-89, with males being more prone to falling in the ward. The incidence of fractures increased over the two-year period of the study and most falls occurred at nights. When compared to data from peer hospitals (HRT), the acute care hospital in this study performed better. Nursing staff and patients made several recommendations to improve documentation, communication, and staff education outlined in Table 4.11.

The five categories associated with the theme of *Quality of Patient Care* are *health status* of the patient, *language barrier, patient knowledge deficit with gait aid, communication breakdown between nursing staff and patients* and *staff recommendations* on current practice.

Table 4.11: Quality of patient care and inpatient falls			
Outcome	RiskMan	HRT	Patient interviews
Total number of falls of the medical ward	Most falls are occurring on Tuesday among male patients, falls are higher on night shift, age 60-89, patients have a history of fall, one death due to fall and fractures are increased	Injurious falls are lower compared to peer hospitals	
Patient specific experiences			Patients perceive nurses as too busy and protecting the nursing staff, most patients do not classify their incident as a fall, most falls occur at night due to toileting or unassisted ambulation
Perception of contributing factors			Factors that led patients to experience a fall in the medical ward, ineffective communication between the nurses and patients, lack of supervision in the bathroom, answering patient call-bells in a timely manner, patients overestimate their falls risk, the nurses' attitude
Understanding of the implemented falls prevention strategies			Most patients are unaware of the implemented interventions, alert sign is interpreted as slipping
Recommendations	**Nurse questionnaire:** (6a) Improve documentation, communication, increase staff knowledge, structured rounding, specials, assist patients with ambulation **Nurse focus group discussions:** Better bed/chair alarm system, staff education, regular reminders about falls prevention, floaters to supervise cognitively impaired patients, adequate assessment of patients' falls risk, physio assessment on admission, structured rounding to increase patient observation, volunteers to assist in supervising confused patients		

Five factors were identified as contributing to inpatient falls and patients have an insufficient understanding of the implemented falls prevention strategies. The key measures from the RiskMan falls data described were the day and time of the fall, the difference between the number of falls with age and gender, the patient's history of a fall, the severity rating and the location of the falls.

There was an increase in the number of falls on Tuesdays compared to other days of the week. Table 4.12 provides the total number of falls on each day of the week over the two years.

Table 4.12: RiskMan falls data results of the total number of falls
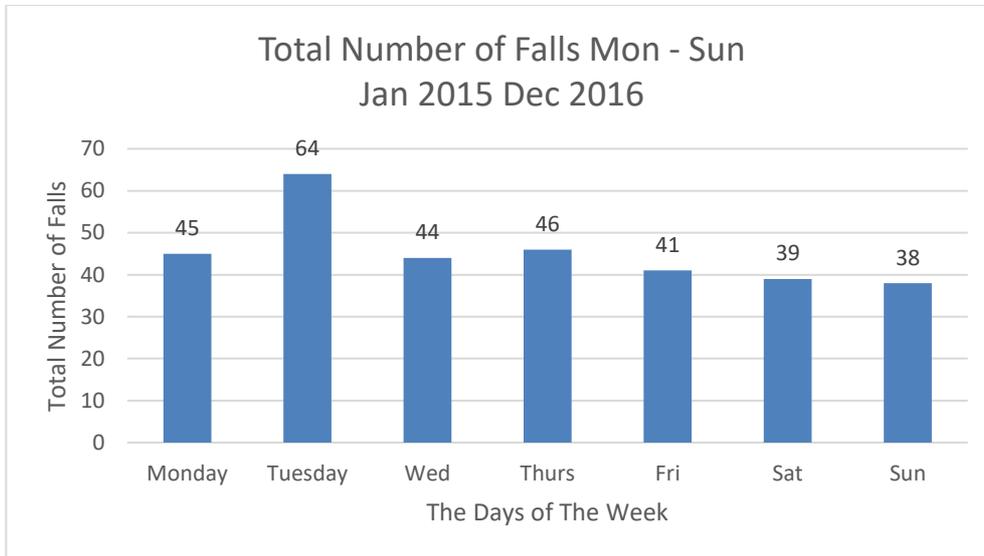
As illustrated in Table 4.13 below, the total number of falls over the two years was significantly higher on night shift (from 2130 – 0700hrs) compared to morning and afternoon shifts. There was no difference in the total number of falls on morning shift (0700-1300hrs) and afternoon shift (1500-2130hrs). However, there were an additional 35 patient falls during the morning and afternoon shift overlap (1300-1500). The time was not indicated on 17 falls which were submitted to the RiskMan database. In contrast to the AM (morning), PM (afternoon) and Overlap shifts, an increased number of falls occurred on the night shift.

Table 4.13: RiskMan falls data results of the time of the falls

Time of Falls
Jan 2015 - Dec 2016

	0700-1300	1300-1500	1500-2130	2130-0700	unknown
Series1	70	35	71	124	17
	AM Shift,	Overlap,	PM Shift,	Night Shift,	
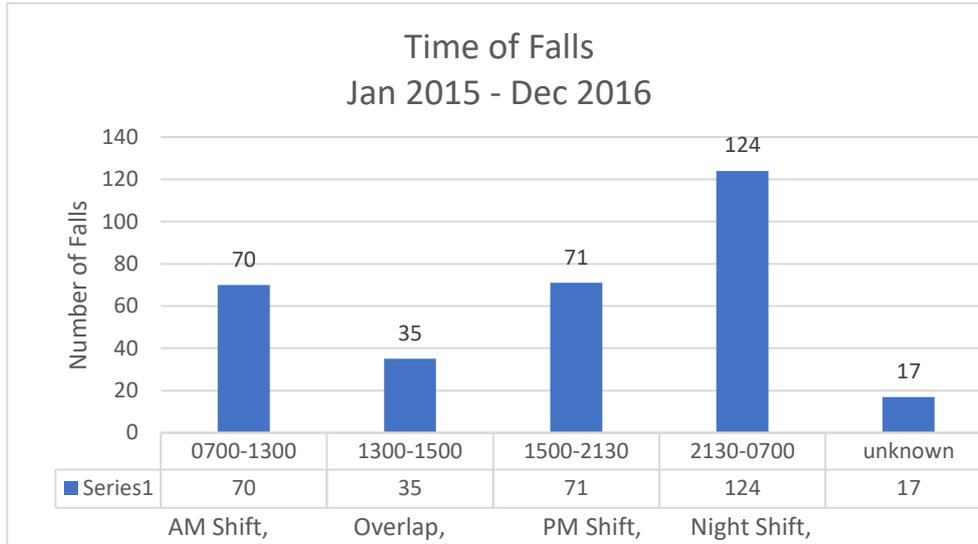
The proportion of male (201) patients who experienced a fall was greater than that of female (116) patients in the medical ward over the two years, as shown in Table 4.14.

Table 4.14: RiskMan falls data results of falls among females and males

Total Number of Falls for Males and Females
Jan 2015 Dec 2016

Male	Female
201	116

Gender
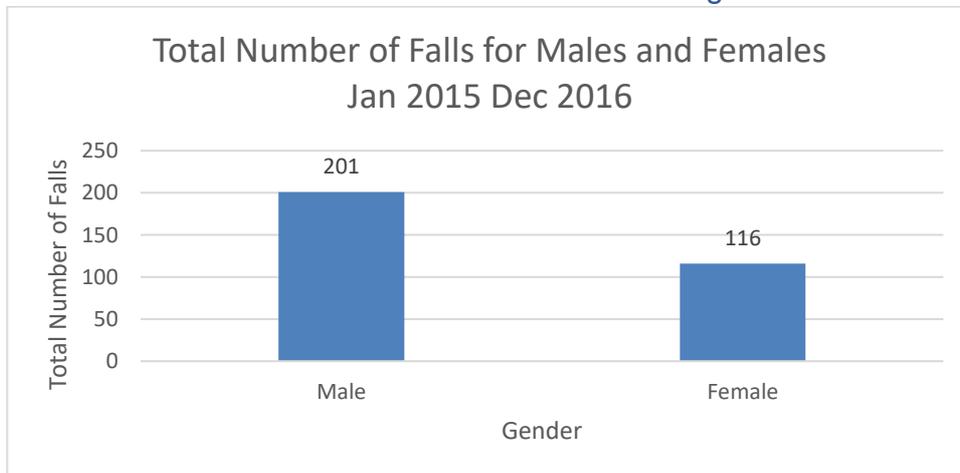
The number of falls increased dramatically with age. As indicated in Table 4.15, over the two years the total number of falls increased for the 60 to 89 age group who had 46 falls, compared to 97 falls for the 70-79 age group. The number of falls was highest (117) for patients between 80 and 89.

Table 4.15: RiskMan falls data results of the patient age groups

Age
Jan 2015 - Dec 2016

Number of Falls

- 20-29: 1
- 30-39: 1
- 40-49: 10
- 50-59: 13
- 60-69: 46
- 70-79: 97
- 80-89: 117
- 90-100: 32

Age
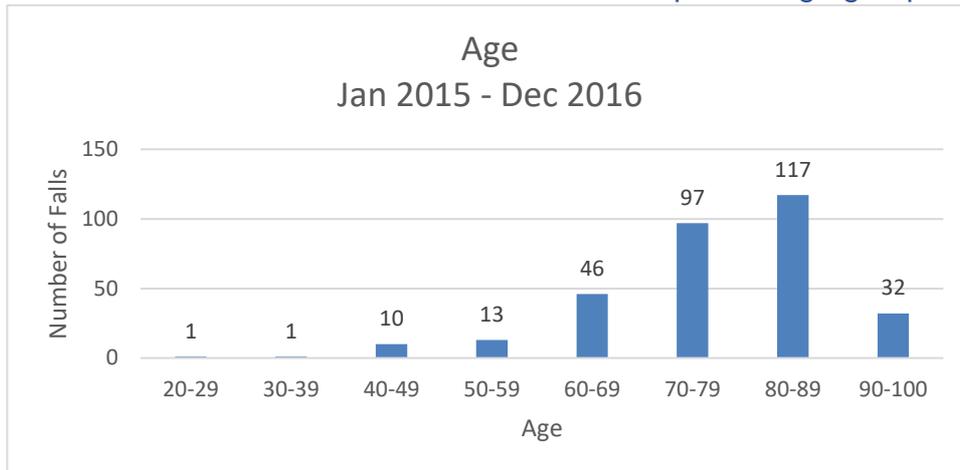
Falls are classified according to their severity. Table 4.16 below illustrates the severity rating for the total number of falls. One patient had a severity rating of 1 (fall resulted in death). Severity rating 2 (falls with moderate injury: fractures, subdural hematoma) increased from two to five patients. There was a slight but not significant difference in the total number of falls for severity rating 3 (falls with minor injury: cuts, bruises, abrasions). Ninety-seven patients had a severity rating 4 (falls with no injury/harm) in 2015 compared to 118 patients with severity rating 4 in 2016.

Table 4.16: RiskMan falls data results of the patient injury related to falls

Falls Severity
Jan 2015 - Dec2016

Total Number of Falls

- Severity 1: 2015 = 1, 2016 = 1
- Severity 2: 2015 = 2, 2016 = 5
- Severity 3: 2015 = 47, 2016 = 46
- Severity 4: 2015 = 97, 2016 = 118

Severity 1 - 4
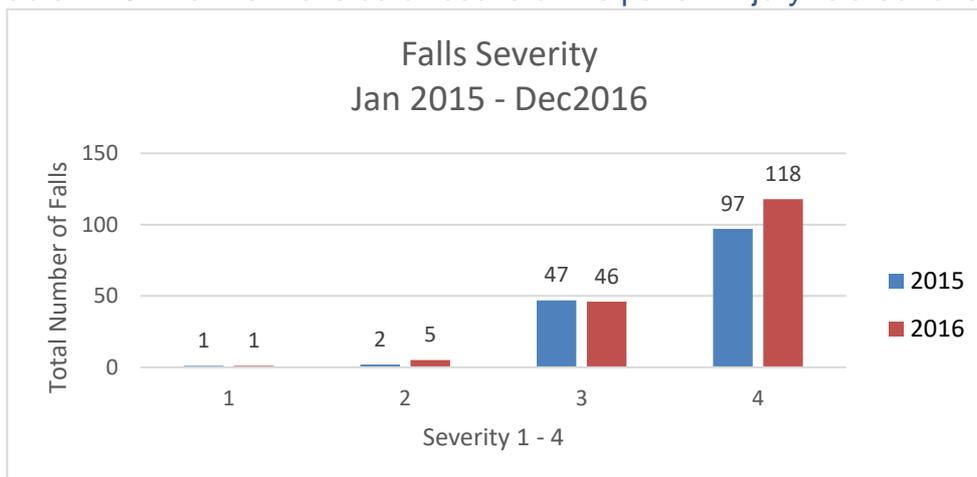
It was documented on the RiskMan database over the two years that of 371 patients, 197 (53.1%) had a history of a fall, which meant that they had a fall

during the current admission, or were admitted with a fall, or had a fall within the last 12 months. The patient's history of a fall for 34 patients was not documented on the RiskMan database, which could potentially increase the number of patients who had a history of a fall from 197 to 234, as the number of patients who were admitted to the medical ward were predominantly over the age of 65. This in turn would potentially increase to 63.1% of inpatients identified with a history of a fall. Patients' history of a fall increases their risk of experiencing a fall and potentially contributed to the increased total number of falls and serious injuries related to falls in the medical ward (see Table 4.17 below).

Table 4.17: RiskMan falls data results of the patient's history of a fall
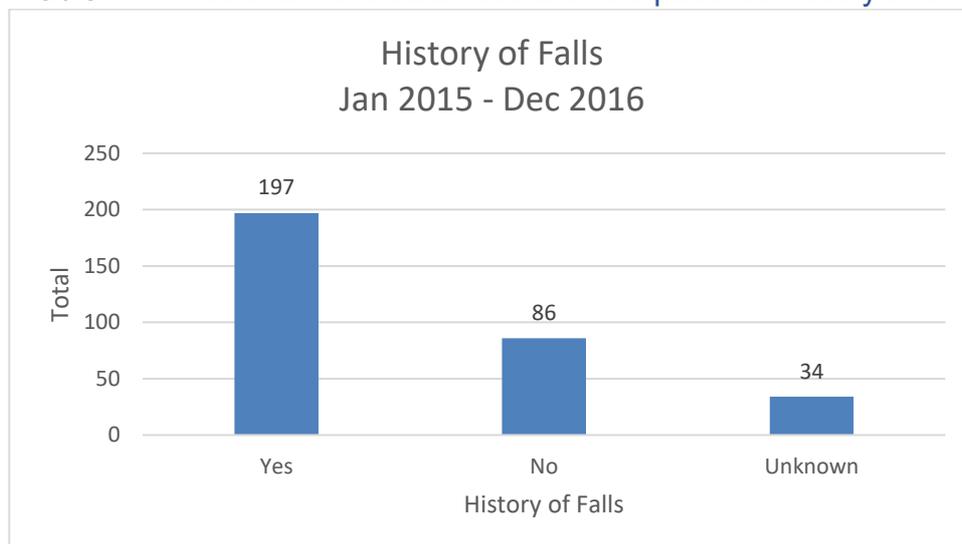
4.4.1 Falls comparison with peer hospitals (HRT)

The peer hospitals used various falls risk assessment tools as part of their falls prevention program. There are a total of 21 hospitals from Australia and New Zealand registered with the HRT, but only four hospitals that or which were identified as peer hospital that participated in the 2017 July - 2018 June Patient Safety Report. It contains only the falls which resulted in a major injury that altered the patient's treatment plan.

The number of patient falls with a resulting injury at the acute care hospital in this case study was compared with falls data from peer hospitals. Although it had the lowest number of falls with injuries (147) compared to peer hospitals, the value/number of falls for this acute care hospital was above the expected value/number of falls (136) set by the HRT over the last 12 months. This in turn highlighted that the total number of falls with injuries was high (above the set value/number of falls by the HRT) and managing falls with injuries remained a problem in this acute care hospital.

Although the value/number of falls set by the HRT for acute care hospitals differed, when the difference between the number of falls with the value/number set by the HRT, (Hospital 1: 99; Hospital 2: 48; The acute care hospital in this current study is: 11; Hospital 4: 29) is compared, it is evident that falls in this acute care hospital were closest to the value/number set by the HRT. This indicates that it was performing better in falls prevention and management compared to peer hospitals. As explained in the previous chapter, the HRT reviews the organisation's previous injurious falls data to determine the number of falls the organisation should have, with total number of falls in the acute care hospital in this research study, the total being above the predicted value set by the HRT as demonstrated in Table 4.18 below.

The formula for analysis is the risk adjusted ratio which equals the number of falls reported by the organisation divided by the expected number of falls, and the HRT predicted value of falls for the specified organisation. The denominator is the expected number of falls for episodes in any care type. The numerator is the subset of the episodes that have an additional diagnosis of falls (ICD-10code, W0x or W1x followed by Y92.22 or Y92.24).

Table 4.18: Patient Safety Report: Peer hospital comparison of falls				
	Hospital 1 (VIC)	Hospital 2 (NSW)	**The Acute Care Hospital (VIC)**	Hospital 3 (NZ)
Falls	281	195	**147**	266
Bed days/1k	181.7	155.1	133.6	297.1
Falls /10k bed days	15.5	12.6	11.0	9.0
Expected falls	182	147	**136**	237
Difference between falls and expected falls	99	48	**11**	29
Risk adj. ratio	1.55	1.33	1.08	1.12

4.4.2 Patient specific experiences and perceptions of contributing factors

The fifth participant in this interview was a 73-year-old lady who had a fall from the bed onto a crash mat as she was *"trying to get out of the bed to go to the toilet"*. *"I pressed the button [referring to patient call-bell], but they were busy so I couldn't wait, but I didn't get anywhere anyway"*. She thought that *"patience from patients"* would prevent them having a fall. But unless there is a collaborative approach between the patient and the nursing staff on how to prevent the patient having a fall, patients' perceptions of their falls risk will influence them taking the risk to ambulate without any assistance from nursing staff.

Patient 5 commented that the nursing staff *"…are so busy here…I cannot wait…I didn't think I would fall, [and] I rolled out, couldn't get up"*. Patients think that nursing staff are always busy with other patients' or other nursing tasks, and therefore are reluctant to ask for assistance and are more prone to

ambulate independently. The falls prevention brochure was not provided on admission and the patient had no understanding about the alert sign placed above the bed, or the low-low bed that was implemented as part of her falls prevention plan. It was evident that as she was not engaged in her falls risk on admission or her prevention plan, she assumed that she was safe to ambulate without assistance.

The fourth participant, a 64-year-old woman who slipped out of the bed while she was asleep, explained the circumstances of her fall:

> *I got too close to the edge of my bed and because I only have one leg and a stump, I didn't have control and slipped down the side of the bed.*

Once again, in a protective tone the patient commented:

> *the assistance came straight away because they were [standing] outside of my door when it happened…so they came straight away". "[That] particular night…I was a bit restless and…slipped down. I landed on my good leg and not [on] my stump…[it] wasn't anything drastic, I didn't fall.*

The patient did not classify this incident as a fall which reflects her knowledge deficit of falls risk. Also, her understanding of what constitutes a fall may pose a problem for future falls and influence her taking unnecessary risks, demonstrated by her remark that "*…I didn't fall from walking or anything like that".* The patient did not sustain a serious injury as she ended up on her leg instead of the stump. If a low-low bed had been allocated, she would have rolled onto a crash mat instead of falling from a greater height.

Similarly, Patient 2, an 84-year-old man, did not classify his incident as a fall and was protecting the nursing staff. He had a fall in the bathroom and explained that a nurse had supervised him walking to the toilet, but then left him *"for a few seconds – few minutes".* When he leaned over *"to pick it [towel] up*

from the floor" he lost his balance and fell. Asked if the fall could have been prevented if a nurse was present, he replied: *"Probably, probably not. Who knows?".* To prevent further falls in the bathroom he suggested to *"add a handrail in there so that nobody falls".*

Patient 4 was provided with a falls prevention brochure on admission and found it helpful. When queried if she asked any questions or obtained any clarification from the nursing staff she replied: *"I didn't need to ask any questions to nursing staff…a lot of the information was common sense".* Patient 4 had no knowledge of the alert sign, which was placed above the bed and, like patient 3, interpreted it as *"slipping over, not falling over".* It was evident that the alert sign which was implemented as part of falls prevention strategies was not discussed with the patient and may need to be revised to promote better understanding by inpatients.

4.4.3 The Inpatient Falls Prevention model

After using the Donabedian model, it became clear that a more specific framework was required for a falls prevention model. As a result, the Inpatient Falls Prevention model was adapted to collect and analyse falls data. The Inpatient Falls Prevention model triangulated the three components (Care Setting, Delivery of Care and Care Coordination and the Quality of Patient Care) that contribute to inpatient falls and help to address the overall research question of how the inpatient falls can be reduced in the acute care hospital.

Figure 4.1 below presents the overall research findings that more functioning and adequate equipment with appropriate staffing levels (structure) are required to empower nursing staff to undertake the 6-PACK falls prevention program (delivery of care and care coordination), and more frequent evaluation of the provision of nursing care is required to sustain falls prevention and minimise injurious patient falls (outcome of patient care).

Figure 4.1: Inpatient Falls Prevention model
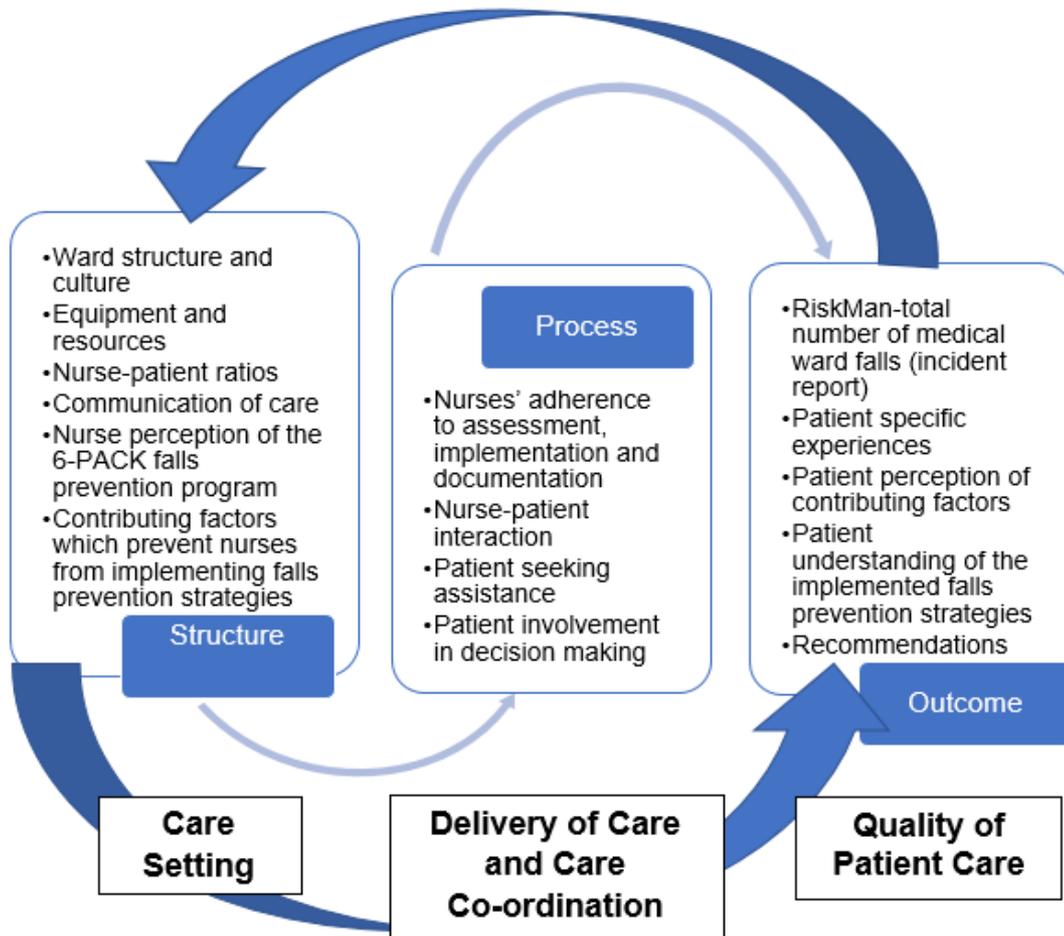
The *Care Setting* revealed that the barriers experienced by nurses included difficulties in *managing cognitively impaired patients*, *lack of staffing/specials,* the *ward layout*, *communication breakdown between nursing team* and *among nursing staff and multidisciplinary team.*

Delivery of Care and Care Coordination identified issues surrounding patient falls as *lack of resources* and *malfunctioning equipment, staff knowledge deficits* in relation to the bed/chair alarms and *reinforcement of* areas recognised for improvement could also help to improve falls prevention and management in the medical ward (sub-research question five: the effectiveness of the 6-PACK falls prevention program).

The *Quality of Patient Care* revealed that the patient perceptions of factors that led them to fall and their understanding of the implemented strategies were

influenced by *patient call-bell waiting time* and *communication breakdown between nurses and patients*.

4.4.4 Recommendations of nurses and patients

Most of the nursing staff believed falls could be prevented by effective patient assessment, communication, documentation, staffing and resources. Responses in the nurse questionnaire suggested that: *"Better understanding/communication around patients and falls risk"* and *"better handover/communication between staff"* and allied health could prevent falls. Nursing staff also recommended *'specials'* and to "*utilise volunteers to supervise and distract [cognitively impaired] patients".* This recommendation reflected comments such as "*patients that are deemed as high risk and are also impulsive then extra staffing could be provided as it is very hard to constantly visualise them when you have to attend to other patients".* Another recommendation was, "*meeting ward requirements (hi-low) beds, [and] staffing".* Moreover, nursing staff emphasised the need for "*better falls sensors and more access to specials, more frequent observations"* and *"new program to fit those who don't fit into the box e.g.: confused, agitated, (psych) patients".*

Patients recommended increasing "*patient awareness and being careful with what they do".* Also the importance of establishing a therapeutic relationship between nursing staff and patients to establish trust and effective communication by "*listening to the person…because they know what is going on"* during ambulation and episode of care.

4.5 Conclusion

This chapter presented the data from RiskMan, the 6-PACK falls prevention strategies in the PCCP audit, the falls risk assessment tool, patient education, comparison of HRT data with peer hospitals, the nurse questionnaire and nurse focus group discussion, and the patient interviews. There were a number of

factors that increased serious falls in the medical ward, including the deficiencies of assessment, inconsistent implementation and incomplete documentation of patients falls risk, functioning and adequate resources, nurse-patient ratios in supervising cognitively impaired patients and ineffective communication between nurses, and nurses and multidisciplinary team and patients.

The Inpatient Falls Prevention model was utilised to collect and analyse the falls data and it contextualises the three following critical components as themes of: *Care Setting, Delivery of Care and Care Coordination*, and *Quality of Patient Care*. The *Care Setting* characteristics, such as lack of functioning and adequate resources, the time restraints in supervising cognitively impaired patients and breakdown in communication across the multidisciplinary team and patients were closely linked to delivery of quality care and serious injuries related to patient quality of care and falls. Likewise, the nurse's attitude in *Delivery of Care and Care Coordination* of implementing falls prevention strategies were strongly linked to *Care Setting* as it was not supporting the nursing staff to further improve patient outcomes. The difficulty of obtaining functioning bed/chair alarms or low-low beds (care setting), evaluating patient falls risk and implementing falls prevention strategies (delivery of care) and failing to discuss the patients' falls prevention plan and the patients understanding of their falls risk (quality of patient care) resulted in them classifying their incident as not a fall. It is evident that all three steps were strongly linked to one and another.

The RiskMan falls data revealed that patient falls predominantly occurred at night and in the patient's environment such as from beds, chairs and while walking to the toilet or bathroom. The RiskMan falls data, PCCP audit and focus group discussions provided a correlation between nurses' practice and the increased number of falls in the patient environment. For example: the inconsistent implementation of the bed/chair alarms (PCCP audit) were associated with staff knowledge deficit (focus group discussion) and increased number of falls at night (RiskMan). In addition, the shortage of staff, lack of

resources and environmental factors, such as, the night lighting, patient privacy curtains and the layout of the medical ward were identified during the nurse focus group discussions and nurse questionnaire as key elements in increased number of falls at night, and serious injuries associated with falls as reflected in the RiskMan falls data.

The RiskMan data also revealed that the number of male patients who experienced a fall was greater than for females and most had a history of previous fall. This was correlated with patient interviews where the time taken to answer the call-bell was too long. Although, the nursing staff were aware of the patient's history of previous falls on admission, due to ineffective communication between them and between nursing staff and allied health professionals this patient information was not communicated. The patient interviews highlighted the nexus between the patient and nurse therapeutic relationship, with communication and patient education as the key components. The PCCP documentation audit, patient interviews and nurse focus group discussions revealed that patient engagement in their falls risk, implemented falls prevention strategies, and falls prevention plan was significantly low.

The nurse focus group discussions and nurse questionnaire correlated with PCCP audit and RiskMan falls data. The ineffective communication between nursing staff through unstructured patient handovers (identified during the nurse focus group discussion and nurse questionnaire), incomplete documentation of patients' falls risk and implemented strategies on the PCCP were some of the mechanisms that influenced the increased number of falls identified on the RiskMan falls data.

The patient interviews, PCCP audit and RiskMan falls data correlates closely. The patients' lack of awareness of their falls risk, implemented falls prevention strategies and their perceptions of nurses' heavy workloads influenced them taking the risk to ambulate unassisted. This in turn, impacted on how some

patients described themselves as not at risk of falling and did not classify their incident as a fall. These factors could potentially increase the number of serious injuries such as fractures, subdural haematomas and even death related to falls.

The outcomes of these findings will be extensively discussed and considered in relation to the literature in the next chapter: Chapter Five: Discussion. The components illustrated in the Inpatient Falls Prevention model, and the identified nineteen categories are merged to highlight the key contributing factors to inpatient falls in the medical ward and these are presented as **key factors** in the Discussion chapter.

Chapter 5: Discussion

Despite ongoing efforts to understand the reasons for patient falls, the incidence of falls and serious injuries related to falls remains a challenge for acute care hospitals. The most important key factor in inpatient falls was the lack of nurses' adherence to assessment, implementation and documentation of the 6-PACK falls prevention strategies, as it directly impacted all high falls risk patients. The second contributing factor was the lack of patients' understanding of their falls risk, implemented fall prevention strategies, and lack of prevention education as it impacted most patients. The third important key factor was the elements associated with the care setting such as the environmental factors, and scarce malfunctioning resources.

To recapitulate, the 6-PACK program consists of three components: the assessment tool, six strategies, and patient education. Sub-research question one (trends discerned in falls administrative data), three (factors that impact on nurses in implementation of the six strategies,) and five (the effectiveness of the 6-PACK falls prevention program) were applied to examine the efficacy of the assessment tool and the six strategies. The key issues associated with these sub-research questions were the barriers identified in provision of falls prevention and management, and the risk assessment tool's items three (Mental State) and six (Age) which require revision.

Patient education is explored through sub-research question four by understanding patients' perceptions of the factors that led to their fall in the medical ward, and their understanding of the implemented 6-PACK falls prevention strategies. The key issue related to this sub-research question was that patients had minimal understanding of their falls risk and implemented falls prevention strategies. The effectiveness of the program is examined through sub-research question two by comparing the number of patients who fell in the hospital in this research study compared with peer hospitals that use a different

falls risk assessment program. Although the hospital performed well compared to peer hospitals, falls with injuries remained a challenge. In order to understand the factors that contribute to inpatient falls in a medical ward, and to address the overarching research question of how inpatient falls can be reduced in an acute care hospital and the five sub-research questions, the Inpatient Falls Prevention model is applied to guide the discussion chapter.

The Inpatient Falls Prevention model as outlined in Chapter three, and highlighted in Chapter 4 consists of *Care Setting, Delivery of Care* and *Care Coordination* and *Quality of Patient Care.* The *Delivery of Care and Care Coordination* will be discussed first, as it is the precursor to assessment of patients' falls risks and implementation of the six preventative patient falls strategies. As the delivery of care is the central aspect of falls prevention, the *Quality of Patient Care* and the *Care Setting* are essential and intertwine with the *Delivery of Care and Care Coordination.*

5.1 Delivery of care and care coordination and inpatient falls

Most falls are caused by nurses' inconsistent adherence to the 6-PACK falls prevention program. The findings demonstrated deficiencies in assessment, inconsistencies in the implementation of strategies, and incomplete documentation of the patient specific falls prevention strategies identified in the PCCP. Moreover, the difficulties in managing cognitively impaired high falls risk patients, patients not seeking assistance, patients' lack of involvement in decision making by interacting in their falls prevention plan were all closely associated with the quality of patient care outcomes and address sub-research question one (trends discerned in falls administrative data), three (the factors that impact on nurses in the implementation of six strategies), four (patient perception of the contributing factors that led them to fall and their understanding of the implemented strategies) and five (the effectiveness of the

6-PACK falls prevention program).

5.1.1 Nurses adherence to assessment, implementation and documentation and inpatient falls

Nurses' daily practice of patient falls risk assessment and inconsistent implementation of falls prevention strategies are impacting on patient falls. While this case study did not analyse the association between falling unassisted and fall related injury, the results from the PCCP audit demonstrate that 53.7% of falls preventions strategies were documented as having been implemented for high falls risk patients. This in turn placed the remaining 46.3% of high falls risk patients at risk of sustaining a serious injury due to a fall. This is consistent with Nelson and Reynolds's (2015) findings that 69% of patients' falls history was documented, which thus impacts on patient safety and the quality of nursing care outcomes. The Joint Commission's Sentinel Event database demonstrates that the common contributing factors for falls with injuries are inadequate assessment, communication failures, and lack of adherence to protocols and safety practices (The Joint Commission, 2015).

The deficiencies in patient's falls risk assessment and incomplete documentation in PCCP resulted in shortcomings with patient safety. It is imperative to conduct a patient's falls risk assessment on presentation, admission and update the findings for patient's risk of falls on each shift to ensure correct falls prevention strategies are implemented. The results from PCCP audit demonstrated significant ($p=0.016$) differences between nurses (53.4%) and the researcher (60.8%) in assessment of patient's falls risk, which signifies nurses were not identifying the patients falls risk correctly. One of the recommended strategies of the ACSQHC to Preventing Falls and Harm from Falls (2012a) is patients falls risk is screened, assessed and documented to ensure harm from falls is minimised. Nurses' shortcomings in assessment, inconsistencies in implementation and incomplete documentation of the patient specific falls prevention strategies identified on the PCCP which relate to sub-

research question one (trends discerned in falls administrative data), and three (the factors that impact on nurses in the implementation of six strategies) are key contributors to the increased number of serious injuries related to falls in the medical ward.

5.1.2 Nurses' adherence to implementation of patients' gait aid

Inconsistent implementation of patients' gait aids was identified as contributing to falls prevention and management and that aligns with sub-research question three (the factors that impact on nurses in the implementation of six strategies). Gait aids, such as walking frames (2 or 4-wheeled frames) and walking sticks, are commonly used by ambulation impaired older patients in the medical ward where this case study was conducted, to improve gait safety and reduce the likelihood of experiencing a fall (Venkataraman et al., 2020). The data analysis revealed that only 24% of patients (63) were provided with their walking aids and 68% had their walking aids within reach. This leaves 32% of high falls risk patients at risk of falls and sustaining a serious injury as their walking aids not within their reach. The correct use of gait aids and ensuring patients' gaits aids are within their reach are paramount in maintaining safe ambulation. The finding from PCCP indicates that inconsistent implementation of patients' gait aids could potentially contribute to patient falls and injuries related to falls. These results are consistent with Johnson et al.'s (2014) finding that the implementation of mobility aids within patients' reach was poorly applied pre (29%) and post (31%) e-learning education sessions for nursing staff. Similarly, Singh et al. (2018) found that one-third of the patients' ability to mobilise safely was limited by access to their walking aids. When we compare these findings with the PCCP audit, the nurse focus group discussions, the nurse questionnaire and patient interviews, the possible explanations for inconsistent implementation of patients' gait aid within reach included *patients' knowledge deficit* and staff perceptions of falls prevention.

Patients' knowledge deficit and staff perceptions of falls prevention was a contributing factor for patients experiencing a fall during ambulation, which relates to sub-research question three (the factors that impact on nurses in the implementation of six strategies). Focus group discussions highlighted those patients, who were cognitively impaired due to dementia, delirium or confusion, were either not willing or unable to use their prescribed gait aid correctly. Nurse 2 (16/2/2018) expressed concern about patients being non-compliant with their gait aids and her perceptions of falls prevention *"they're standing up without anyone or without their frame, they're going to fall…"* while Nurse 8 documented in the nurse questionnaire that falls prevention could be achieved by *"…assist[ing] pt's [patients] with proper use of [their] walking aids".* This lack of compliance or awareness aligns with Johnson et al.'s (2011) finding that some patients were unwilling or unable to follow instructions, and the conclusion of Jorgensen et al. (2015), who after analysing 4754 cases of administrative data found that dementia was strongly correlated with injurious falls which resulted in fractures and head injury. The findings from this case study and those of Johnson et al. (2011) and Jorgensen et al. (2015) demonstrate cognitively impaired patients require close supervision and assistance with their ambulation to prevent injuries related to falls. Also, the patient's knowledge deficit and staff perceptions have a direct impact on delivery of quality nursing care and the total number of falls. Given the significant association between the incidence of falls and the ability of cognitively impaired patients to ambulate safely, a collaborative approach by nursing staff and the allied health team in the delivery of patient centred care may lead to increased patient safety.

5.1.3 Nurses' adherence to implementation of low-low beds

Incomplete documentation and inconsistent implementation of low-low beds in the medical ward were identified as a contributing to patient falls. The findings of this case study revealed that a low-low bed documented in the PCCP was implemented for 29% of beds (90 beds), and of the 90 beds 76% (68 beds) were placed in the lowest position when the patient was not attended by nursing staff. Although a low-low bed documented in the PCCP as implemented is low

(29%), when considering these results, it is important to consider whether the low-low bed was implemented, but not documented, in the PCCP by nursing staff. A further study will need to be conducted to investigate the correlation between documentation and implementation of low-low beds in the medical ward because 219 (71%) high falls risk patients had no documentation or implementation of a low-low bed in their PCCP. A possible explanation for these findings could be that when the low-low beds were initially introduced, the injury prevention staff in this acute care hospital conducted regular ward-rounds and provided reminders and on the spot feedback about correct use of these beds to nursing staff (Barker et al., 2012). The acute care hospital no longer has an injury prevention department, and the ward nurses are now required to conduct their own equipment audits as part of their portfolios, which adds to their workloads. Although the nursing staff were familiar with the low-low beds, if regular enforcement and on the spot education on nurses' performance with correct positioning of low-low bed use is not implemented, the low-low beds will not be effective.

5.1.4 Nurses' adherence to implementation of alert signs

This case study found an important gap in documentation and implementation of nursing care with the 'alert signs'. Baris and Intepeler (2018) found that a falls risk sign was important because it informs patients, healthcare professionals and family members of the patients' risk of falling. Similar research studies by Barker et al. (2009) and Hempel et al. (2013) also recommended using a falls risk sign as part of a falls prevention intervention. The failure to provide an 'alert sign' above the patient's bed to communicate their falls risk to everyone who comes in contact with the patient, can potentially place staff and the patient at risk of sustaining an injury. Although the 'alert sign' is not visible to the patient when they are in bed, it is critical to discuss the meaning and the reason for the sign before implementation. The PCCP audit revealed that 58% of patients had their 'alert sign' displayed above their beds, and 28% of patients did not have their 'alert sign' documented in the PCCP. The reason for incomplete documentation and inconsistent implementation of the 'alert sign' was due to

nursing staff copying previous entries and not conducting a proper patient's falls risk assessment. As Nurse 1 (19/2/2018) explained: *"you've got to make sure you're assessing the patient each shift not just copying somebody else's"*. It is imperative to ensure that falls prevention strategies documented in the PCCP are actually implemented and evaluated in the delivery of quality patient care to avert falls.

Studies by Barker et al. (2009), Hempel et al. (2013) and Baris and Intepeler (2018) highlight that 'alert signs' mitigate falls. This evidence supports the current research findings where most nursing staff confirmed that falls prevention was reinforced by displaying *"alert signs"*. Alert signs are recommended by ACSQHC (2009) and this case study, so that every high fall risk patient is required to have their 'alert sign' displayed to communicate their risk of falling. Consequently, nursing staff copying the previous patients' falls entries and not conducting a proper falls risk assessment impacts on nurses implementing the 6-PACK falls prevention strategies in the medical ward, which relates to sub-research question three (the factors that impact on nurses in the implementation of six strategies). This in turn minimises the effectiveness of the 6-PACK falls prevention program in the assessment and prevention of patient falls in hospital wards, which relates to sub-research question five (the effectiveness of the 6-PACK falls prevention program).

5.1.5 Nurses' adherence to implementation of the toileting regime and supervising bathrooms

The toileting regime and supervising patients in the bathroom are important components of the 6-PACK falls prevention program. The PCCP audit results demonstrated a significant shortfall in documentation of nursing care of 'Toileting regime' as commenced (2%) and 'Bathroom supervision' as implemented (43%) in the PCCP. These findings indicate that incomplete documentation of toileting regime and inconsistent implementation of bathroom supervision could potentially contribute to serious injuries related to falls.

The nurse focus group discussions revealed that nurses' perceptions of how or what needed to be documented in the PCCP was a contributing factor in the findings of the current case study. When we compare these findings toileting regime (2%) and bathroom supervision (43%) with the nurse focus group discussions and the nurse questionnaire, the possible explanations for barriers in inconsistent implementation or incomplete documentation of the toileting regime and bathroom supervision were identified as patients' *health status* and *incomplete documentation* by nursing staff*.*

The patient's *health status* and *incomplete documentation* in the PCCP was raised as a contributing factor to inpatient falls during the focus group discussions and addresses sub-research question one (trends discerned in falls administrative data), and three (the factors that impact on nurses in the implementation of the six falls prevention strategies). Nursing staff explained that if the patient had urinary incontinence or had an indwelling catheter in-situ, then they did not need to be assisted with toileting requirements. Therefore, no documentation was required in the PCCP. The RiskMan falls data revealed the following falls from commode/toilet (7), ambulating to the toilet (20), bathroom/shower (18), and standing/walking (58) which could all potentially relate to patients' toileting needs. This could be problematic and cause future falls. Nurse 3 commented that (16/2/2018) *"…if they're incontinent they don't need toileting"* and Nurse 2 (16/2/2018) concurred: *"that's how I saw it as well"*. Most nursing staff who participated in focus group discussions saw incontinence as not part of the 'toileting regime'.

However, when presented with findings from the first focus group during the second focus group discussion, Nurse 6 (19/2/2018) said that patients still needed to open their *"…bowels and stuff, so they should be on one"*. Clearly, there were differing perceptions about the documentation requirements of the toileting regime among nursing staff of the medical ward which could impact on the total number of patient falls and safety. French et al. (2017) found that staff uptake and delivery of behavioural interventions (such as timed voiding, prompted voiding, habit retraining and bladder retraining) for urinary

incontinence were in different views of treatment plan than patients and families. They identified the factors that could promote continence as adequate staffing and resources, staff education, and allocation of staff according to their level of experience to promote teamwork. Since most falls are related to elimination needs, an education session to clarify the assessment and documentation requirements of toileting regime in the PCCP for patients who experience urinary incontinence would be beneficial in reducing the total number of falls related to elimination.

In addition to patients' *health status,* their individual treatment plan can impact on falls. Nurses find it difficult to implement the 6-PACK falls prevention program for patients who are prescribed *antidiuretics* as part of their management plan for renal impairment. These patients require frequently toileting assistance, and nurses may be occupied with other patients at the time which relates to sub-research question three. Nurse 2 (16/2/2018) described how challenging it is to care for these patients:

> *… you could also take into consideration we are a renal ward; we do have a lot of people on Lasix. How many times do we have to toilet them? Sometimes, some of them are half hourly to hourly. So, it can be very frequent. And sometimes we physically do not have the time to be toileting people half hourly or hourly.*

As a consequence, these patients feel the need to go to the toilet unassisted, and in the process, may experience a fall with serious injury. This finding is consistent with Staggs et al.'s (2014) who found patients' risk of injury and death related to falls was greater with unassisted fallers. Moreover, Williams et al. (2014) found that when patients experienced a fall or death, it was most likely to be related to toileting, anticoagulants or the patient taking antidiuretics. It was evident from this case study and those of Staggs et al. (2014), Williams et al. (2014), and French et al. (2017) that the failure to understand and attend to patients' toileting needs could result in serious injuries related to falls as they attempt to ambulate without supervision. Furthermore, the literature highlights

that the failure of risk assessment tools to integrate medication assessment can significantly impact the risk of falls (Callis 2016; Michalcova et al., 2020). Therefore, implementing the 6-PACK falls prevention toileting regime and taking note of patients' prescribed antidiuretics could prevent high falls risk patients from ambulating without any supervision or assistance from nursing staff. This will in turn, may reduce the number of serious injuries related to elimination.

The gender difference of patients impacts on inpatient falls due to toileting and related to sub-research question one and three. The findings from RiskMan falls data indicate that the proportion of male patients who experienced a fall (201) was greater than female patients (116) in the medical ward. This may be due to male patients tend to overestimate their ability to ambulate independently, and more likely to take the risk to ambulate than female patients. However, this finding differs from those of Cangany et al. (2018), Ravindran and Kutty (2016), and Kantayaporn (2012) who found that most patients who fell were females. Of the four male patients who participated in this case study, two did not seek assistance to go to the toilet. We can speculate that the reason for this finding is that male patients are less likely to seek assistance especially for toileting, even though the results indicated that this was where most falls occur.

In addition, the trends from the RiskMan falls data revealed a correlation between the location of the fall and toileting and supervising the bathroom. The location of falls was categorised into three groups. Group one entailed falls from beds (136 falls); group two were falls associated with ambulation, such as ambulating to the toilet (20 falls) while standing and walking (58 falls), transferring (9) and one fall in the garden in a total of 88 falls. The third group were falls in the bathroom (one fall in the shower, 17 falls in the bathroom and 20 falls from the commode and toilet, a total of 38 falls). Tzeng's (2011b) study demonstrated that 64% or more of patient falls were associated with toileting. These results are similar to those reported by Anderson et al. (2016) that most falls occurred with activities involving transfers, toileting and falls from beds.

Another study by Cangany et al. (2018) implemented a "*no patient toilets alone*" intervention to reduce patient falls and serious injuries related to falls, and demonstrated a significant decrease in the patient falls rate by ensuring that high falls risk patients were not left alone during toileting. The results from this current case study as well as those of Anderson et al. (2016), Cangany et al. (2018), and Tzeng (2011b) indicate a strong correlation between patients' toileting requirements and the total number of falls and serious injuries related to falls. It is advisable for nursing staff in the medical ward to stay with the high falls risk patients while toileting, and reinforce frequent patient education on the importance of obtaining assistance from nursing staff when mobilising to the toilet to maintain patient safety.

In contrast, there was a discrepancy between the nurse questionnaire and the RiskMan falls data. The number of falls is higher on the night shift (124) between 2130 and 0700 hours compared to the morning (70) and afternoon (71) shifts. It was documented that regular rounding was initiated by nursing staff to ensure that the patient's toileting needs were met, and frequent visual observations were conducted on night shift to ensure the interventions identified on the PCCP were implemented in a timely manner. The findings in this current case study indicated otherwise; the prevalence of toileting related to falls was consistent with findings by Avanecean et al. (2017), de-Luna-Rodriguez et al. (2020) and Bradley et al. (2010) that most of the falls occurred during night shift and when patients tried to get out of bed unassisted. Also, nocturia is associated with increased risk of fractures and deaths (Pesonen et al., 2020). Although nocturnal toileting is not imbedded in the 6-PACK falls risk assessment tool, it does capture patients' need for frequent toileting; so it is vital that nursing staff are aware of patients' needs and adhere to falls prevention protocols when planning a patient-centred falls prevention care plan.

Not answering a patient's call-bell in a timely manner was identified as a contributing factor to patient falls in the medical ward. Four of the seven patients who participated in this case study experienced a fall related to ambulating to the toilet and one had a fall in the bathroom. Also, male patients may

overestimate their ability; for example, Patient 3, who was 38, claimed that his fall was due to *"weakness in his legs post a dialysis"*. When asked if he requested assistance, he replied: *"at first, no, but second time I asked for assistance" b*ut did not wait for the nursing staff to assist him because he said the time taken to answer the call-bell was too long: *"I had to go to toilet, it took too long, 15 minutes before someone came".* It is evident that he overestimated his ability to ambulate safely without assistance despite experiencing two previous falls.

Furthermore, there was a close association between answering a patient's call-bell, lack of engagement in their own falls risk and prevention plan, and a patient experiencing a fall, which concurs with Johnson et al.'s (2011) findings that patients did not seek assistance when transferring from their bed to a chair and walking to the toilet, even when they were instructed to do so. Capo-Lugo et al. (2020) highlighted that ambulant patients are less likely to seek assistance from nursing staff compared to those who are non-ambulant. They also linked the association between answering patient call-bells, staff workloads and patients experiencing a fall. Nurse-patient interaction and patient involvement in decision-making of their falls prevention plan need to be improved in the medical ward for high falls risk patients to actively participate in their falls prevention plan.

5.1.6 Nurses' adherence to implementation of bed/chair alarms

Nurses' use of bed/chair alarms plays a crucial role in averting falls and this case study revealed a significant shortfall in the documentation of nursing care of bed/chair alarms. The PCCP audit results revealed that 36% of these patients' bed/chair alarms were not connected correctly, and 64% were documented on the PCCP but not implemented in patient care. They are frequently used for cognitively impaired or impulsive high falls risk patients in the medical ward to alert nursing staff when the patient is attempting to get out of the bed or chair unassisted or unsupervised. According to the RiskMan data,

the main locations of patient falls are 'falls from bed' (105) 'falls climbing in/out of bed' (31) and 'falls from chair' (68). There is a correlation between these two data sets, and it is evident that bed/chair alarms are not effective in averting patients from falling. These findings suggest that there are deficiencies in patient falls risk assessment, inconsistencies in following hospital falls prevention policies and protocols and incomplete documentation impacts negatively on falls as a patient outcome. This is supported by Cameron et al.'s (2018) findings that falls predominantly occur in the patients' room and are associated with getting out of the bed or chair, but they were uncertain about the effect of bed/chair alarms on falls and preventing patients' from experiencing a fall.

There is a strong link between the literature and the findings from RiskMan, PCCP and the patient interviews that falls occur in the patient's environment and bed/chair alarms are ineffective in averting them. When we compare these findings with the nurse focus group discussions and the nurse questionnaire responses, the possible explanations for the barriers in the inconsistent implementation or incomplete documentation of bed/chair alarms are attributed to ineffective and *malfunctioning bed/chair alarms*, *patient health status and behaviour*, *ward layout,* and *incomplete documentation* in the PCCP.

Nurse 5 provided a reasonable explanation for incomplete documentation of bed/chair alarms in the PCCP:

> *It's possible that maybe at the beginning of their admission they needed an alarm, but as the days progress they became more alert and more orientated they didn't need an alarm, they could ring the buzzer, but the care plan wasn't changed. It's possible.*

As patients' conditions can change rapidly in acute care settings, it is imperative that nursing staff take ownership and adhere to falls prevention protocols by documenting, supervising and assisting high falls risk patients to prevent serious injuries related to falls.

5.1.6.1 Staff knowledge deficit in bed/chair alarms

It is clear that some nurses do not know how to activate the alarms properly which has a detrimental impact on patient falls prevention and safety. Nurse 5 (16/2/2018) said that *"…half [of] the staff don't know how to use a magnetic alarm…".* Nurse 11 agreed, and highlighted in the questionnaire how to attach the alarm correctly to prevent patients experiencing a fall by:

> *Understanding how to use magnetic alarms. Attach them behind patients, so they are activated when patients first attempt to get up and not leave alarms sitting loose next to patients or in front of patients.*

The Australian Nursing Federation (2009, p. 5) advises that safe quality care requires health services to have "nurses who are educationally and clinically prepared". Tucker et al., (2019) found that both registered nurses and nurse assistants had important knowledge gaps about the relationship between bed/chair alarms and patients experiencing a fall (19%), and understanding that bed/chair alarms increased the risk of injury among oncology patients (25%). Similarly, Wong Shee et al. (2014) demonstrated that bed/chair alarms were effective in reducing the number of falls and injuries related to falls through increasing staff awareness. This positive outcome was achieved through increased surveillance of the implementation of the program and increased staff attention to patients using bed/chair alarms. The study revealed how inadequate nurse development activities can be identified and corrected through improved nurse education. Falls prevention is a nurse led intervention in the medical ward; hence staff knowledge of correct application of bed/chair alarms is paramount in preventing falls because this deficit, in turn, could reduce not only the total number of falls, but serious injuries resulting from a fall.

Overall, it was evident that nurses did not adequately operate, activate or set bed/chair alarms. At times, patients' capability or willingness to participate in their falls prevention plan could be challenging for healthcare professionals. By

re-training and upskilling the knowledge of the nursing staff on effective utilisation of bed/chair alarms may reduce the number of serious injuries.

5.2 Care Setting

There were three key factors that contributed to inpatient falls. The most significant finding in relation to sub-research question three is the factors that impact on nurses in the implementation of six strategies related to the *difficulties in managing cognitively impaired patients, lack of resources* and *malfunctioning equipment, staff knowledge deficit with equipment, communication breakdown among nursing staff* and *nursing staff and allied health professionals,* and the *shortage of specials*. The second important findings in relation to sub-research question one under *Care Setting* (trends discerned in falls administrative data) was how the ward structure and culture influenced the increased number of falls in the medical ward. The third main finding of sub-research question five (the effectiveness of the 6-PACK falls prevention program) was staff perceptions of the 6-PACK program. This led to nurses having difficulty implementing the 6-PACK falls prevention strategies, which directly impacted on patient safety outcomes and the total number of patient falls.

5.2.1 Equipment and resources

Bed/chair alarms are a significant issue in relation to the increased number of patient falls. The lack of appropriate resources and equipment that require constant maintenance impacts on the ability of nurses to implement the 6-PACK falls prevention strategies. *Malfunctioning bed/chair alarms* were identified as a factor that increased nurses' workload. It was evident that bed/chair alarms were poorly maintained in the medical ward, as explained by Nurse 11 a written response in nurse questionnaire:

> *Ensuring … alarms are available and working – fuses are always blowing and needing replacement by biomedical engineering and*

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> *even then, it is time consuming to check if cord or pad or alarm*
> *unit is at fault, when not working.*

This view was consistent with the 6-PACK RCT conducted by Barker et al. (2017) which found that nurses had concerns about bed/chair alarms not being in working order. It also aligns closely with this case study in finding that adequate, functioning bed/chair alarms are required to manage nurses' workloads and optimise the falls prevention program.

Nursing staff identified the lack of adequate the bed/chair alarms as a factor in patient falls. Nurse 7 highlighted in the questionnaire that *"when [there is an] increased number of high falls risk patients, [there is] not enough alarms".* This concurs with Barker et al.'s (2017) findings that the bed/chair alarms are less effective when used in isolation or when there were too many of them in use. Nurse 5 (16/2/2018) voiced her concerns about ineffective equipment:

> *They can still be clipped to their alarm, but they can roll … out of*
> *the bed and they're out of there. The alarm goes off, but they're*
> *actually falling at the same time as the alarm is going off. You don't*
> *get any warning.*

King et al. (2018) found that nurses needing to respond to multiple alarms interrupted nurses' workloads and the flow of patient care. Subsequently, the RCT (918 in the intervention group and 921 in the control group) in an acute general medical setting conducted by Sahota et al. (2014) supported the idea of restricting alarms to a small number of patients, so that nurses could respond to them in a timely manner to avert the patient falling. Barker et al. (2017) suggested that education promoted better utilisation of bed/chair alarms with other falls prevention interventions, and guidelines were needed to apply bed/chair alarms to only one to three patients. Also, the RCT revealed that bed/chair alarms did not significantly reduce the bedside falls as a single falls prevention intervention and was not cost effective (Sahota et al., 2014). Malfunctioning and ineffective bed/chair alarms were identified as factors that

impact on nurses in the delivery of falls prevention and management, and the effectiveness of the 6-PACK falls prevention program. It is clear that current bed/chair alarms are ineffective and are a contributing factor to patient falls and serious injuries. The success of the falls prevention program in the medical ward was determined by the adequate number of alarms to meet patient demand and the effectiveness of this equipment.

Low-low beds are important components of the 6-PACK falls prevention strategies and bed height can be a consideration in preventing a patient sustaining a serious fall related injury. Tzeng and Yin (2009) explained that the hospital bed heights were too high for the patients to get in and out safely, and the bed width was too narrow; hence patients relied on nursing staff who frequently weren't available for assistance. Söderberg et al. (2013) agreed that patients were more likely to sustain an injurious fall when it was from a high height level. Barker et al. (2012) prescribed that the maximum bed height for low-low bed is 70cm above the floor when positioned on the lowest level. It was introduced to minimise the use of bed rails and patients' sustaining a serious injury due to a fall.

In 2002, the low-low beds were introduced at the acute care hospital where this case study was conducted, as part of the 6-PACK program that was initiated by Anna Barker and the Injury Prevention Department (Barker et al., 2012). These beds can be lowered closer to the floor compared to conventional hospital beds and are commonly implemented by nursing staff in the medical ward for high falls risk, cognitively impaired and impulsive patients. During the current study the medical ward purchased new low beds that were more practical to use than previous ones, but they did not reduce falls from beds. Both of these beds were included in this case study as a 'low-low bed' since the intention of allocation did not differ, as low-low beds and new purchased low beds were both allocated for high falls risk patients.

There were conflicting views on the effectiveness of low–low beds in reducing the number of falls. A large-scale pragmatic cluster RCT explored the efficacy of

a policy to introduce low-low beds in an Australian public hospital and found there was no significant difference in the falls rate, bedside falls, injurious falls and falls resulting in fractures between the control and intervention groups. The nursing staff involved in the study voiced concerns about the use of low-low beds, such as difficulty in moving the bed, not being able to place it in a Trendelenburg position, and ensuring the highest risk falls patients received the low-low bed due to the number of beds available. Similarly, during the implementation phase of the 6-PACK cluster RCT, nurses voiced concerns about the functionality of the low-low beds, including not being able to transport a patient, no space to leave patient folders, being unable to place an air-mattress, the difficulties with lifting the patients back into the bed when they rolled out, and the increased risk of patients' hitting their heads on bedside lockers if they attempted to roll-out of the bed (Barker et al., 2017).

The reasons for low-low bed heights not reducing falls or their severity is best explained by Haines et al. (2010). They found that low-low beds provided a false sense of security to nursing staff, and supervising high falls risk patients decreased. Also, the number of beds available did not meet patient demand so it was difficult to determine their effectiveness. Furthermore, the Hawthorn effect may have been present, as the control group was aware of the project, and the number of falls and fall related injuries decreased in both the control and intervention groups (Haines et al., 2010).

In contrast to Haines et al. (2010) and Barker et al.'s (2017) studies, nursing staff in the medical ward in the current study preferred the low-low beds for their patient cohort and voiced concerns about the purchase of the new low beds. They considered that the new beds increased the patient's risk of sustaining an injury because they did not lower all the way to the floor. As Nurse 5 explained: (19/2/2018):

> We used to have these hi-low beds [referring to low-low beds] that
> didn't have rails. We do not have them anymore. We've got these
> new beds that have rails, but they are still higher up.

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Not being able to position the bed to the lowest position could potentially contribute to increased number of falls with serious injuries and falls from beds. The nursing staff described how they would normally position the old low-low beds against the wall to minimise the exit point for cognitively impaired patients, and by placing a crash mat in front of the exit point they minimised the patient sustaining an injury if they rolled out of bed. However, they were unable to do that with the new beds which potentially put the patient at risk of sustaining an injury. The nursing staff were also concerned about the shortage of low-low beds: *"a while ago, I was trying to get one…they used to have them in the storeroom, but there was none"* (Nurse 4, 16/2/2018). The shortage of low-low beds and not meeting patient demand correlates with Haines et al.'s (2010) findings.

The suitability of the new beds was identified as a factor which impacted on nurses in the provision of falls prevention and management. During focus group discussion nurses explained that it was a common practice to place a wedge

> *…under the mattress and placed [a] crash mattress beside them [referring to the low-low bed] … so it's not easy for them [patients] to get out. That was the advantage of those beds,* Nurse 5 (19/2/2018).

 "and even if they did, they would just roll out onto the mat as well, because they were basically on the floor" (Nurse 2, 19/2/2018). But with the purchase of new low beds they could not continue this practice. These findings correlate with Tzeng et al. (2012b) study that reported nurses were aware of the importance of lowering the bed to the lowest position to ensure patient safety, especially with cognitively impaired patients. However, it was evident that nurses' knowledge of what needed to be implemented and the available resources did not correlate with this current case study. The cost of falls places a substantial burden on acute care hospitals (ACSQHC, (2009), Morello et al. (2015), Mitchell et al. (2018) Haddad et al. (2019). Therefore, the acute care hospital may need to review the suitability and cost of their falls prevention equipment before purchasing low-low beds.

Overall, bed/chair alarms and low-low beds do not seem to be effective in reducing the rate of patient falls. However, even though bed/chair alarms are not effective they are commonly used as part of the falls prevention interventions as reflected in this current case study. Similarly, the efficacy of the low-low beds in reducing the number of falls and serious injuries related to falls, depends on an adequate number of beds and their accurate implementation to the appropriate patient cohort. However, the nurses in the medical ward believed that the shortage of these beds hindered the prevention of serious injuries related to falls. Further study will be needed to investigate the effectiveness of a range of different low-low beds in falls prevention, as well as the impact of low-low beds for at risk patients when the number of beds meets the requirements of the patient cohort in the medical ward.

5.2.2 Communication of care between nursing staff

Another factor that adversely impacts on the ability of nurses to properly implement the 6-PACK falls prevention program is lack of communication between them. The inconsistent handover structures, processes, handover sheets and incomplete documentation of patients' falls risk were identified as impeding effective communication to avert falls. To improve communication breakdown between nursing staff, Nurse 7 (19/2/2018) suggested:

> *We can get…a better handover from staff…better update on what's happening…the type of patients that we're getting. So [to] be cautious and to be more aware.*

A nursing staff member explained that being informed of patients' high falls risk at the start of the shift, during bedside handover, or huddles, would better prepare them to manage their shift and their workloads. The lack of handover on patients' falls risk at the start of the shift was supported by Lopez et al. (2010) who found that this information was not handed over to the oncoming shift unless the patient experienced a fall with an injury or had a near-miss. Inconsistencies in documentation between nursing care plans, shift change

information charts, patient assessment and medical information system were identified as areas which could potentially increase human error. These findings closely align with the current case study, as the PCCP audit revealed incomplete documentation, where 29.5% of high risk of falls patients had no documentation on their PCCP to communicate which falls prevention strategies are needed. Lopez et al. (2010) also emphasised that the pertinent patient information and falls prevention was rarely updated on the medical information system. Studies by Rogers et al. (2017); Sand-Jeckiln and Sherman (2014) highlighted that bedside handover reduces patient falls.

It is evident from this current case study and Lopez et al.'s investigation (2010) that the failure to document relevant patient information and the ineffective verbal communication among nursing staff of patients' fall risk could impact on the effectiveness of the 6-PACK falls prevention program. Also, ineffective communication during bedside handover and documentation in the PCCP will hinder the implementation and evaluation of the patient specific falls prevention strategies. Ineffective structures and processes increase the risk of human error and poor patient outcomes. By highlighting the high falls risk patients and their treatment plans at the commencement of each shift may reduce falls and serious injuries related to falls.

5.2.3 Communication of care between nursing staff and allied health

The *communication breakdown between nursing staff and allied health professionals* and improper patient assessment by the allied health team was identified as a contributing factor for patients experiencing a fall. Nurse 1 in a written statement asserted that *"more communication between allied health"* was required to prevent falls. During focus group discussion Nurse 6 (19/2/2018) expressed the following concerns about ineffective communication:

> *And then we get the blame for it [referring to the fall] because they're like [referring to physiotherapist], "You should have read*

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your notes,” but I've got other stuff to do… they write pages and pages, especially the physios...

These findings align with Vermeir et al.'s (2015) research which reviewed 69 articles and found that poor communication among healthcare professionals such as the impact of delayed written communication, can result in negative patient outcomes on continuity of patient care and safety. In addition, Liddle et al.'s (2018) study of allied health professionals found a failure in communication between healthcare professionals and confusion about overlapping of their roles. Van Rhyn & Barwick (2019) highlighted that the lack of communication within multidisciplinary team resulted in ineffective and interrupted continuity of patient care. It is evident that communication breakdown between interdisciplinary team members impacts on patient safety and treatment plans which related to research question three (the factors that impact on nurses in the implementation of six strategies). The nursing staff in the medical ward and the allied health professionals should be aware of the expectations of the multidisciplinary team and the role they all play in falls prevention and management.

5.2.4 Nurse-patient ratios and 'special-to-patient ratios'

One factor in preventing nurses from implementing the 6-PACK falls prevention program is inadequate allocation of staff to cognitively impaired patients in the medical ward. The *staff deficit* (special-to-patient ratios) plays a crucial role in monitoring and managing cognitively impaired patients. Nurse 2 (19/2/2018) described the complexities in managing high falls risk patients due to lack of *sitter/specials* and their reduced visibility:

… often when we have…someone that's a high falls risk, if they are not specialled then we will position them within the view of staff, whether it's outside the nurses' station and we'll have alarms on them…

It is common practice for nurses in this medical ward to place impulsive or confused patients in princess/tub chairs and position them in communal areas

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to stimulate and distract them from wanting to get out of the chair. King et al. (2018) and Ireland et al. (2013) also reported that when nurses were not able to supervise high falls risk patients, they were placed in front of the nurses' station to maintain supervision and remind them not to get up. The nursing staff of the medical ward also voiced their concern about not being able to obtain a '*special*' to supervise cognitively impaired patients despite providing relevant paperwork to management, and considered that some falls were not preventable due to lack of staffing and competing workloads.

Nursing staff also reported the unsafe practice of '*specials*' supervising more than one patient. Nurse 4 (19/2/2018) said that "*at one point I had to special six patients at once*", while Nurse 5 explained: (19/2/2018) "*we do get specials, but sometimes we get only one for the whole shift*". Thus, the lack of specials impacted on the quality of patient care, safety and outcomes. These findings closely align with Cook et al.'s (2020) study where nursing staff reported cohorting patients with similar symptoms when specialling was stressful for nursing staff and interfered with delivery of quality patient care and safety, especially when they needed to be in two different places at once. Baris and Intepeler (2018) concurred, finding that patients believed increasing staff was essential to reduce patient falls due to environmental factors.

A further study found that nurse-patient ratios and a lack of resources can impact on some patient care being withheld or not delivered (Papastavrou et al., 2014). It was evident that the lack of '*specials*' is a factor impacting on nurses providing falls prevention and management, and the rate of serious injuries related to falls. The acute care hospital where this current study was conducted needs to acknowledge the increased care requirements of cognitively impaired patients and nurses' workloads, and accede to nurses' requests for specials to minimise the rate of serious injuries related to falls.

5.2.5 Ward structure and culture

Environmental factors such as the *structure of the ward*, *layout of hospital rooms* and *privacy curtains* were identified as a contributing factor that impacts on the ability of nurses to prevent and manage falls.

The *night lighting* in the medical ward was a concern, as often the location of the bed obscured the lights at night. During focus group discussion Nurse 5 (16/2/2018) explained how a bed can cover the night lights:*"…if you have a high falls risk patient, you'll park them [patient] against the wall and people actually cover the light"*. Toye et al. (2019) found that the environmental factors on patient safety in wards (care and assessment unit up to 72 hours, general medical, geriatric patients with delirium, geriatric evaluation and management unit) were lighting, toilets, bathrooms and security, and suggested that changes to the ward layout and practice could increase patient visibility and may reduce the patient's risk of falls. Similarly, Kinnunen-Luovi et al. (2014) and Gratza et al. (2019) found that contributing factors to patients experiencing a fall were the lack of light at nights, poor visual acuity and nocturia. The paradox of keeping the patient safe by placing the bed against the wall to minimise its exit points was a common practice in the medical ward in the current study, but this reduced visibility of obstacles in the environment, potentially placing patients identified as high falls risk and the other patients in the immediate area, as well as the nursing staff, at risk of sustaining an injury.

The other factor that impacted on provision of falls prevention and management was bedside *privacy curtains* that obstruct the nurses' vision of patients when they are fully closed and can potentially became a hazard at night. Nurse 2 (16/2/2018) pointed out that:

> *At night time there are a lot of people that like their curtains closed,*
> *so you can't even see into the four bedders because a lot of people*
> *like to sleep with their curtains closed so it's a privacy thing too…*

Bosch et al. (2016) highlighted the fine line between patients wanting to maintain their autonomy and privacy as an inpatient, and nurses focusing on patient safety by trying to increase their visibility, which may explain why 71% of patients were found on the floor after a fall in Bradley et al.'s (2010) study and less than 8% of these falls were witnessed. Those patients that wanted privacy did not appreciate that nurses needed high visibility in order to observe them. While patients' privacy curtains were identified as a potential hazard impending patient observation in the medical ward, Nurse 2 conceded that patients do like their privacy, so they could sleep. Sleep plays a crucial part in their recovery, healing process and mental health and well-being (Eugene & Masiak, 2015). While nursing observation is critical in maintaining patient safety, the treatment process creates a tension between the need to keep the patient safe by conducting nursing observations, and the patient's need for sleep in the hospital environment.

The *layout* of the medical ward made it difficult for nurses to directly observe the high falls risk patients. The acute care hospital where this study was conducted was built in 1998 and the medical ward has had no modifications since then. The ward layout plays a crucial role in monitoring patient activity to minimise or prevent high falls risk patients sustaining an injury, as Nurse 5 (16/2/2018) explained:

> *…simply the ward setup too. There are dark corners in the ward. Room 8 and 13 you got to check around corners. You don't see everyone from nurses' station.*

The environmental risk factors for in-hospital falls were supported by Zhao and Kim (2015) who found that environmental adjustments were required in a patients' room, bathroom and hallway to prevent them sustaining a fall. A study from de-Medeiros Araujo et al. (2018) concurred and found that environmental factors related to the room, ward and the bathroom. The physical barrier of the layout of the medical ward contributed to patient falls due to nurses not being able to observe patients, and patients not being able to see nurses.

5.3 Quality of patient care and inpatient falls

The quality of patient care in this case study highlights the total number of falls in the medical ward, the patient specific experiences with regard to provision of quality nursing care, patient falls prevention education, their perception of factors contributed to falls and their lack of understanding of the implemented falls prevention strategies.

5.3.1 Management of cognitively impaired patients

The patient's *health status* and resulted observed behaviour was a contributing factor to their falls. Patients figured out how to prevent the alarm going off by detaching it, as Nurse 2 (16/2/2018) explained: *"…a lot of them they work out they can"* or how "*they carry the box with them*" Nurse 1 (16/2/2018). The reason why patients detached their alarms was that *"they unclipped themselves, they don't want it attached to themselves because it is annoying"* (Nurse 5)*.* Ayton et al. (2017) found that one of the barriers was the capacity of cognitively impaired patients to participate in and their knowledge deficit of their falls prevention plan, as well as the challenges in managing cognitively impaired high falls risk patients. Ziminski et al. (2011) also found that falls were more common among patients with cognitive impairment (11.1%) and 94% of those resulted in injury. It is evident that the patient's behaviour is a contributing factor that impacted on nurses in the provision of falls prevention and management, due to incorrect attachment of the alarm by nursing staff. If patients can carry their alarms or unclip them from their gowns, it signifies that they are not positioned behind the patient or correctly attached. This could potentially indicate a nurse's knowledge deficit in correct use of these alarms.

5.3.2 Patients understanding of the implemented low-low beds

Patient awareness of the implemented falls prevention interventions was explored, and the findings indicate that it is paramount for falls prevention to be successful. There is limited research in the literature on the patients' awareness of the reason why they have been allocated low-low beds. The findings from this current case study on patient falls suggest that nurses need to explain more clearly to patients why they are assigned to low-low beds. For example, of the seven patients interviewed, only one patient was told the reason. Patient 6 said that *"yesterday the nurse explained why I was in this low bed"* while the others were not informed about why they were in low-low beds. For example, Patient 1 said *"I don't understand why it was".* A reasonable explanation for lack of patient awareness of the implemented low-low beds was due to lack of discussion of the falls prevention brochure on admission (17.5%).

Myer et al. (2017) found that patients could not recall engagement in their falls prevention strategies despite admitted to hospital due to a fall. A scoping review of 43 articles revealed that patient education is crucial in falls prevention in hospitals, and patient's awareness of the falls prevention interventions could decrease the rate of falls and associated injuries such as fractures, lacerations, and bruising (Heng et al., 2020). The reason for decreased implementation of the falls prevention brochure was influenced by nurses' perception of the patients' pre-existing knowledge of their falls risk, as described by Nurse 5 (19/2/2018):

> *…it [referring to falls prevention brochure] was given previously…because we have frequent flyers like they come here all the time and at some point in time it was discussed with them… and once they come again, we don't discuss it with them again.*

It was evident that there was a conflict between nurses' perception of the patient's understanding of their falls risk and adherence to the acute care hospitals' falls prevention policy and procedure. This was due to nurses' failing to provide and discuss the falls prevention brochure on admission to patients, which in turn contributed to inpatient falls. This produced a patient knowledge

and awareness deficit of their falls risk, a reduction of implemented falls prevention strategies, and a deficient falls prevention plan during their episode of care. Also, if patients are not aware of their falls risk, they cannot make decisions about and participate in their falls prevention plan or safety, which will prevent sustainable falls prevention outcomes in the medical ward.

5.3.3 Patients' understanding of the implemented alert signs

Patients were not aware of the implemented alert signs. All seven patients in the study were not informed about the reason for the 'alert sign' above their bed and did not understand it. When patients were shown the 'alert sign' and the reason why it was placed above their beds was explained (because they were identified as high risk of falling), they responded; *"no, definitely not, I never seen it"* (Patient 3) and *"No"*. (Patient 2). Another patient interpreted the sign as *"slipping over, not falling over"* (Patient 4). Nursing staff in the medical ward are required to inform the patient of their falls risk and explain the reason for placing the 'alert sign' above their bed. The lack of patient engagement, reflected in the patient's interpretation of the 'alert sign' in this current case study, aligned with Baris and Intepeler's (2018) finding that patients and significant others deemed the alert sign as ineffective and did not interpret it as falling. Nursing staff should take ownership and be aware that not all patients understand their role in the implementation of falls prevention strategies to avert falls. Patients and family members need to be informed of the reasons for the interventions and the implemented interventions for fall prevention to be effective.

When asked for her opinion on how current practice or the organisation's falls prevention could be improved, Patient 4 replied:

> *Well see that's a hard question [that you] asked me, because I have always grown up with prevention…I [have] been a Health and Safety Manager at my workplace, so a lot of it just [can] be [increasing] patient awareness and being careful [with] what they*

are doing. And that needs to be, maybe written more into [those]
brochures that [is]…out there, I don't know, I really don't know.

Even though the patient had prior knowledge of preventative measures, it was evident that the alert sign did not convey its purpose. The current falls prevention brochures are reviewed by hospital volunteers to make them more relevant and easier to understand. However, alert signs are not included in the falls prevention brochures.

In summary, 'alert signs' play a crucial role in communicating patients' falls risk to everyone who comes in contact with the patient. ACSQHS (2009) guidelines continue to recommend multifactorial interventions in the provision of patient care as part of their falls prevention plan, and one of these interventions is patient engagement. The lack of patient engagement and their understanding of the implemented falls prevention strategies in the medical ward, as well as deficiencies in assessment, inconsistent implementation and incomplete documentation of alert signs may all potentially contribute to increased serious injuries related to falls. The failure to incorporate patients in their falls prevention plans will in turn prevent them being involved in decision making and taking ownership of their falls prevention plan and safety.

5.3.4 Patient specific experiences

Ineffective communication and lack of patient engagement in their falls prevention plan impacts on their falls and hospital experience. The *communication breakdown between nursing staff and patients* was clear when Patient 1 experienced a witnessed fall. While multiple nursing staff were trying to assist the patient to ambulate safely to the toilet with his gait aid, the patient's hospital gown became tangled in his walking frame and resulted in a fall. To improve current practice and falls prevention, the patient suggested that *"in the first place listen to me. Listen to the person...because they know what is going on".* Patients need to be more involved in their falls prevention plan. For example, in the PCCP audit, only 17.5% were engaged in their falls prevention

plan, which clearly indicates that 82.5% were not involved, and more needs to be done in relation to patient engagement.

An improvement in patient engagement was further highlighted by Lee et al. (2016) who reported that there was significant room for healthcare professionals to improve their patient engagement, as only 44% of discharged patients were engaged in their falls prevention plan. Similarly, Ferguson & Mason (2020) found that patients received information on fall prevention ranging between 33-87% from twenty acute and subacute hospitals in Western Australia. As mentioned earlier, Tucker et al.'s (2019) found that to ensure successful sustainability of falls prevention, it is paramount for healthcare professionals to engage patients in their falls risk assessment and management with frequent and clear communication.

The findings of this case study and the literature demonstrated that patient education about their falls risk factors, implemented strategies, and prevention plans are necessary during hospitalization and when patients are discharged to prevent them from experiencing a fall or injurious falls. Improving communication and patient engagement in their falls brochures may improve the current falls prevention practice and ward culture on patient safety and engagement.

5.4 Limitations of the research study

This case study has several limitations. First, this mixed methods case study was small-scale, as it included only one medical ward in one acute care hospital. However, examining falls data from multiple dimensions such as RiskMan, PCCP, HRT, nurses' focus groups, and patient interviews provided a rigorous and may be a transferable investigation to similar settings (Forero et al., 2018).

Second, the perspectives of other healthcare professionals, including physiotherapists, doctors, and occupational therapists were not included in this research study, as the 6-PACK falls prevention program is a nurse led intervention and outside of the scope of investigation. One recommendation is that the future studies should include a more holistic picture of falls prevention and management by incorporating all health professionals. This in turn will provide a richer understanding of the health professionals' experiences and complexities of falls across the multidisciplinary team, to ensure a collaborative solution to identified problems.

Third, a nurse focus group discussion during night shift nurses could have elucidated why more falls occur at night. However, all the nursing staff in the medical ward are required to undertake a rotating roster which includes morning, afternoon and night shifts across the week. Consequently, the nursing staff, who attended the nurse focus group discussions would have undertaken a rotating shift and were in a position to provide feedback for night falls.

Finally, combining RiskMan falls data with Classification of Hospital Acquired Diagnosis (CHADx) could provide more accurate falls data because the CHADx data is deemed more accurate than RiskMan falls data. RiskMan falls data is reported by clinicians when a patient experiences a fall and CHADx data is reported by coders by reading all patients records and reporting when they see the word falls. However, the serious injuries resulting from falls are more likely to be reported by clinicians, as it requires further investigation by nurse unit managers and the quality coordinators of the designated discipline with aim to minimise the similar incidences occurring in the future. As incident reporting is an established component in the culture of the medical ward, the effect of underreporting in this case study is considered low.

Conclusion

Many of the falls prevention interventions of the 6-PACK program (bed/chair alarms, toileting regime, bathroom supervision, gait aid, low-low bed, alert sign) are not effective when studied individually and there is limited research to support their usefulness. However, the literature confirms that the validated falls risk assessment tool is an important factor in identifying high falls risk patients, but does not prevent a patient experiencing a fall.

This case study revealed several factors that contributed to inpatient falls, such as the environment (*night lights, privacy curtains, ward layout*), nurses practice in the delivery of falls prevention and management, and patient understanding of their falls risk and active participation in their falls prevention plan. To prevent patient falls and injurious falls, the nursing staff of the medical ward are encouraged to take ownership of the 6-PACK falls prevention program. They need to work in partnership with the allied health team to undertake comprehensive assessment of patients falls risk and implement individualised fall prevention interventions from admission to discharge for all high falls risk patients. The patient, nursing staff, the multidisciplinary team, and nursing leadership are all stakeholders in establishing and sustaining patient falls prevention.

There is limited literature on measuring the cognitively intact patients' understanding of the reasons for implementing alert signs and low-low beds. This case study sheds light on how patients' understanding of the implemented falls prevention strategies and their perceptions of their falls risk contribute to their falls and increased number of serious injuries in the medical ward. On the one hand, patients who perceive themselves as not at risk of falls overestimate their ability to ambulate safely, could potentially place themselves at risk of sustaining a serious injury, as they continue to engage in activities which are beyond their capability, as demonstrated in this case study. On the other hand, the call-bell waiting time and the ineffective communication between nursing

staff and patients was the reason for inpatient falls. Therefore, acute care hospitals may need to empower cognitively intact patients to actively participate in their fall prevention plan. This would entail nursing staff explaining a patient's individual falls risk factors, establishing a falls prevention plan in consultation/agreement with them, and ensuring the level of engagement ascertains the patient's understanding of their falls risks and implemented strategies to prevent falls. Future falls prevention activities may need to encourage patients' autonomy and provide positive self-identity in order to be successful.

The results of this case study suggest that cognitively impaired patients are at greater risk of sustaining serious injury related to a fall, because of the effects of the impairment on their behaviour and how they conduct themselves. As a patient's condition could change rapidly in an acute care setting, it is imperative that nursing staff assess their mental state and implement individualised falls prevention strategies in consultation with the patient. A patient centred approach may be key to moving forward, as well as developing innovative solutions for cognitively impaired patients.

As indicated in the literature, patient falls are not a novel problem in acute care hospitals and nurses' adherence to falls prevention practices impacts on patient safety outcomes. There are number of factors that impact on nurses in the delivery of falls prevention and management; for example, the ward structure and culture, the quality and allocation of falls prevention equipment/resources, shortage of specials and most of all, nursing assessment, implementation and documentation of patients falls risk directly impacts on patient safety and falls prevention management. The findings of this study suggested that to maintain patient safety, frequent audits of the PCCP, reinforcement of implementation and evaluation of the falls prevention strategies, and on the spot education on nurses' performance of the implemented falls prevention strategies are required. Given that falls prevention is a nurse sensitive indicator where this study was conducted, interventions are only as good as nurses' adherence to

the 6-PACK falls prevention program. Therefore, it is crucial that nursing staff take ownership of the program and are involved in identifying and developing falls prevention measures in the medical ward.

Some of the contributing factors that have been identified, such as ineffective communication among healthcare professionals and between nursing staff and patients, ineffective assessment of patients' falls risk, implementation and documentation of interventions in the PCCP, and nurses' knowledge deficit in correct application of bed/chair alarms, could be corrected with staff education and simple reminders during huddles and team meetings. Other contributing factors such as lack of specials to supervise cognitively impaired impulsive high falls risk patients, the deficit and malfunctioning equipment, and limited visibility of patients in the physical environment are multifaceted and require an organisational level approach.

The next chapter, Chapter 6: Final reflections and Recommendations, will make recommendations that could help to reduce inpatient falls and serious injuries related to falls, and thereby improve the provision of quality nursing care, efficiency and patient safety in the medical ward.

Chapter 6: Final reflections and Recommendations

This case study is an analysis of the falls prevention program in a medical ward. In the process of analysing data, a theoretical framework and model on inpatient falls model was developed. The Inpatient Falls Prevention model helps to identify and analyse the range of factors that cause inpatient falls in an acute care setting. This chapter provides recommendations towards improving current falls prevention practice and patient outcomes, and how the Inpatient Falls Prevention model can be applied to broader healthcare settings to evaluate the effectiveness of the falls prevention programs and quality assurance processes in other hospitals.

The findings of this research study were presented to the acute care hospital as a Quality Improvement initiative to improve patient safety by reducing the number of serious injuries related to falls. A key recommendation is that the hospital conduct ongoing analysis to determine the long-term sustainability of the falls prevention program. It should identify the barriers and enablers that impact on nurses' documentation, implementation and evaluation of targeted falls prevention strategies identified in the PCCP. Further exploration of nurses, physiotherapist, occupational therapist and patients' perspectives of the effectiveness of the current falls prevention plan will contribute to ongoing analysis and the Inpatient Falls Prevention model can be incorporated into this analysis.

The Inpatient Falls Prevention model

The Inpatient Falls Prevention model addresses numerous factors that contribute to inpatient falls, such as dementia, nurses answering patient call-bells, shortage of resources, and patients' perspectives of the contributing

factors to their fall. This model is generalisable to measure quality assurance processes in other healthcare settings and provides a comprehensive approach on why inpatients fall. The three components of the Inpatient Falls Prevention model are the *Care Setting, Delivery of Care and Care Coordination* and *Quality of Patient Care.*

The *Care Setting* captures issues surrounding a patient's immediate environment (room- lighting, privacy curtains, ward layout, and bathroom), falls prevention resources (effectiveness of the equipment and nurse/special-patient ratios), and possible causative factors to inpatient falls, such as communication breakdown between nursing staff including handover structure, process, and handover-sheet. Although this research study assessed the communication breakdown from nurses' perspectives, other healthcare professionals such as physiotherapists and occupational therapists, and doctors could be included in this analysis as fall prevention is everyone's responsibility. This in turn, ensures a comprehensive exploration of the *Care Setting* from the patients' immediate environment to factors that impose on nursing and healthcare professionals when communicating a patient's falls prevention strategies and the availability of falls prevention resources.

In this study, the *Delivery of Care and Care Coordination* assessed the effectiveness of the falls risk assessment tool and falls prevention program only from nurses' and patients' perspectives, as the 6-PACK falls prevention program is completed by nursing staff, but this can be expanded by incorporating all healthcare professionals as in physiotherapists and occupational therapists (allied health) and doctors as they are closely involved with patients' mobility and functional ability. The possible barriers to implementing falls prevention strategies are explored from the multidimensional level to provide a complete understanding of the underlying phenomenon. For example, nurses and allied health professionals' perceptions of falls prevention management, their knowledge of the correct application of resources, and impact of time restraints on how the healthcare professional adhere to falls prevention programs, management of the floor/ward during codes, and

influences on patient falls risk as the supervision of cognitively impaired patients is compromised. In addition, the communication processes between nursing staff and healthcare professionals (physiotherapist, occupational therapist and doctors) can be explored. This ensures the delivery of falls prevention is explored from a broader level by including all healthcare professionals' perspectives.

The *Quality of Patient Care* explores patient care outcomes from quantitative and qualitative viewpoints. Quantitative falls data includes the administrative falls data to understand the characteristics of falls in the given setting. The qualitative component assesses the patients pre-existing conditions such as confusion, dementia and current health condition, and how these impact on inpatient falls from the healthcare professional's perspective. In addition, it evaluates falls from patient specific experiences of provision of nursing care, but this can be expanded by including other healthcare professionals and their understanding of the patient's falls risk and implemented falls prevention strategies. Finally, this model provides the opportunity for nurses, physiotherapists and occupational therapists to devise recommendations to improve current practice and improve patient safety outcomes. The Inpatient Falls Prevention model provides a multidimensional approach to falls quality assurance and will inform future research.

The Inpatient Falls Prevention model is a process of assessing the setting, the adherence of the healthcare professional (nurses, physiotherapists, occupational therapist, and doctors) to the falls prevention program and the quality patient outcomes. Through this model each of the components can be addressed from the particular standpoint of the healthcare professional; for example, the ward structure and culture in relation to falls prevention management can be assessed from their individual perspectives. Nursing staff or other healthcare professionals can utilise the criteria listed in the model as a guide to collating and analysing falls data in their designated ward in order to

develop specific ward-based interventions to improve the quality of patient care and safety outcomes.

Recommendations

There are ten key recommendations to address the identified factors that contribute to inpatient falls in the medical ward, such as *management of cognitively impaired patients, shortage of specials, impacts of the ward layout, the patient call-bell waiting time, communication breakdown between nurses* and *nurses and allied health professionals, the lack of resources, staff knowledge deficit in falls prevention equipment,* and *the 6-PACK falls risk assessment tool* will be discussed further.

Management of cognitively impaired patients

The medical ward in this study mostly manages older medical patients at high risk of falls, as well as cognitively impaired patients. During the nurse focus group discussions, nursing staff voiced their concerns about managing patients with delirium, dementia and confused, impulsive patients who are at high risk of falls. To mitigate the falls risk for this particular cohort of patients, several approaches may be applied. First, the consistency of patient assessment by nursing staff is required, with reliable documentation and timely implementation of the falls prevention strategies and evaluation of the implemented strategies in the PCCP. This could be achieved by frequent PCCP documentation audits with immediate feedback to improve nurses' documentation performance of falls prevention, management and sustainability.

Since nursing staff are the frontline clinicians who assess patients' falls risk and recognise the changes in their cognitive state, mandatory education related to the early identification, prevention and treatment of dementia and delirium would be beneficial in managing these patients and improving falls prevention. The falls prevention champions of the medical ward could conduct education

sessions or professional development workshops, and use simulated case studies to illustrate how to effectively manage challenging behaviours exhibited by these patient cohorts. As part of the workshops, how to work as part of an effective multidisciplinary team will be highlighted to ensure that patient assessment and the implementation of a patient-focussed falls prevention plan and the associated management from admission to discharge is part of the ward culture.

Recommendation 1

1.1 Falls prevention champions in medical wards should conduct simulated training on how to manage challenging behaviour exhibited by cognitively impaired patients to prevent falls.

1.2 Falls prevention champions of the medical ward to conduct frequent PCCP documentation audits with immediate feedback to improve nurses' documentation performance of falls prevention, management and sustainability.

Shortage of 'specials' impacting on inpatient falls

This study identified the shortage of skilled nursing staff such as 'floaters' or 'specials' to supervise cognitively impaired impulsive high falls risk patients as a hindrance in managing and preventing falls. Nursing staff highlighted the need for 'floaters'; that is, extra nursing staff to assist with high falls risk patients or 'specials' to provide one-on-one care. They also said they were unable to consider falls prevention when assigned a load where three out of four patients required close monitoring. Given that one section of the ward has 16 beds allocated to cognitively impaired patients, it would be difficult to manage the workload when assigned to this section.

The nursing staff recommended two possible solutions to be addressed by management. First, permanent 'floaters' should be implemented as extra nursing staff in the medical ward. In adjusting staffing, the hospital's executive management should conduct analysis of workloads and their impact on patient outcomes and nursing job satisfaction and turnover, as part of the rationale for

introducing permanent nursing 'floaters'. Second given the cost of implementing 'floaters' or 'specials' to supervise high falls risk impulsive patients', in-house volunteers could be introduced to monitor these patients. This approach is cost effective and would reduce nurses' workloads and the use of pharmacological interventions. This case study endorses/reinforces/reiterates the nurses' recommendations to maintaining patient safety in the medical ward and decrease nurses workloads and increase satisfaction.

Recommendation 2

2.1 Hospital management to employ floaters as extra nursing staff or utilise in-house volunteers to supervise cognitively impaired patients to prevent falls.

The ward layout impacting on inpatient falls

The layout of the medical ward was identified as a contributing factor in serious falls which occurred more frequently at night from beds. The nursing staff mentioned how the geographical layout of the ward, such as the position of the beds and closed privacy curtains, obscured the night light and limit visibility of the patient's activity. Understanding the root cause of falls experienced at night may enable nurses to instigate better targeted falls prevention interventions. Consequently, the medical ward would benefit from the nurse unit manager analysing night falls data to identify the associated factors and patient outcomes and empower nursing staff to come up with possible solutions. The plan, do, study, act (PDSA) quality improvement model commonly used in the acute care hospital can then be employed until the desired patient outcomes are achieved (Adler & Shper, 2015).

In addition, instead of conducting hourly or two-hourly set rounding, the ward may need to introduce a more individualised patient focus to eliminate the urge of some patients to ambulate independently/unassisted. For example, renal patients and those prescribed antidiuretics require more frequent toileting, and the rounding process for these patients could be conducted every 30 or 60 minutes, while those who do not need strict monitoring could be observed less

frequently. This would minimise injurious falls related to patients accessing the toilet, and reduce nursing workloads.

Recommendation 3

3.1 The nurse unit manager to conduct an analysis of night falls data to identify the associated factors and implement targeted strategies in consultation with the nursing and allied health team.

3.2 The nursing staff, in collaboration with the allied health team, could identify the falls risk factors and the high-risk activities exhibited by high falls risk patients in order to make changes to the environment to minimise patients sustaining serious falls related injuries.

Patient call-bell waiting time and inpatient falls

This case study revealed that the prolonged call-bell waiting time resulted in patients ambulating unassisted to the toilet. In relation to the patients' elimination needs, the correlation between the call-bell waiting time and the patient taking the risk to ambulate independently requires further investigation. While nursing staff and patients had different views on the reasons for delays in answering call-bells, there was a strong correlation between the two. Nurses identify answering patients' call-bell as part of implemented falls prevention strategies in the medical ward, but patients disagree as the waiting time for call-bell is too long. To mitigate the risk of falls with cognitively intact patients who could utilise their call-bell to communicate immediate needs to nursing staff, the call bell needs to be answered promptly to prevent the patient ambulating without assistance.

To optimise patient safety, the staff skill-mix allocation needs to incorporate not only the patient's acuity but also their mental state, mobility status and level of assistance need to be considered. Furthermore, the allied health team needs to be involved in patient ambulation and organise activities that promote and strengthen safe patient ambulation from admission to discharge. Importantly,

patients need to be actively involved in their falls prevention plan which could be achieved by frequent reminders of their falls risk and the importance of seeking assistance during ambulation. Nurses reported that cognitively impaired patients could not use their call-bell to communicate their needs to obtain assistance from nursing staff; hence, future studies should focus on the correlation between cognitively impaired patients and their ability to use the call-bell to seek assistance and mitigate injurious falls.

Recommendation 4

4.1 Nursing staff of the medical ward to work as part of a team should ensure patient call-bells are answered promptly to prevent patients walking without assistance from nursing staff.

4.2 The nurse in charge needs to consider the holistic needs of the patient before allocating nursing staff.

4.3 The allied health team to be involved in patients care from admission to discharge with focus on strengthening the patient's ambulation.

4.4 Patients to be actively involved in their falls prevention plan.

4.5 Future studies to examine the correlation between cognitively impaired patients and their ability to use the call-bell to seek assistance and mitigate injurious falls.

Communication breakdown between nursing staff

One significant finding from this case study was the need for better communication between members of the nursing team. Communication breakdown resulted from ineffective handover structure, process, patient handover-sheet and incomplete compliance with documentation of patients' falls risk, and inconsistent implementation of falls prevention strategies on the PCCP.

Most importantly, a more structured handover system such as ISBAR needs to be implemented in the medical ward to ensure all pertinent patient information is communicated at the change of each nursing shift. The ISBAR stands for Identify, Situation, Background, Assessment, and Recommendation (ACSQHC, 2011). Nursing staff identifies themselves (name and role), explains the situation by stating the patient's name, age and their concern, followed by providing pertinent background information and the assessments undertaken and the care recommendations and follow up requirements. This will ensure continuity of care in identifying that patients' falls risk and targeted falls prevention strategies are communicated, implemented and re-evaluated. Otherwise, such gaps in handovers could result in the inconsistent delivery of falls prevention strategies and serious injuries related to falls.

Another significant change needs to be in the handover format. As nurses work as a team in the medical ward, it is vital that they receive a handover not only on their allocated patients, but also the buddy nurse's patients, to ensure a comprehensive understanding of the patient's clinical problem and treatment plan. Moreover, the handover needs to take place at the patient's bedside to incorporate the patient in the decision-making process. Furthermore, as nurses work as a team, the handover-sheet should contain all eight patient details (such as diagnosis, ambulation status and gait aids) to ensure safe provision of patient care when covering nursing breaks. Currently, nurses only receive the handover sheet that consist of their four patients and direct handover from the previous shift nurse at the nurses station or at the pull-down cupboards that contain patient records. Ward-based education should be implemented on the elements of ISBAR as part of the nursing bedside patient handover, with emphasis placed on the correct procedures to change the ward culture and handover practices.

Improved communication can be facilitated during each huddle. For example, patients who experienced a fall on that day should be discussed in order to enhance staff awareness and the importance of patient assessment, and

reinforce implementation of fall prevention interventions. These discussions should include the reason the patient experienced a fall, the fall prevention strategies that were not implemented and the actions taken to prevent another fall during current admission. It is crucial to include the allied health team in the huddle discussions as they may identify patient risk factors that have been missed, as well as causative factors and additional falls prevention strategies that a nursing staff may oversee. The lessons learnt from each huddle will improve patient outcomes and avoid nursing staff implementing repetitive falls prevention strategies that do not improve patient safety and outcomes.

In addition to improving communication between nursing staff, it is vital to conduct frequent audits on the PCCP to mitigate patients' falls risk, and improve staff assessment, implementation, evaluation and compliance with the documentation. For falls prevention to be successful, the factors that impinge on patient falls need to be prioritised at the beginning of each shift. It was recommended by the nursing staff of the medical ward to receive frequent reminders of the identified improvement areas from the PCCP audits and RiskMan falls data analysis. Patient fall reports are essential resources in identifying the root cause of safety issues related to inpatient falls.

This case study demonstrated how the RiskMan falls data, PCCP audit, with nurse and patient feedback adds value on identifying factors that contribute to inpatient falls and ward-based falls prevention strategies. Therefore, these two data sets should be collated to highlight the trends in falls in the medical ward and for more targeted strategies to be implemented as a continuous quality improvement plan. As the RiskMan falls data provides information on the characteristics of falls and the PCCP focusses on patient care and nurses' performance, it is evident that nurses' attitudes and behaviour can significantly influence the success of a patient's fall prevention plan.

Therefore, the monthly display of falls data within the medical ward should be presented and discussed in a more meaningful way, which leads to facilitate falls prevention and management by nursing staff, and allied health professionals. Furthermore, future researchers when investigating hospital falls should be encouraged to use qualitative data to understand the stories and experiences behind the quantitative data. Mixed methods provides a more comprehensive approach to unpacking the complexities of falls prevention and management.

Recommendation 5

5.1 Nurse unit manager should review the handover process of the medical ward and ensure ISBAR protocol recommended by ACQHS is followed.

5.2 The clinical nurse specialist of the medical ward should provide a ward-based education on the elements of ISBAR handover.

5.3 The nurse in charge during huddles should increase nurses' awareness of the patient who experienced a fall, the elements surrounding the fall, and plan of action, and incorporate allied health team into these huddles where possible.

5.4 The falls prevention champions of the medical ward to conduct frequent spot audits and provide immediate feedback to improve nurses' compliance and practice.

5.5 The nurse in charge to provide frequent reminders to nursing staff to ensure the falls prevention strategies are implemented and the documentation in the PCCP is up to date.

5.6 The nurse unit manager should identify and present the monthly falls data as specified by nursing staff and allied health team to facilitate falls prevention and management.

5.7 Future research should use qualitative data to understand the stories and experiences behind quantitative falls data in order to implement targeted falls prevention strategies.

Communication between nursing staff and allied health team

This case study revealed a communication breakdown among the nursing staff and allied health team surrounding patients' falls prevention treatment plan. The nursing staff and allied health team need to establish an agreed approach to falls prevention. Communication strategies among the nursing staff and the multidisciplinary team require investigation and further development to achieve this. To begin with, the medical ward needs to review the level of teamwork and intra-team communication processes in the nursing team and between nursing staff and the multidisciplinary team. To mitigate the falls risk, a consensus needs to be reached on how to improve communication about patient care delivery. A checklist with specific falls prevention strategies could be developed once consensus is reached, and frequent audits or interviews could be conducted to ensure ongoing effective communication. Staff communication boards could be implemented in module one of the medical ward to highlight the activity of each allied health member for patient assessment.

Furthermore, for patients identified as high falls risk, their falls prevention strategies could be discussed during the daily multidisciplinary team meetings with the nurse unit manager or the nurse in charge. The outcomes of these multidisciplinary team meetings could be communicated to nursing staff by the nurse in charge as well as the allied health professional. The allied health team brings different types of expertise and knowledge to the ward, and it is imperative that they are involved in identifying patients' falls risk factors and preventative strategies to change patients' treatment plans. This in turn would mitigate patients experiencing multiple or injurious falls and provide comprehensive patient care.

Recommendation 6

6.1 The nurse unit manager to collaborate with the nursing staff and allied health team to develop communication strategies to establish an agreed approach to falls prevention.

6.2 The staff communication boards to be utilised effectively to improve communication between healthcare professionals.

6.3 The nurse in charge of the shift to discuss the patients who experienced a fall during multidisciplinary team meetings to enhance patient falls prevention plan.

Communication breakdown between nursing staff and patients

In the same way, this case study revealed that ineffective nurse-patient communication significantly influenced delivery of quality patient care outcomes. Patient-centred effective verbal communication is vital in developing a therapeutic relationship with patients and improving their involvement in decision making about their falls prevention plan. However, when a patient experiences ineffective communication, this can hinder the nurses' ability to build a therapeutic relationship with them. For example: Patient 1 experienced a fall while nursing staff were assisting him which reflects the lack of effective communication between nursing staff and patient. The patient suggested *"in the first place listen to me. Listen to the person who's trying to...because they know what is going on"* to improve current practice. Ineffective communication may lead the patient to question the quality and safety of the care they receive, which in turn effects their satisfaction.

To mitigate the risk of patient falls, nursing staff should provide a clear explanation of the role of the patient and how nursing staff will assist in their care. This will ensure that a patient's immediate needs are met in a safe manner before undertaking the activity. Also, organisation-wide in-service education sessions on effective communication for promoting care decision making and collaboration could be incorporated into the yearly education calendar, to improve the quality of care that patients receive. Future studies should focus on communication barriers between nurses and cognitively intact

patients, as well as the communication barriers with cognitively impaired patients, to mitigate their falls risk.

Nurses are required to focus on patient engagement in their own falls prevention plan to ensure that it is effective. Well informed patients will have a clear understanding of the role they play and will take part in their safety and falls prevention plan. It is advisable for nurses to assess the patient's falls risk and their perception of falls risk. This will allow nurses to implement falls prevention interventions that are specific to the patient's need, and thereby increase patient awareness and mitigate them engaging in activities that promote risk taking behaviour. Next, is the importance of regular enforcement of the patient falls prevention plan and explaining to them the implemented interventions (alert signs, low-low beds, gait aids) in their daily care to prevent falls. Finally, the multidisciplinary team should be involved in reinforcing the patient's awareness of the potential falls risk when conducting a patient assessment, in order to prevent patients falling during their episode of care until discharge.

The nurse focus group discussions revealed that not all patients receive the falls prevention brochure on admission. Therefore, a mandatory nursing education session should be conducted by the falls prevention champions of the medical ward that incorporates key elements in reducing falls. It is imperative that patients receive falls prevention education on every admission, regardless of previous admissions and their associated patient education. Each education session should emphasise the collaboration of nurses with patients in decision making to ensure a holistic approach to patient care, which includes understanding the patient's cultural requirements and where possible involving the family or significant other in their falls prevention plan.

Recommendation 7

7.1 Hospital educators to schedule organisation-wide in-service education sessions on effective communication for promoting care decision-making and collaboration with patients.

7.2 Future research should examine the communication barriers between nurses and cognitively intact patients, as well as the communication barriers with cognitively impaired patients, to mitigate their falls risk.

7.3 Nurses to regularly remind the patient of their falls prevention plan and explain the implemented interventions (alert signs, low-low beds, gait aids) in their daily care to prevent falls.

7.4 The multidisciplinary team should reinforce the patient's awareness of the potential falls risk when conducting patient assessment so as to prevent them falling during their current admission and upon discharge.

7.5 The falls prevention champions of the medical ward should conduct a mandatory nursing education session that incorporates key elements in reducing falls such as falls prevention brochures, understanding the patient's cultural requirements, and the importance of where possible involving the family or significant other in their falls prevention plan.

7.6 The falls prevention champions of the medical ward to conduct frequent PCCP audits of patient engagement of their falls prevention brochure and timely feedback to improve current practice and ward culture on patient safety and engagement.

Lack of resources and malfunctioning equipment

Nurses identified lack of resources and malfunctioning equipment as contributing to serious injuries related to falls. There is a correlation between inadequate, malfunctioning equipment and patients' experiencing a serious injury due to a fall, with bed/chair alarms not being effective in averting falls. Nursing staff also highlighted the shortage of old low-low beds in managing cognitively impaired impulsive high falls risk patients. They supported the

purchase of low-low beds to mitigate injurious falls to foster successful long-term falls prevention and management. Lack of resources and malfunctioning equipment needs to be addressed at the executive level, and an analysis of the number of falls related to malfunctioning, inadequate and ineffective equipment and resources needs to be included. Nurses could assist in this data analysis by including in their RiskMan report if the fall was related to bed height or malfunctioning equipment to have an accurate indication of the shortage of low-low beds and the magnitude of the problem. Consequently, new bed/chair alarms and low-low beds need to be purchased to reduce patient fractures, subdural haematomas and deaths related to falls.

Recommendation 8

8.1 The hospital falls prevention committee should analyse the number of falls related to malfunctioning, inadequate and ineffective equipment and resources required for the ward.

8.2 Nurses to include in their RiskMan report if the fall is related to equipment malfunction or shortage of low-low beds or bed/chair alarms.

8.3 The hospitals falls prevention committee should organise medical ward to trial other bed/chair alarms that peer hospitals have found more effective to ensure cognitively impaired patient's safety is maintained.

8.4 The falls prevention champions of the ward should conduct frequent maintenance audits to ensure the bed/chair alarms are in working order to prevent nursing staff from wasting their time by trying to connect malfunctioning alarms and ensure there are an adequate number of bed/chair alarms.

8.5 The acute care hospital may need in consultation with nursing staff to purchase new low-low beds that meet the needs of the patient cohort in the medical ward.

Improved staff knowledge and training

Increasing staff knowledge on how to correctly use the bed/chair fall prevention alarm in the medical ward is another important finding of this research. It was highlighted during nurse focus group discussions that falls cannot be averted with patients who are attached to a bed/chair alarm because the nursing staff failed to attach the equipment correctly. It could involve a ward-based education program for nurses on how to correctly use bed/chair alarms provided by the designated falls prevention champions in the medical ward. This education session could incorporate patient risk factors and appropriate ways to use available equipment to improve provision of patient care and safety. Ongoing professional development embedded in nurses' clinical training will increase their knowledge and improve practice in the medical ward.

Recommendation 9

9.1 The falls prevention champions of the medical ward should develop and conduct ward-based education program for nurses on how to correctly use bed/chair alarms.

Enhancements of 6-PACK falls risk assessment tool

Although the falls risk assessment tool is effective in identifying the patients falls risk, there are drawbacks in its ability to assess patient's age, mental state and medication which are falls risk factors. The 6-PACK falls risk assessment tool needs further review and modification to item three *(Mental State: Yes, Patient either confused, agitated, intellectually challenged or impulsive)* and six *(Age: Yes, Patient is 80 years or older),* as these two items no longer capture the patient cohort of this medical ward. The findings revealed that nurses believe that the effectiveness of the falls risk assessment tool is variable, because it does not distinguish between temporary cognitive impairment and dementia and the age group of patients who experience falls is usually 60 to 89. It is imperative to assess nurses' understanding of item three *(Mental State: Yes,*

Patient either confused, agitated, intellectually challenged or impulsive) and identify the average age group of fallers in the acute care hospital.

The falls prevention committee of this hospital needs to review the average age of fallers across the setting to ensure the falls risk assessment tool still reflects the current patient cohort. The committee could conduct a spot audit on nurses' understanding of item three (Mental State) and identify if they select item three for patients with dementia. Furthermore, the nurses highlighted the difficulties with toileting patients prescribed antidiuretics as part of their treatment plan. The 6-PACK falls risk assessment tool does not consider medication assessment as part of falls risk assessment, and it would be advisable to include an indicator to prompt nursing staff to assess patients' medications on the falls risk assessment tool. This will prevent patients who are at high risk of falls being downgraded from high to low risk.

Recommendation 10

10.1 The falls prevention committee of this hospital should review the average age of fallers across the setting to ensure the falls risk assessment tool still reflects the current patient cohort.

10.2 The committee should conduct a spot audit on nurses' understanding of item three (Mental State) of the falls risk assessment tool and identify if they select item three for patients with dementia.

10.3 The committee to review the falls risk assessment tool and include an indicator to prompt nursing staff to assess patients' medications.

Conclusion

The findings from this case study provided strong evidence that nursing staff in the medical ward need to be actively involved in quality improvement strategies to reduce the number of inpatient falls. For the falls prevention program to be effective, the patients' engagement in their falls prevention plan is critical.

Patient falls prevention education is provided on admission, and regular enforcements of the implemented falls prevention strategies are paramount for patient engagement and developing a therapeutic relationship. Moreover, it is vital to understand the root cause of the contributing factors to patient falls, and in turn for the nurse managers to make evidenced-based changes to improve patient safety and staff satisfaction in the medical ward.

The Inpatient Falls Prevention model can be utilised to analyse falls data (RiskMan, PCCP), nurses, allied health professionals, and patients' experiences to develop more comprehensive ward-based falls prevention strategies. The results demonstrated the factors contributing to patient falls and identified possible solutions, such as yearly communication education sessions, ISBAR handover, PDSA quality improvement models, as a stepping stone for nursing staff in collaboration with the allied health team fostering an agreed approach to falls prevention.

The next chapter, Chapter 7: Conclusion, will highlight the key research outcomes and how they contribute to providing quality patient care and safety in falls prevention and management in an acute care hospital.

Chapter 7: Conclusion

The lessons from this case study can change the way the external organisation obtains and manages their falls data for quality improvement projects.

7.1 Introduction

This mixed method case study examined the reasons for inpatient falls, the falls prevention program and its sustainability in the medical ward. It also explored gaps in current knowledge about the effectiveness of the program and the three components (assessment tool, six preventative strategies and patient education) and made recommendations on how to improve the current falls prevention practices provided in the acute care hospital. This chapter explores the research questions, as it addresses the significance and implication of findings and relevance to research.

7.2 Research aims and research questions

The purpose of this case study was to investigate and report the circumstances related to increased patient injury from falls in order to maintain long term sustainability of falls prevention in an acute care hospital. It employed a mixed methods case study which addressed the overarching and five sub-research questions. The research questions examined the qualitative data; the nurses' and patients' perspectives of the effectiveness of the 6-PACK falls prevention program in preventing inpatient falls, as well as quantitative data from RiskMan, PCCP and HRT. The administrative falls data was used to discern patterns and trends in inpatient falls data and outcomes, which was further investigated in the nurse focus group discussions and patient interviews in order to present a more complete picture on the reasons for injurious falls than usually collected, presented and analysed. The study also compared the number of falls with peer hospitals to add an extra layer of rigor to the process.

7.3 Research questions and key findings

The results of this case study demonstrated five key elements which contributed to an increase in inpatient falls. The first was the nurses' low adherence to the 6-PACK falls prevention program and their lack of knowledge in the correct application of bed/chair alarms which relates to the *Delivery of Care and Care Coordination* of the Inpatient Falls Prevention model. The second key element highlighted by the environmental and organisational factors were included in the *Care Setting*. The third element was the cognitive state of inpatients and lack of engagement in their falls prevention plan was related to *Delivery of Care and Care Coordination* and *Quality of Patient Care* of the model. The fourth element was the resource shortage in the acute care hospital, and low staffing levels to supervise cognitively impaired impulsive high falls risk patients, which was part of the *Care Setting* of the model. Finally, the communication breakdown among healthcare professionals and nurses and patients impacted on the increased number of injurious falls was the fifth element which was part of the *Delivery of Care and Care Coordination* and *Quality of Patient Care* of the model.

The nurses' low adherence to falls prevention processes was a significant factor for inpatient falls. This became apparent through triangulating the two sets of administrative falls data (RiskMan and PCCP) to address *the **trends discerned in falls administrative data*** (RQ1) which relates to the *Delivery of Care and Care Coordination and Quality of Patient Care* of the model. The patients' falls prevention strategies (alert sign, low-low beds, gait aids, toileting regime, bathroom supervision, and alarms) identified in the 6-PACK program revealed deficiencies in assessment, inconsistencies in implementation and incomplete documentation compliance by nurses which was significantly low. It was identified that patient assessment was not conducted each shift and patients risk and implemented strategies were copied from the previous days nursing entry due to increased workloads. These deficiencies in assessment, implementation and documentation could have impacted on the rise of severity

rating for injury (fractures, subdural hematomas) over the two-year period of the study.

Many studies emphasise the impact of deficiencies in patient falls risk assessment, documentation in patient files and the implementation of identified falls prevention interventions on patient care delivery and outcomes, as highlighted in this current case study. The difference between the nurse and researcher assessments of patients being at high risk of falls was statistically significant. Not accurately identifying the patient as a high falls risk, prevented the patient receiving falls prevention strategies to mitigate falls and serious injurious related to falls.

The number of patients engaged in their falls prevention brochure/plan was significantly low. Inconsistent patient engagement in their falls prevention brochure/plan to minimise falls and fall related injuries impacted on patients' understanding of their falls risk, implemented falls prevention strategies and patient safety outcome. Mostly, patients were falling in their rooms from their beds, chairs or when standing or walking to the bathroom. Many studies highlighted that the unfamiliar hospital setting can be confusing, and they encouraged clinicians to undertake assessment of hospital rooms and the patient environment to minimise falls, which corresponds with the findings in this current case study.

There were various trends discerned from the falls RiskMan data. It revealed that inpatient falls were highest at nights between 2130-0700 hours, and significantly affected inpatients between the age group of 60 and 89. The proportion of patients who experienced a fall was greater in male patients. Although the mean age group experiencing a fall correlated with other studies, the high proportion of male patients experienced falls in this case study differed. This could be due to the number of high falls risk male and female patients who are admitted to that specific ward.

In summary, the nurses' adherence to falls prevention strategies identified on the 6-PACK falls prevention program was significantly low in averting inpatient falls in the medical ward. The deficiencies in falls risk screening and assessment compliance to identify the patient's falls risk factors contributed to ineffective documentation, and the failure to take appropriate action to tailor individualised patient care, and mitigate patients' falls risk. The 6-PACK falls prevention program encourages nursing staff to take ownership of falls prevention program, and use their clinical judgement along with the risk assessment tool to inform decisions about the patients' falls risk factors, and the interventions needed to mitigate their falls risk. However, the key factors contributing to the ineffectiveness of the 6-PACK program and increased number of serious injuries related to falls in the medical ward were: ineffective assessment, documentation, implementation and evaluation of patient's falls risk, and engaging patients in their falls prevention plan by explaining how to avoid falls during their episode of care.

The number of injurious patient falls in the hospital of the study was lower compared to peer hospitals (RQ2) that use a different falls risk assessment tool which relates to the *Quality of Patient Care* of the Inpatient Falls Prevention model. The acute care hospital in this case study had the lowest total number of patient falls with injuries (147) compared to three peer hospitals (Hospital 1: 281 falls (Victoria, Australia), Hospital 2: 195 falls (NSW, Australia), Hospital 4: 266 falls (New Zealand). However, the number of falls for this acute care hospital was above the expected value/number of falls (136) set by the HRT over the last 12 months. The 6-PACK program was effective, compared to peer hospitals falls prevention programs, but the falls with injuries were still a problem as the injurious falls did not meet the number set by the HRT.

The sub-research question three examined the falls ***from the nursing perspective, and identified care setting and patients' health status as a factor that contribute to inpatient falls and the 6-PACK falls prevention program is not feasible in preventing falls*** which relates to the *Care Setting*

and *Delivery of Patient Care and Care Coordination* of the model. The nurse questionnaire and nurse focus group discussions provided nurses perspectives, and identified the environment and organisational factors as a contributing factor to inpatient falls which relates to *Care Setting* of the model. Contributing environmental factors identified in the medical ward were diminished night lighting due to the location of the beds to manage cognitively impaired patients, the layout of the ward and where staff-patient visibility and movement was impaired and the fully closed patient privacy curtains which hindered patient visibility.

The organisational factor included in the *Care Setting* was the lack of resources (low-low beds, lack of specials, bed/chair alarms). The issues surrounding the bed/chair alarms not being in working order was consistent with the 6-PACK RCT conducted by Barker et al. (2017). The current case study revealed that the shortage of low-low beds is not meeting the medical ward's patient demand in reducing patient falls. In addition, when staffing and patient ratios are impaired due to workloads, nursing staff try to adapt their practice to increase patient visibility by placing patients in tub chairs and placing them in front of the nurses' station due to the lack of specials. This current study concurs with other studies that the lack of resources, and high nurse-patient ratios are linked to adverse events and increased falls rates.

The nurse focus group discussions revealed a staff knowledge deficit on the correct application of bed/chair alarms and the incomplete documentation of patients' toileting regime was contributing to inpatient falls. The staff knowledge deficit in the correct attachment of patients' bed/chair alarms impacted on patients experiencing a fall. Staff perceptions and discrepancies in the documentation of patients' toileting regime influenced the high falls risk patients taking the risk to ambulate unassisted.

The nursing staff emphasised patient factors such as health status, and mental state (confused, dementia, delirium) had an impact on their falls prevention plan, as they are unable to follow instructions which relates to the *Quality of Patient Care* of the model. This is supported by many studies that the patient's predisposition (being unwell, previous confusion, acute illness) and precipitating factors (hospital environment) can lead to increased risk of delirium and falls. One of the barriers in falls prevention is the capacity of the cognitively impaired patients to take part in their falls prevention plan. In addition, nursing staff identified the inability of some patients to understand English as a significant factor in increased falls. However, the statistics of the PCCP audit strongly suggest that this was unlikely as the results were very low. This indicates that patients' understanding of English may not be a contributing factor to inpatient falls.

The communication breakdown between nurses, and nurses and allied health professionals identified as a contributing factor to inpatient falls which relate to the *Care Setting* of the model. The communication breakdown among healthcare professionals and its impact on patient outcomes concurs with other studies that highlighted the link between ineffective communication among healthcare professionals and injurious falls. The finding in relation to the poor handover of information between the nursing staff at the start of the shift and the lack of communication with allied health professionals in regards to patients falls risk and falls prevention interventions, highlighted the importance of effective communication to minimise patients experiencing a fall, as well as increasing patient awareness about their risk factors.

In summary, the lack of lighting at night, patients' privacy curtains and the ward layout contributed to the increased number of falls experienced by patients at night due to decreased patient visibility and the environment. Another factor was the nurses' knowledge deficit in correctly implementing bed/chair alarms and the challenges in managing cognitively impaired high falls risk patients. A further factor was the communication breakdown between allied health

professionals and nursing staff and nursing staff themselves which impacted on managing workloads, prioritising patient care and averting injurious falls in the medical ward. In addition, the patients' mental state and ability to engage in their falls prevention plan impacted on the effectiveness of the falls prevention program. Finally, the discrepancies among staff on what needs to be documented in the PCCP and the 6-PACK nurse led falls risk assessment tool not being user friendly or effective with all inpatients were further factors.

The fourth research question examined the **patients' perceptions** and found that there were **several contributing factors that led them to falling in the medical ward and they had limited understanding of the implemented 6-PACK falls prevention strategies** which relates to the *Quality of Patient Care.* The analysis of patient interviews revealed six contributing factors that were caused by nursing staff and two by patients themselves, that led them to falling in the medical ward: breakdown of communication between nursing staff and patients, the lack of supervision in the bathroom, lack of patient awareness of the implemented falls prevention strategies, nurses not answering patient call-bells in a timely manner, the nurses' attitude, and the lack of patient engagement in their falls prevention plan. The other two contributing factors were patients underestimating their falls risk and risk-taking behaviour.

Communication breakdown between nursing staff and patients highlight that ineffective communication and lack of awareness of patient needs indicates staff are unaware of the patients' contributing risk factors. The bathrooms of the medical ward consist of a shower, toilet amenities and a basin. The patients who fall in the bathrooms are at great risk of sustaining serious injury due to the environment (small, slippery wet floors). The findings from this case study revealed that the patients who are ambulant tend to overestimate their falls risk despite experiencing previous falls, and the association between answering the patient's call-bell in a timely manner and the patient taking the risk to ambulate unassisted.

The lack of patient engagement in their implemented falls prevention strategies and plan contributes to the patients' lack of understanding, and not taking an active part in their falls prevention plan. The patient-nurse therapeutic relationship and working together as a team (nurse, patient, healthcare professionals) to maintain patient safety is a key factor in decreasing injurious falls and empowering nurses to take ownership of the falls prevention program, and change the current practice in the medical ward.

In summary, ineffective communication by nurses when assisting patients during ambulation and the lack of patient education to increase awareness of their falls risk and required implemented strategies deters patients from taking ownership of their falls prevention plan and safety. This current study found that if the patient's call-bell was not answered in a timely manner, the patient underestimated their falls risk, and took the risk of falling and ambulated without any assistance from nursing staff, despite experiencing previous multiple falls. Supervising high falls risk patients while toileting/showering is critical in averting injurious falls. Nursing staff interact with patients more frequently than other healthcare professionals; therefore, it is crucial for them to take ownership in developing a therapeutic relationship with patients in order to build trust and work as a team to prevent falls.

The ***6-PACK falls prevention program in assessment and prevention of patient falls is not effective*** in reducing the number of falls or injurious falls (RQ5) which relates to all three components of the model. The perceptions of nursing staff of the effectiveness of this program differed. They stressed that the falls risk assessment tool was variable in its effectiveness, depending on patient factors such as age, mobility, cognitive state (confusion, agitated, intrusive), prescribed medication (antidiuretics), and health status (dementia, delirium). The 6-PACK falls prevention nurse-led TNH-STRATIFY falls risk assessment tool has nine items, two of which were of concern. Item 3: '*Mental State: Yes, Patient is confused, agitated, intellectually challenged or impulsive*' does not accurately distinguish between temporary cognitive impairment and dementia,

which might lead to falls being downgraded from high to low risk. Item Six: '*Age – Yes, Patient is 80 years or older*' needs to be reviewed as this case study found the age group of patients, who experience falls is usually 60 to 89. Also, medication assessment is not included in the assessment tool. As Nurse 3 stated: '*Not all strategies used are effective for all patients*' and therefore the tool '*needs improvement*' (16/2/2018). Nursing staff also highlighted that the falls risk assessment tool was not user-friendly, requiring explicit instructions for agency nurses and nursing students. This contributed to the significantly poor adherence to 6-PACK program strategies documentation in the PCCP i.e. alert sign, low-low beds, bed/chair alarms, toileting regime, gait aid, bathroom supervision. Most nursing staff were happy to trial another falls risk assessment tool as long as it was relevant to their patient cohort.

The ineffectiveness of the 6-PACK falls prevention program aligns closely with the RCT conducted by Barker et al. (2016, 2017,) and Morello et al. (2017) who found that the 6-PACK falls prevention program was not effective in reducing the number of falls or injurious falls. Haines et al. (2010) observed that low-low beds were ineffective in reducing falls and fall related injuries in acute care hospitals. This current study found that inconsistencies in documentation, updating patient's pertinent falls prevention information, inconsistent implementation of falls prevention interventions, low patient engagement in their falls prevention plan, lack of and malfunctioning equipment/resources and ward layout/environmental factors all impacted on the effectiveness of the 6-PACK falls prevention program.

In summary, the 6-PACK falls prevention program used in the acute care setting was not effective in reducing the number of falls or serious injuries related to falls as there are multiple factors contributing to inpatient falls. In contrast, the Inpatient Falls Prevention model which was developed during this study is more effective in exploring and analysing the factors that cause inpatient falls. This is an alternative model to current thinking with falls prevention and management

as it analyses and triangulates falls from multiple dimensions to identify the root cause of the phenomenon.

7.4 Significance of findings

This case study has made three major contributions to the literature on falls prevention in an acute care hospital. The study contributes to the literature in the field of patients' perceptions of implemented falls prevention interventions, which found that patients were not aware of the implemented falls prevention strategies or engaged in their falls prevention plan. Patients' lack of awareness of their falls risk and implemented falls prevention strategies affected not only their perception of the risk of falling, but also them classifying their incident as not a fall. If patients are not aware of their falls risk, they cannot safely undertake activities to attend to their immediate needs without the assistance of nursing staff. It is vital for patients to take ownership and actively participate in their falls prevent plan for it to be effective. Therefore, it is crucial that patients and their significant other are part of the team to prevent serious injuries related to falls.

The second contribution of this study is that collecting falls data from multiple databases and juxtaposing the findings with nurses and patients' perspectives is imperative in better understanding the root cause of the issues related to falls. The study included multidimensional data collection to provide a deeper understanding of the underlying reasons for increased number of fall related injuries in an acute care hospital. The triangulation of two administrative data sets (RiskMan and PCCP) with nurses and patients' perceptions of falls provided a broad understanding of underlying ward-based issues, such as incomplete documentation of bed/chair alarms were due to shortage, malfunctioning and also nurses' knowledge deficit on correct application of bed/chair alarms.

The RiskMan falls data provided a clear sense of patient falls, the frequency or total number of falls and patient outcomes in the medical ward. The PCCP provided a complete exploration of the nurse's uptake of the 6-PACK falls prevention program through analyses of nurses' documentation of the patient's falls risk assessment and implemented prevention strategies. Although these two data sets provided measurable and reliable falls data, it did not reach the intended understanding of the root causes this case study was exploring, until it was triangulated with the nurses and patient perspectives of falls and current falls prevention plan and management. This was achieved through the implementation of the Inpatient Falls Prevention model. Incorporating multiple sources for falls data collection should be the standard method employed in all hospital settings.

The third contribution is that the 6-PACK falls prevention assessment tool needs further enhancement to better capture the current patient cohort. The tool has nine items, two of which are of concern because nurses believe that the 6-PACK falls prevention tool does not accurately distinguish between temporary cognitive impairment and dementia, which might lead to patients falls risk being downgraded from high to low risk: item 3, which assesses the patient's mental state. The tool identifies patient's age as 80 years or older as a falls risk: item 6, which assesses the patient's age to identify if it is a falls risk factor for the patient. This case study revealed that the age group of patients who experience falls are usually 60 to 89, and medication assessment is not included, hence the reason assessment tool needs to be reviewed.

7.5 Implications of findings and practical application

This mixed method case study was innovative in examining the associations between the nurses' adherence to the 6-PACK falls prevention program, patient engagement in their falls risk and prevention plan, the organisation's resources and serious injuries related to falls in the medical ward. The triangulation of evidence from the falls prevention program, nurse practice and patient

perception, from this study has increased awareness of critical patient safety issues related to falls in an acute care hospital.

The deficiencies in nurses' patient assessment led to inconsistent implementation of the falls prevention strategies and incomplete documentation in the PCCP, and increased clinical patient safety matters related to injurious falls. One of the recommendations from this study is that nurses should be encouraged to take more ownership of the falls prevention program in order to change current nursing practice and impact positively on patient safety outcomes related to falls. The second significant finding was inadequate patient engagement in their falls prevention plan and management. Nursing staff and allied health professionals should collaboratively work together with inpatients and their significant other towards improving patient safety, otherwise serious injuries will continue to occur. Strengthening the patient nurse-relationship and communication is critical step in improving patient safety related to falls and injurious falls.

As falls prevention and management is predominantly the nurse's responsibility in collaboration with patients, they both need to be part of the quality improvement of falls prevention projects to maintain sustainability of falls prevention. To enhance the evaluation of these research findings and set priorities to motivate and improve current practice, this study engaged nursing staff in sharing their perceptions of how to improve current practice in falls prevention and management. In other words, the nursing staff will take ownership of and engage with the recommendations if they are actively involved in the process. Also, the patients' perspectives on what caused their fall and their recommendations on falls prevention is a key element in successful implementation of the research findings.

7.6 Final Remarks

This mixed methods case study aimed to evaluate the effectiveness of the 6-PACK falls prevention program by triangulating administrative falls data with

nurses and patients' perspectives of falls, and the current falls prevention program. The data was collected in two phases and analysed using the Inpatient Falls Prevention model. The findings revealed that nursing staff of the medical ward in this study need to have a sense of ownership of their practice in assessing, implementing, evaluating and documenting the 6-PACK falls prevention strategies and management, for falls prevention to be successful. Through comprehensive patient falls risk assessment, the implementation of individualised falls prevention strategies, communicating patients falls risk during bedside handovers, and the correct documentation in patients' medical files, serious injuries related to falls can be prevented.

Patient awareness of their falls risk and understanding of the implemented falls prevention strategies into their daily plan of care are paramount in sustaining patient safety. Patient awareness of their falls risk and prevention plan will empower them to take part and ownership of their safety and falls prevention plan. Thus, a therapeutic relationship between nursing staff and patients is paramount from admission to discharge to improve their experience during their episode of care.

Falls prevention is complex and there are multiple contributing factors to inpatient falls. The organisation, environment, and nurse and patient were identified as contributing factors to patient falls in an acute care hospital. The environmental factors were classified as items in the patient's room that contribute to their fall, such as in adequate night lights, patient's privacy curtains and layout of the ward. The organisational factors such as shortage and malfunctioning falls prevention resources in meeting patients' needs, shortage of specials to supervise cognitively impaired patients were associated with nurse factors. The patient factors were classified as the cause of inpatient falls such as their health status (dementia, delirium, and renal impairment), knowledge deficit in their falls prevention plan and implemented strategies and communication breakdown between nursing staff and patients. This case study revealed that all three factors are closely linked and for falls prevention projects

to be successful, the contributing factors needs to be analysed at administrative, patient and nurse's level to have a deeper understanding of the phenomenon.

The 6-PACK program is a nurse led falls prevention program and is therefore, pivotal in empowering nurses to implement the falls prevention program in order to reduce falls experienced by the inpatients. Although falls and injuries related to falls are common across most acute care hospitals, they are preventable. Healthcare professionals play a crucial role in whether or not patients experience a fall. Thus, a collaborative approach where patients, nurses and allied health professionals work together needs to be established in the medical ward to maintain patient safety.

The lessons learnt from this case study provided a greater understanding of the factors contributing to inpatient falls. The findings and recommendations may be of interest to other acute care hospitals who seek to improve their falls prevention program to address patient safety and enhance nurses' adherence to the falls prevention program and patient engagement.

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Appendices

Appendix 1: Staff information statement

Information Statement

HREC Project Number:	HREC17 Austin27
Research Project Title:	Evaluation of Falls Prevention 6PACK Programme in Medical Ward
Principal Researcher:	Mrs. Caglayan Yasan

Dear Participant,

We are inviting you to take part in our research project. We are undertaking this project to learn and raise awareness why falls occur while patients are in hospital, the issues that impact on inpatient falls. This information will assist us to improve the quality, efficiency of health care and patient safety will be improved. We hope around 20 participants will be able to take part in the study.

This project is not funded by any institution. The results of this research will be part of Caglayan Yasan to obtain a doctoral study.

We would like you to take part of this research project because you are part of the clinical team on the acute medical wards at ▮▮▮▮▮▮▮▮▮. We would like to obtain your views on the current Falls Prevention program in your clinical area. At the commencement of the focus groups we would like you to complete a short questionnaire to obtain your views on what contributes to falls occurring on your designated area (Unit B). This questionnaire will take approximately 10 minutes to complete.

In total the questionnaire and focus group discussion will take 30 minutes of your time. The focus group discussions will be audio-taped and later transcribed.

We do believe this project will have direct benefit to you by employing a more specific tailored intervention approach at a local ward level, it will improve staff satisfaction by engaging staff and adopting staff knowledge to improve current practice which will then impact longer term sustainability and maintenance of falls prevention. Also, we hope the information we get will help us to prevent similar incidents (falls) occurring in the future and this will in turn minimise the time spent completing RiskMan for falls.

We have been careful to make sure that the questions in the questionnaire do not upset you. However, if you are worried about any of the questions, you do not need to answer them. The only inconvenience is the time to complete the questionnaire.

Any information we collect and use during this research project will be treated as confidential. Only the researchers involved with this project and the Austin Health Ethics Committee can have access to this information.

All information will be stored securely in the Nursing Department at Victoria University. The information we collect will be completely anonymous. This means it will not include your name or any other personal details. No one, not even the research team, will be able to identify your information.

We are required to keep information collected as part of this research for at least 5 years following the last publication of the project. At the end of the project, results may be presented at conferences or published in medical journals. The results of this survey will also be used in a Doctoral thesis.

Because we are not collecting names and addresses from participants, we are unable to send you the results of the project. However, you can access the results of this project by ▮▮▮▮▮▮▮▮ intranet and your Nurse Unit Manager.

Participation in this project is voluntary. This means it is your choice and you do not have to take part if you do not want to. If you decide you do not want to take part, it will not affect the management of your employment at ▮▮▮▮▮▮▮▮. If you take part it will not be possible to withdraw any information you give us. This is because it is anonymous and we do not know who answered the questions in each questionnaire.

We hope that you will take part. You do not need to complete a consent form to take part in this project. If you begin the interview, this means you are giving your consent. If you have any questions, or would like further information about this project, please email caglayan_yasan@live.com.au or call 0410784565.
Yours sincerely,

Caglayan Yasan
PhD Student
Victoria University

If you have any concerns and/or complaints about the project, the way it is being conducted or your rights as a research participant, and would like to speak to someone independent of the project, please contact: the Complaints Contact Person, Austin Health on telephone: (03) 9496 4090 or (03) 9496 3248.

This research project has been approved by Austin Health Human Research Ethics Committee and will be carried out in line with the National Statement on Ethical Conduct in Human Research (2007) – including all updates.

Appendix 2: Patient information statement

Information Statement

HREC Project Number: HREC17 Austin27

Research Project Title: Evaluation of Falls Prevention 6PACK Programme in a Medical Ward

Principal Researcher: Mrs. Caglayan Yasan

Dear Participant,

We are inviting you to take part in our research project. We are undertaking this project to learn more about which factors contributing to you having a fall while in hospital. This information will assist us to improve patient safety and prevent similar incidents (falls) occurring in the future. We hope around 10 participants will be able to take part in the study.

This project is not funded by any institution. The results of this research will be part of Caglayan Yasan to obtain a doctoral study.

We would like you to take part because we value your opinion and would like to obtain your views on which factors contributed to you having a fall while in hospital. The interview will take 15 minutes of your time. The interview will be conducted by Caglayan Yasan (PhD student) or Injury Prevention champions of the ward. The interview questions asks about what contributed to your fall and your recommendations to improve current practice. The interviews will be audio-taped and later transcribed.

We do not expect there to be any direct benefit to you. However, we hope the information we get will help us to prevent similar incidents (falls) occurring in the future and this may help other patients in the future.

We have been careful to make sure that the questions in the interview do not upset you. However, if you are worried about any of the questions, you do not need to answer them. The only inconvenience is the time to complete the interview.

Any information we collect and use during this research project will be treated as confidential. Only the researchers involved with this project and the Austin Health Ethics Committee can have access to this information.

All information will be stored securely in the Nursing Department at Victoria University. The information we collect will be completely anonymous. This means it will not include your name or any other personal details. No one, not even the research team, will be able to identify your information.

We are required to keep information collected as part of this research for at least 5 years following the last publication of the project. At the end of the project, results may be presented at conferences or published in medical journals. The results of this survey will also be used in a Doctoral thesis.

Because we are not collecting names and addresses from participants, we are unable to send you the results of the project. However, you can access the results of this project by ▮▮▮▮▮▮▮▮ intranet and newsletters.

Participation in this project is voluntary. This means it is your choice and you do not have to take part if you do not want to. If you decide you do not want to take part, it will not affect the management of your health at ▮▮▮▮▮▮▮▮ If you take part it will not be possible to withdraw any information you give us. This is because it is anonymous and we do not know who answered the questions in each interview.

We hope that you will take part. You do not need to complete a consent form to take part in this project. If you begin the interview, this means you are giving your consent. If you have any questions, or would like further information about this project, please email or call caglayan_yasan@live.com.au 0410784565.

Yours sincerely,

Caglayan Yasan
PhD Student
Victoria University

If you have any concerns and/or complaints about the project, the way it is being conducted or your rights as a research participant, and would like to speak to someone independent of the project, please contact: the Complaints Contact Person, Austin Health on telephone: (03) 9496 4090 or (03) 9496 3248.

This research project has been approved by Austin Health Human Research Ethics Committee and will be carried out in line with the National Statement on Ethical Conduct in Human Research (2007) – including all updates.

Appendix 3: Nurses consent form

AFFIX PATIENT IDENTIFICATION LABEL HERE

U.R. NUMBER:

SURNAME: _____

GIVEN NAME:

DATE OF BIRTH: _____ / _____ / _____ SEX: _____

RESEARCH PARTICIPANT INFORMATION CONSENT

PARTICIPANT INFORMATION SHEET/CONSENT FORM

Title	*Evaluation of Current Falls Prevention 6PACK Programme in Medical Wards*
Short Title	*Evaluation of Falls Prevention 6PACK Programme*
HREC No.	*HREC17/Austin27*
Protocol Number	*[]*
Project Sponsor	*[]*
Coordinating Principal Investigator/ Principal Investigator	*Mrs. Caglayan Yasan (PhD student)* *Dr Trish Burton (Primary Supervisor Victoria University)*
Associate Investigator(s)	*[N/A]*
Location	

Participant Involvement in Research Project:

Start Date: 01 / 06 / 2017 **Finish Date:** 01/ 06 / 2018

Part 1 What does my participation involve?

Research Aim: You have been invited to participate in this research project "Evaluation of Current 6PACK Falls Prevention Programme in Medical Wards". This is because you are part of the clinical team on the acute medical wards at ▮▮▮▮▮. We would like to obtain your views on the current Falls Prevention program in your clinical area. This research project aims to raise awareness why falls occur while patients are in hospital, the issues that impact on inpatient falls and by understanding these factors the quality, efficiency of health care and patient safety will be improved.

Caglayan Yasan (PhD student) will conduct focus groups with clinical staff to identify the key areas (physical environment and processes of care) that contribute to the occurrence of falls on ▮▮ and to identify potential changes that can be made at local level to address these. The focus group discussions aim to involve nursing, quality managers and nurse unit managers.

At the commencement of these focus groups we would like you to complete a short survey to obtain your views on what contributes to falls occurring on your ward. This survey will take approximately 5 minutes to complete.

Participation in the focus group discussion is voluntary. If you decide to take part and later change your mind, you are free to withdraw from the project at any stage however, if the focus groups have occurred, your data cannot be removed from the study. The focus groups will be audio-taped and later transcribed. All responses will be de-identified post focus group discussions or in any publication and no identifiable information will be given to ▮ staff apart from the researchers involved in this project. All reports, conference presentations and publications arising from this project will only use de-identified information.

This project is being undertaken as part of ▮▮▮▮▮ research project and Caglayan Yasan's PhD research project.

Master Staff Information Sheet/Consent FormV117May 2017
Site Staff Information Sheet/Consent Form V3 28June2017

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AFFIX PATIENT IDENTIFICATION LABEL HERE

U.R. NUMBER:

SURNAME: _____

GIVEN NAME:

DATE OF BIRTH: _____ / _____ / _____ SEX: _____

This project has been reviewed and approved by the Austin Health Low Risk Ethics committee and the Victoria University Ethics committee.

If you would like further information about this project please contact:
Caglayan Yasan 0410 784565

Complaints contact person
If you have any complaints about any aspect of the project, the way it is being conducted or any questions about being a research participant in general, then you may contact:

Reviewing HREC approving this research and HREC Executive Officer details

Reviewing HREC name	Austin Health Human Research Ethics Committee
HREC Executive Officer	Ms Chelsea Webster
Telephone	03 9496 4090
Email	ethics@austin.org.au

For matters relating to research at the site at which you are participating, the details of the local site complaints person are:

Name	
Position	
Telephone	
Email	

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Master Staff Information Sheet/Consent FormV117May 2017
Site Staff Information Sheet/Consent Form V3 28June2017

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RESEARCH PARTICIPANT INFORMATION CONSENT

Consent Form - *Adult providing own consent*

Title	*Evaluation of Current Falls Prevention 6PACK Programme in Medical Wards*
Short Title	*Evaluation of Falls Prevention 6PACK Programme*
Protocol Number	*[]*
Project Sponsor	*[]*
Coordinating Principal Investigator/ Principal Investigator	*Mrs. Caglayan Yasan (PhD student)* *Dr Trish Burton (Primary Supervisor Victoria University)*
Associate Investigator(s)	*[]*
Location	

Declaration by Participant

I have read the Participant Information Sheet and I understand the purpose of the focus groups and what is involved in study participation.

I have had an opportunity to ask questions and I am satisfied with the answers I have received.

I understand that other members of the focus group will hear my responses so anonymity and confidentiality cannot be guaranteed during the focus group. All participants' responses will be de-identified in any publications and presentations arising from this research project.

I freely agree to participate in this research project as described and understand that I am free to withdraw at any time during the project without affecting my future health care. I understand that if I withdraw from the study after the focus group has occurred, my data cannot be removed from the study.
I understand that I will be given a signed copy of this document to keep.

Name of Participant (please print) _____

Signature _____ Date _____

Declaration by Study Doctor/Senior Researcher[†]

I have given a verbal explanation of the research project, its procedures and risks and I believe that the participant has understood that explanation.

Name of Study Doctor/
Senior Researcher[†] (please print) _____

Signature _____ Date _____

[†] A senior member of the research team must provide the explanation of, and information concerning, the research project.
Note: All parties signing the consent section must date their own signature.

Master Staff Information Sheet/Consent FormV117May 2017
Site Staff Information Sheet/Consent Form V3 28June2017

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RESEARCH PARTICIPANT INFORMATION CONSENT

Northern Health

Form for Withdrawal of Participation - *Adult providing own consent*

Title	*Evaluation of Current Falls Prevention 6PACK Programme in Medical Wards*
Short Title	*Evaluation of Falls Prevention 6PACK Programme*
Protocol Number	*[]*
Project Sponsor	*[]*
Coordinating Principal Investigator/ Principal Investigator	*Mrs. Caglayan Yasan (PhD Student)* *Dr Trish Burton (Primary Supervisor Victoria University)*
Associate Investigator(s)	*N/A*
Location	

Declaration by Participant

I wish to withdraw from participation in the above research project and understand that such withdrawal will not affect my routine treatment, my relationship with those treating me or my relationship with ▮▮▮▮▮▮▮▮▮▮

Name of Participant (please print) _____

Signature _____ Date _____

In the event that the participant's decision to withdraw is communicated verbally, the Study Doctor/Senior Researcher will need to provide a description of the circumstances below.

Declaration by Study Doctor/Senior Researcher[†]

I have given a verbal explanation of the implications of withdrawal from the research project and I believe that the participant has understood that explanation.

Name of Study Doctor/
Senior Researcher[†] (please print) _____

Signature _____ Date _____

[†] A senior member of the research team must provide the explanation of and information concerning withdrawal from the research project.

Note: All parties signing the consent section must date their own signature.

Master Staff Information Sheet/Consent FormV117May 2017
Site Staff Information Sheet/Consent Form V3 28June2017

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Appendix 4: Patient consent form

AFFIX PATIENT IDENTIFICATION LABEL HERE

U.R. NUMBER:

SURNAME: _____

GIVEN NAME:

DATE OF BIRTH: _____ / _____ / _____ SEX: _____

PARTICIPANT INFORMATION SHEET/CONSENT FORM

Title — *Evaluation of Current Falls Prevention 6PACK Programme in Medical Wards*

Short Title — *Evaluation of 6PACK Falls Prevention Programme*
HREC No. — *HREC17/Austin27*
Protocol Number
Project Sponsor — *N/A*

Coordinating Principal Investigator/ Principal Investigator — *Mrs. Caglayan Yasan (PhD student)*
Dr Trish Burton (Primary Supervisor Victoria University)

Associate Investigator(s) — *N/A*

Location

Participant Involvement in Research Project:

Start Date: 01 / 06 / 2017 **Finish Date:** 31 / 12 / 2017

Part 1   What does my participation involve?

You have been invited to participate in this research project as you had a fall over the last week, while in the ▇▇▇. We value your opinion and would like to obtain your views on which factors contributed to you having a fall while in hospital. We would also like to ask your views on what we can do as an organisation to prevent similar incidents (falls) occurring in the future. The interviews will be conducted by Caglayan Yasan (PhD student) or Injury Prevention champions of the ward.

This research project aims to raise awareness why falls occur while patients are in hospital and to work with the clinical teams to develop falls prevention strategies that are specifically tailored to address local needs.

This interview will take approximately 15 minutes. Your participation in this interview is voluntary. If you do not want to take part, you do not have to. If you need an interpreter that will be arranged. The interviews will be audio-taped and later transcribed. All responses will be de-identified post interviews or in any publication and no identifiable information will be given to ▇ staff apart from the researchers involved in this project. All reports, conference presentations and publications arising from this project will only use de-identified information.

This project is being undertaken as part of ▇▇▇▇▇ research project and Caglayan Yasan's PhD research project. The research project has been reviewed and approved by the Austin Health Low Risk Ethics committee and the Victoria University Ethics committee.

If you would like further information about this project please contact:
Caglayan Yasan 0410 784565

If you have any complaints about any aspect of the project, the way it is being conducted or any questions about being a research participant in general, then you may contact:

Patient Participant Information Sheet/Consent Form *HREC17/Austin27/ V2 19Apr17 Clean*
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	AFFIX PATIENT IDENTIFICATION LABEL HERE
RESEARCH PARTICIPANT INFORMATION CONSENT	U.R. NUMBER: SURNAME: _____ GIVEN NAME: DATE OF BIRTH: _____/_____/_____ SEX: _____

Complaints contact person

Reviewing HREC approving this research and HREC Executive Officer details

Reviewing HREC name	Austin Health Human Research Ethics Committee
HREC Executive Officer	Ms Chelsea Webster
Telephone	03 9496 4090
Email	ethics@austin.org.au

For matters relating to research at the site at which you are participating, the details of the local site complaints person are:

Name	
Position	
Telephone	
Email	

Patient Participant Information Sheet/Consent Form *HREC17/Austin27/ V2 19Apr17 Clean*
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RESEARCH PARTICIPANT INFORMATION CONSENT

Consent Form - *Adult providing own consent*

Title   *Evaluation of Current Falls Prevention 6PACK Programme in Medical Wards*

Short Title   *Evaluation of 6PACK Falls Prevention Programme*

Protocol Number

Project Sponsor   *Mrs. Caglayan Yasan (PhD student)*

Coordinating Principal Investigator/   *Dr Trish Burton (Primary Supervisor Victoria University)*
Principal Investigator

Associate Investigator(s)   *N/A*

Location

Declaration by Participant

I have read the Participant Information Sheet or someone has read it to me in a language that I understand.

I understand the purposes, procedures and risks of the research described in the project.

I have had an opportunity to ask questions and I am satisfied with the answers I have received.

I freely agree to participate in this research project as described and understand that I am free to withdraw at any time during the project without affecting my future health care.

I understand that I will be given a signed copy of this document to keep.

Name of Participant (please print) _____

Signature _____ Date _____

Name of Witness* to
Participant's Signature (please print) _____

Signature _____ Date _____

* Witness is not to be the investigator, a member of the study team or their delegate. In the event that an interpreter is used, the interpreter may not act as a witness to the consent process. Witness must be 18 years or older.

Declaration by Study Doctor/Senior Researcher†

I have given a verbal explanation of the research project, its procedures and risks and I believe that the participant has understood that explanation.

Name of Study Doctor/
Senior Researcher† (please print) _____

Signature _____ Date _____

† A senior member of the research team must provide the explanation of, and information concerning, the research project.

Note: All parties signing the consent section must date their own signature.

Patient Participant Information Sheet/Consent Form *HREC17//Austin27/ V2 19Apr17 Clean*
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RESEARCH PARTICIPANT INFORMATION CONSENT

Form for Withdrawal of Participation - *Adult providing own consent*

Title	*Evaluation of Current Falls Prevention 6PACK Programme in Medical Wards*
Short Title	*Evaluation of Falls Prevention 6PACK Programme*
Protocol Number	
Project Sponsor	
Coordinating Principal Investigator/ Principal Investigator	*Mrs. Caglayan Yasan (PhD student)* *Dr Trish Burton (Primary Supervisor Victoria University)*
Associate Investigator(s)	*N/A*
Location	

Declaration by Participant

I wish to withdraw from participation in the above research project and understand that such withdrawal will not affect my routine treatment, my relationship with those treating me or my relationship with █████████████

Name of Participant (please print) _____

Signature _____ Date _____

In the event that the participant's decision to withdraw is communicated verbally, the Study Doctor/Senior Researcher will need to provide a description of the circumstances below.

Declaration by Study Doctor/Senior Researcher[†]

I have given a verbal explanation of the implications of withdrawal from the research project and I believe that the participant has understood that explanation.

Name of Study Doctor/ Senior Researcher[†] (please print) _____

Signature _____ Date _____

[†] A senior member of the research team must provide the explanation of and information concerning withdrawal from the research project.

Note: All parties signing the consent section must date their own signature.

Patient Participant Information Sheet/Consent Form *HREC17//Austin27/ V2 19Apr17 Clean*
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Appendix 5: PCCP: falls risk assessment tool

FALLS RISK ASSESSMENTS
The Northern Hospital Modified STRATIFY (TNH-STRATIFY)
Barker AL, Kamar J, Graco M, Lawlor V, Hill K. Adding value to the STRATIFY falls risk assessment in acute hospitals. J Adv Nurs. 2011 Feb; 67 (2):450-7

			Score
1. Fall: current admission?	Yes, Patient had a fall/s during current admission		3
2. Fall: within 12-months?	Yes, Patient had fall/s in the last 12-months		1
3. Mental State?	Yes, Patient is either confused, agitated, intellectually challenged or impulsive		1
4. Mobility?	Yes, Patient needs supervision or assistance when mobilising		1
5. Impaired Balance?	Yes, Patient has impaired balance and/or hemiplegia		1
6. Age?	Yes, Patient is 80 years or older		1
7. Toileting?	Yes, Patient is in need of frequent toileting		1
8. Vision?	Yes, Patient is visually impaired to the extent that everyday function is affected		1
9. Drug / Alcohol?	Yes, Patient presented with drug / alcohol related problems		1
Risk Score / Level:	**3 or more = High Risk**	**Total**	

Date Tool completed: ___/_____/_____ Name/ Signature:_____
Document details if change occurs: (Or use new Care Plan / Risk Assessment Tool)

- New score:_____ Date:_____ Time:_____ Reason:_____ Initial:_____
- New score:_____ Date:_____ Time:_____ Reason:_____ Initial:_____
- New score:_____ Date:_____ Time:_____ Reason:_____ Initial:_____
- New score:_____ Date:_____ Time:_____ Reason:_____ Initial:_____

Appendix 6: PCCP: falls prevention strategies

FALLS	Falls this admission? Use Risk Tool on pg 2 If High Risk	☐ No ☐ Yes ⇨ details on pg1 Risk Score: ____ = ☐ Low ☐ High Risk (≥ 3) ☐ Patient brochure ⇨ details on pg1 - ☐ Alert Sign ☐ Low bed ☐ Alarm - ☐ Supervise Bathrm ☐ Gait-Aid near pt - ☐ **Toilet Regime:** = ☐ pre breakfast ☐ _____ hourly ☐ before lunch ☐ Use Toilet Chart ☐ mid afternoon	☐ As previous shift ☐ _____ ☐ Patient Education ☐ before dinner ☐ before settling ☐ Toilet Chart	☐ As previous shift ☐ _____ ☐ 1-2 am ☐ when waking ☐ Toilet Chart

Appendix 7: PCCP: patient education brochure and falls during current admission

Patient / Carer Education: Provide Education Brochure to inform the risks/prevention of Falls/PI if patient is identified as High Risk.

- Brochures in English are available in all Wards. Print other languages from NH Intranet/Dep. & Services/Injury Prevention/Patient Education - **No need to supply, if documented evidence that brochure was provided previously**

Rights & Responsibilities	☐ Previously Provided or	☐ Provided Now: Staff Initial: _____ Date: _____
Falls Prevention	☐ Previously Provided or	☐ Provided Now: Staff Initial: _____ Date: _____
Pressure Injury Prevention (PI)	☐ Previously Provided or	☐ Provided Now: Staff Initial: _____ Date: _____
_____	☐ Previously Provided or	☐ Provided Now: Staff Initial: _____ Date: _____
_____	☐ Previously Provided or	☐ Provided Now: Staff Initial: _____ Date: _____
_____	☐ Previously Provided or	☐ Provided Now: Staff Initial: _____ Date: _____

Falls during current admission to Northern Health:

Fall 1: / / Ward_____ Riskman No._____   Fall 4: / / Ward_____ Riskman No._____
Fall 2: / / Ward_____ Riskman No._____   Fall 5: / / Ward_____ Riskman No._____
Fall 3: / / Ward_____ Riskman No._____   Fall 6: / / Ward_____ Riskman No._____

References: - Best Care For Older people Everywhere Toolkit, Department of Health Victoria, 2012
- Pan Pacific Clinical Practice Guideline for the Prevention and Management of Pressure Injury, Australian Wound Management Association, 2012
- Australian Commission on Safety and Quality in Healthcare, Preventing Falls and Harm from Falls in Older People Best Practice Guidelines for Australian Hospitals, 2009

Appendix 8: PCCP audit tool

Comments:
Yes: indicating implemented as documented
No: indication not implemented / documented

PCCP audit tool		
Bed Number: **Patient Number**:	**Researcher / Expert:** **Complete Tool and document details below**	**Documented in Care Plan by Nurse caring for the patient:**
Falls Audit Tool **Ward:** **Date:**	Researcher:	Documented in Care Plan:

FALLS: Documented: Any Fall/s this admission
       If Yes: 1) RiskMan number on
       front of the page
	Yes / No
	Yes / No
		Yes / No
		Yes / No

Initial and Current Risk Assessment Documented **Staff documented: Risk** **Score is High (>3)** **Assessment during audit:** **Risk Score is High**	Yes / No Yes / No Yes / No	Yes / No Yes / No Yes / No
Appropriate interventions implemented:	Yes / No	Yes / No
Alert Sign in Place	Yes / No	Yes / No
Low Bed in place Is it in the lowest position	Yes / No Yes / No	Yes / No Yes / No
Alarm In-situ If so, is it connected correctly	Yes / No Yes / No	Yes / No Yes / No
Gait aid: does patient have gait aid If so, close to the patient	Yes / No Yes / No	Yes / No Yes / No
Toilet Regime commenced	Yes / No	Yes / No
Brochure provided and recorded on the front page Ask patient/carer/staff risk and strategies discussed	Yes / No Yes / No	Yes / No Yes / No
Assessment completed within the 8 hrs of pts admission	Yes / No	Yes / No

Appendix 9: Nurse questionnaire

Nurse Questionnaire

Research Aim: This research project aims to raise awareness of the issues that impact on inpatient falls and by understanding these factors at the ward level the quality, efficiency of health care and patient safety will be improved. The research project will also improve staff satisfaction by engaging and adapting staff knowledge to improve current practice, which will then promote longer term sustainability and maintenance of falls prevention.

Staff perception of falls:

1. Which unit are you currently employed?
   Comments: _____

2. What is your current role?
   Comments: _____

3. What shifts do you work?
   AM   PM   Nocte   Rotating Roster

4. What are your thoughts around the current system around falls prevention? Is it effective or not?
   Comments:_____
   _____
   _____

5. Why do you believe patients fall?
   Comments:_____
   _____
   _____
   _____

6. How do you think ▉ could better prevent falls?
   _____
   _____
   _____
   _____
   _____

   a) How ▉ nurses could better prevent falls?
   _____
   _____
   _____
   _____
   _____
   _____

7. Are there any workplace factors that impact on the implementation of falls prevention strategies that are outlined on the patient centred care plan (PCCP)?
   Comments:_____
   _____
   _____
   _____

8. Are there adequate resources/equipment in your designated ward to prevent falls?
   Comments:_____
   _____
   _____

9. Is falls prevention reinforced in your designated ward?
   If yes, how? _____
   _____
   _____
   _____

   If no, why?
   _____
   _____
   _____

10. Do you believe it's time to utilise more recognized falls prevention tool at ■ like other organizations (FRAT)?
    If Yes, why?_____
    _____
    _____
    _____

    If No, why? _____
    _____
    _____
    _____

11. Do you envisage that this research project will improve staff satisfaction?
    If yes, how? _____
    _____
    _____

    If no, why?
    _____
    _____
    _____
    _____

Appendix 10: Nurse focus group discussion

The researcher will conduct focus groups with nursing staff to identify the key areas (physical environment and processes of care) that contribute to the occurrence of falls on a medical ward and to identify potential changes that can be made at a local level to address these.

1. What are your thoughts around the current system around falls prevention? Is it effective or not?
2. Why do you believe patients fall?
3. How do you think the hospital could better prevent falls?
4. What do you think are the potential changes that can be made to improve current system?
5. How could Nurses of this medical ward could prevent falls?

Appendix 11: Patient questionnaire

Appendix 1: Patient Questionnaire

Research Aim: This research project aims to raise awareness of the issues that impact on inpatient falls and understanding these factors. By using a specially tailored intervention approach at the ward level the quality, efficiency of health care and patient safety will be improved.

The researcher or ward falls prevention champions will undertake the patient questionnaire post a patient experiences a fall.

Demographic background

English Speaking: Yes   No   **Interpreter required:** Yes   No   **Family present:** Yes   No

Survey completed with: Patient

Age: **Gender:**

Marital Status: Married / Defacto / Divorced / Widowed / Single / Separated

Indigenous Status: Indigenous / Non-Indigenous

Country of Birth: Australia / Outside of Australia

Admission Type: Elective / Emergency / Transfer

Patients Medical Past History: _____

_____

Current Medications: _____

_____

1) What do you think caused you to fall? (patient's point of view)

Comments: _____

_____
_____
_____

2) Did you ask for assistance?

Comment: _____

_____

2a) If so, why did you not wait?

Comment: _____

_____
_____

2b) If not, why not?

Comment: _____

_____
_____

3) What could have been done better to prevent your fall?

Comments: _____

_____
_____

HREC/17/Austin/27 Patient Questionnaire V3/17May17 Clean

4) Were you provided with the falls prevention brochure (show the patient the brochure for context)?
Yes
No

4a) If yes, did you find the brochure helpful?

Yes
No

4b) If yes, when the information was provided, did you ask questions or clarify anything with your nurse?
Yes
No

5) Do you understand all the information presented in the falls prevention brochure?
Yes
No
Comments:_____
_____

6) Tell me what you understand about the following:

Falls Sign	Yes	No	What does it mean? _____
Hi low bed	Yes	No N/A	Why is it required? _____
Bed Alarm	Yes	No N/A	Why is it required? _____
Supervise Bathroom	Yes	No	What does this mean? _____
Walking Aid near patient	Yes	No N/A	Why is this required? _____
Toileting Regime	Yes	No	Did you wait for assistance? _____

Comments:_____
_____

7) Do you have any suggestions to improve current practice i.e.: brochure, current strategies for falls.
Yes
No
Comments:_____
_____
_____

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Appendix 12: Patient interview

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Speaker key

- S1   Speaker One
- S2   Speaker Two

Timecode	Speaker	Transcript
00:00:03	S1	So what contributed to you having your fall while you were in hospital?
00:00:10	S2	I was trying to walk to the bathroom.
00:00:11	S1	You were trying to walk to the bathroom. And what happened that made you fall?
00:00:19	S2	Uhm, I was using my walker.
00:00:22	S1	Yes?
00:00:22	S2	Or just about (Pause) and there wasn't strength in my legs, and I tripped with my... (Sighs)—
00:00:38	S1	Trip?
00:00:38	S2	—too many people were trying to help, and I didn't notice that my walker had become entangled with my…
00:00:54	S1	Oxygen tubing?
00:00:58	S2	No. With the gown that I was wearing.
00:01:00	S1	Oh. With the gown? Okay. Uhm, so you had people next to you?
00:01:05	S2	Yeah.
00:01:07	S1	Okay. So you have already asked for—
00:01:08	S2	Too many people to be honest. That was the problem.
00:01:11	S1	Too many people that were—?
00:01:14	S2	That were putting in there. They were putting in there. Like, I wanted them to leave me—leave me alone.
00:01:18	S1	Okay.

00:01:21	S2	Plus, I was running out of energy because the walks to the toilet and from the toilet was becoming difficult.
00:01:36	S1	And what is it that we could have done differently to prevent you having that fall?
00:01:40	S2	Leave me alone.
00:01:41	S1	Leave you alone? (Laughs) But you are a high falls risk.
00:01:43	S2	Yeah... To many people putting their input in.
00:01:45	S2	Too many people putting their input in
00:01:47	S1	Okay.
00:01:47	S2	And I was trying to say: no, I will deal with this. There are too many people touching me.
00:01:53	S1	So they basically weren't listening to your instructions?
00:01:56	S2	Yeah. That's prim—primarily it.
00:02:06	S1	Okay... (Turns Page) Uhm... Had they given you a falls prevention brochure when you came in?
00:02:14	S2	No.
00:02:15	S1	No? Okay... Do you understand that, uhm, why your bed is lowered to the ground?
00:02:28	S2	I don't understand why it was.
00:02:30	S1	Yeah, why your bed. The bed that you are in now, do you understand why it's lowered to the ground, it's not left higher up?
00:02:38	S2	We were too far away for that to be a problem.
00:02:42	S1	No? They have actually put this above your bed. Do you understand what this sign means? Yeah, here's the sign. Did they tell you they put this sign up?
00:02:56	S2	No.
00:02:56	S1	Okay. This is actually a Falls Prevention sign.
00:02:58	S2	Right?

00:02:59	S1	And this alerts everyone that you are at high risk, but no one actually explained that to you?
00:03:03	S2	No. I didn't realize I was.
00:03:12	S1	Do you understand the importance why people need to supervise you to the bathroom?
00:03:17	S2	Oh, god yes.
00:03:17	S1	What do you suggest we can do to improve our practice? As a hospital what is it that we can do?
00:03:31	S2	Yeah... In the first place listen to me.
00:03:35	S1	Okay. (Pause) And then?
00:03:43	S2	Just primarily that. Listen to the person who's trying to **[inaudible 0:03:47]**. Because you know I know what's going on.
00:04:04	S1	Thank you very much (patient name stated). That's about it.
00:04:06	S2	You're welcome.
00:04:07	S1	I really appreciate it.
00:04:08	S2	I hope it helps 'cause I, I actually think that it's very important stuff that you're doing.
00:04:13	S1	Thank you. I appreciate it. I'll photocopy that consent form and give you a copy of that as well now.
00:04:16	S2	Yeah. I'm already awake now so it's don—[RECORDING ENDS HERE]

[00.04.20]

[End of Audio]

Duration 4 minutes 20 seconds