

**Management of Pressure Injury Prevention in Two New
Zealand Residential Aged Care Facilities: A Case Study**

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Abstract

The purpose of this study was to explore how pressure injury prevention is managed in residential aged care in New Zealand. Pressure injuries are costly and have negative physical, social and psychological consequences that impact significantly on quality of life. Residents in aged care are becoming more dependent with more complex needs. Frail older people have increased risk of developing pressure injuries and Registered Nurses and Health Care Assistants, with different and unique roles, are integral to the prevention of these injuries. The prevention of pressure injuries requires a comprehensive and multifactorial approach.

Exploratory case study methodology was used in this thesis to answer the question: How are pressure injuries prevented in residential aged care? Data were collected from Clinical Managers, Registered Nurses and Health Care Assistants working in two residential aged care facilities, and who provided pressure injury prevention intervention in their daily practice, using semi-structured interviews. Facility policies and guidelines related to pressure injury prevention and management were also analysed.

Two main themes were identified during data analysis and used to structure the presentation of findings. Firstly, “The Context of Residential Aged Care”, which captured the complex cultural dynamics within residential aged care which impact on how nurses and healthcare assistants work together to provide pressure injury prevention. The second theme, “Assessment and Interventions of Daily Practice”, encapsulated the complexity and multidimensional nature of providing care in relation to pressure injury prevention within the residential aged care environment.

The study identified barriers and facilitators in the prevention of pressure injuries and illustrate the interplay between provision of pressure injury prevention and organisational culture and structure. Implementation strategies to reduce pressure injuries must reflect organisational infrastructures that impact negatively on quality care while also acknowledging the increasing dependency and complexity involved in caring for frail older adults with the ultimate goal of reducing the incidence of pressure injuries in aged care.

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Anne Grinlinton

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Chapter One: Introduction

Introduction

Pressure injuries have significant negative consequences for older adults living in residential aged care. As age and frailty increases, so does the risk of developing pressure injuries. Each year, approximately 55,000 people in New Zealand (NZ) experience a pressure injury (Ministry of Health, 2018). In NZ, the direct costs of pressure injuries are estimated to be \$67,000,000 per annum but the human toll of pain, infection, delayed healing, altered body image, depression, social isolation and increased mortality and morbidity is substantial (Health, Quality & Safety Commission NZ, 2018; Jackson et al., 2018). There can also be negative effects on healthcare workers including underlying connotations of neglect and mismanagement when pressure injuries occur as well as feelings of failure and guilt (Baker et al., 2016).

There is a large amount of literature about pressure injury prevention internationally but very few studies with a particular focus on residential aged care. This study aims to explore the strategies employed for pressure injury prevention in two residential aged care facilities in New Zealand. This study was undertaken in two residential aged care facilities and investigated how pressure injuries are managed from the perspective of Clinical Managers (CMs), Registered Nurses (RNs) and Health Care Assistants (HCAs). My research sought an in-depth exploration to understand how nurses and HCAs manage pressure injury prevention in residential aged care. Findings from this study will inform the ongoing development of pressure injury prevention strategies in residential aged care.

It is important to note that pressure injuries are considered preventable in the majority of cases (Mervis & Phillips, 2019a). In residential aged care, RNs and HCAs play a vital role in the prevention of pressure injuries. They must first be able to recognise risk factors and then put appropriate individualised interventions in place. Interventions may include appropriate skin care, pain management, supply of suitable support surfaces, mobilising and repositioning, incontinence management, and nutrition assessment. Staff-family communication is also an

important part of this care and healthcare workers must involve and build positive relationships with residents and their families (Frey et al., 2017).

Chapter One of this study presents the context and background of my research. I will firstly introduce myself and describe my research interest and the motivations for undertaking this study. This chapter will then examine demographic trends before describing the study setting of residential aged care in NZ. Relevant policy and guidelines will be considered. This chapter will also present a definition and a description of the tissue response associated with pressure injury formation. The chapter concludes with an overview of the thesis chapters.

Background and Context of Study

My research interest.

I have been a RN for 31 years and currently have the privilege of working as a Wound Care Nurse Specialist for residential aged care under the Waitemata District Health Board. I work within a team of Gerontology Nurse Practitioners and Gerontology Nurse Specialists as part of the Residential Aged Care Integration Programme that supports integrated care for the older adult living in aged care facilities. I work closely with facility staff providing clinical support and education around prevention of pressure injuries and wound care to meet the needs of the older adult. This involves role-modelling holistic care of older people while working alongside residential aged care staff. In this role I have seen first-hand the negative physical, social, and psychological consequences for individuals experiencing pressure injuries and the grief and the worry that families experience. I have also been made aware of the complexities of care and the challenges that nurses face working within this environment both at a clinical and organisational level. I have seen the distress and disappointment nurses feel when people in their care develop pressure injuries. The financial consequences of caring for people with pressure injuries is evident. I have often wondered what more could be done to support the nurses and HCAs in the area of pressure injury prevention. In completing my Masters of Health Science in Advanced Nursing Practice I have been given the opportunity to study how RNs and HCAs manage pressure injury prevention in residential aged care from their perspective.

Demographic trends.

Population ageing is a global trend. According to the United Nations (2019) there were 703 million persons aged 65 years or over in the world in 2019 and this is projected to double to 1.5 billion by 2050. The United Nations (2019) describe population ageing “as a human success story due to improved public health, medical advancements, economic and social development over diseases, injuries and early deaths that have limited human life spans throughout history.” (p.3). In NZ, population growth after European settlement was initially fuelled by immigration during the 1860s and 1870s. As the population grew it was the natural increase, birth less deaths, which dominated population growth. In the period after the Second World War, 1946 to 1965, there was an increase in birth rates known as the “baby boom”. Since then, there have been shifts in childbearing patterns with reduced fertility, but as baby boomers enter their older years and life expectancy increases, so does the proportion of the population that are considered ‘older adults’ (≥ 65 years). This demographic trend is projected to continue in NZ well into the twenty-first century due to sustained lower death rates (Bascand & Dunstan, 2014).

NZ is predicted to experience a greater than 80% increase in the population of people aged 60 years and older between 2013 and 2050 (Kowal et al., 2014). Furthermore, three to four percent of the NZ population is projected to be aged 85 years and over by 2036 (Bascand & Dunstan, 2014). This group of people are most likely to be frail and experience chronic disease and functional loss (Lay-Yee et al., 2017). Due to the growing number of frail older adults, NZ is experiencing a rising demand for residential aged care (Weststrate et al., 2019).

Residential aged care in New Zealand.

Long-term care in NZ is known as residential aged care. Under NZ legislation, private hospitals provide long-term 24-hour nursing/medical care while rest homes provide supervision but not 24-hour nursing/medical care (Frey et al., 2017). Residential aged care in NZ is designed to be a safe place for our older adults to live when they are physically and/or cognitively at their most vulnerable (Weststrate & Adams, 2013). There are approximately 659 certified residential aged care providers in NZ and this number is growing (Ministry of Health, 2018).

In NZ and internationally the dependency and frailty of those living in residential aged care is rising with residents requiring more complex care and with high mortality for a subgroup of residents admitted straight from acute hospital care (Connolly et al., 2014; Frey et al., 2017). Frailty is a clinical syndrome which is commonly aged related and has been associated with a decline in muscle strength, gait speed, endurance and balance, as well as unintentional weight loss and self-reported exhaustion (Fried et al., 2001). Frail older people have increased risk of developing pressure injuries. Assessment and management of pressure injury prevention requires a comprehensive and multidisciplinary approach which is usually led by nurses (Hommel & Santy-Tomlinson, 2018).

A range of staff, including RNs and HCAs, work in residential aged care in NZ. A shortage of nurses in aged care has been identified by the Department of Immigration and is listed on the Long-Term Skills Shortages List (Hughes, 2020). Due to nursing shortages in aged care, approximately half of the NZ residential aged care workforce is comprised of Internationally Qualified Nurses. In the Auckland region the proportion of Internationally Qualified Nurses is approximately two-thirds, while in rural areas this is less (Hughes, 2020).

HCAs are unregulated healthcare workers and work under the supervision of RNs. Their scope of practice and educational requirements is the responsibility of the employer to whom they are accountable (Shannon & McKenzie-Green, 2016; Nursing Council of New Zealand, 2011). Many rest homes and private hospitals are run by the private sector and are accountable to shareholders as well as a small number run by the not-for profit sector. The NZ government has made recommendations related to staffing levels associated with quality indicators, but these are not mandatory (Whitehead et al., 2015). According to a New Zealand Nursing Organisation research report in 2017, the 'for profit', business model of care applied to many of these facilities, puts restraints on adequate staffing and spending which risks constraining the quality of care provided (New Zealand Nurses Organisation, 2017). Preventing pressure injuries is well known as one of the indicators of quality care (Carryer et al., 2017; Weststrate & Adams, 2013). In addition, work demands in residential aged care are being exacerbated by the growth of the aging population and increasing levels of acuity of the residents in residential aged care (New

Zealand Nurses Organisation, 2017). The mostly privately run, profit-driven environment of residential aged care challenges nurses to implement quality interventions to reduce pressure injuries at a low cost.

Policy/guidelines.

There have been numerous guidelines for pressure injury prevention developed over the years that seek to guide nurses with clinical decision making and to link evidence to practice. Despite this, these guidelines are not necessarily reflected in policy. A review by Jackson et al. (2016) analysed influential policies that informed practice related to pressure injury management in different health settings in six countries including NZ and Australia. Overall, this analysis found that policies almost exclusively focused on risk assessment and nursing interventions and attention was predominately treatment focused rather than preventative. There was generally no focus on the nursing workforce and skill mix which is known to have an impact on patient outcomes and quality care (Jackson et al., 2016). The authors advocated for policy that not only focuses on the biomechanics of pressure injuries but also on a safe environment and working culture.

More recently, The New Zealand Ministry of Health has expressed an expectation that residential aged care providers have policies related to maintaining skin integrity and reducing pressure injury prevalence (Ministry of Health, 2018). During 2017, a foundation document for pressure injury prevention was developed and endorsed collaboratively by the New Zealand Accident Compensation Corporation (ACC), Ministry of Health and New Zealand Health Quality & Safety Commission for best-practice care for all health care settings, including residential aged care. This framework is underpinned by six key principles:

- **People first.** People receive culturally-appropriate care in relation to pressure injury prevention. Care is planned in collaboration with residents, their whānau/family and other caregivers.
- **Leadership.** Healthcare organisations ensure systems and resources are in place to manage and prevent pressure injury prevention such as procedures which support; a

multidisciplinary approach, processes for collecting data, targets which are regularly reviewed, reporting systems which support reflection, a supportive learning environment, assessment tools, care plans, prevention champions, appropriate access to equipment and specialist advice, as well as appropriate staffing levels and skill mix to provide best-practice.

- **Education and training.** All healthcare workers have access to appropriate education so they can provide evidence based and culturally appropriate best practice.
- **Assessment.** Timely and regular risk assessments are completed taking into account people's health status changes.
- **Care planning and implementation.** Individualised, person-centred care-plans and evidence-based care bundles are established, employed and documented.
- **Collaboration and continuity of care.** Continuity of care is maintained and communicated between healthcare settings.

(Health Quality & Safety Commission New Zealand, 2017).

This thesis employs these guiding principles for pressure injury prevention as part of the framework for my literature review and analysis.

What are pressure injuries?

“The International Guideline” (EPUAP, NPIAP & PPPIA., 2019) describe pressure injuries as “localised damage to the skin and/or underlying tissue, as a result of pressure or pressure in combination with shear.” (p.16). They are usually found over a bony prominence, can range in severity, and are graded according to the amount of tissue damage and the physical appearance of the wound (Edsberg et al., 2016). This ranges from Stage One, which is non-blanchable erythema, to Stage Four, which is full-thickness skin and tissue loss with exposed bone, tendon or muscle (EPUAP, NPIAP & PPPIA., 2019). These stages have more recently been refined to also include unstageable, deep tissue, medical-device related and mucosal-pressure injuries (Edsberg et al., 2016; EPUAP, NPIAP & PPPIA., 2019). Only pressure injuries should be staged using this system (Edsberg et al., 2016). Serious complications can occur from pressure

injuries which can include gangrene, cellulitis, osteomyelitis, amputation and in some cases death (Lavallée et al., 2017). Prevention of pressure injuries therefore is a priority in residential aged care.

Tissue breakdown occurs when bodyweight, pressure and shearing forces cause deformation of cells. This subsequently leads to loss of cell haemostasis, apoptotic cell death and an inflammatory response. The inflammatory response is the bodies' reaction to trauma and is essential for repair of tissue damage. In the context of pressure injuries, oedema, which is a localised response to inflammation, causes fluid (confined to limited tissue regions due to pressure) to accumulate at the site of the damage, which gradually increases interstitial pressure which continues to build up. This build-up of fluid results in further inflammation, deformation and cell damage. The intensifying effects of oedema eventually obstructs the vasculature and impairs blood perfusion at the site. It is at this point that ischaemic damage occurs which exacerbates the level of damage further (Gefen, 2018; EPUAP, NPIAP & PPPIA., 2019). Susceptibility to tissue injury is correlated with the health status of the individual. With frail older adults, the inflammatory related damage occurs faster whilst initiating ischaemic damage sooner (Gefen, 2018).

Many terms have been used to describe pressure injuries. Older terms include “decubitus ulcers”, which is Latin for “to lie down”, “pressure sores”, and “pressure ulcers” (Mervis & Phillips, 2019a). In 2016, the National Ulcer Pressure Advisory Panel (NUPAP) changed the terminology from “pressure ulcers” to “pressure injuries”. This was to better reflect all forms of tissue damage, including skin changes which occur before actual tissue breakdown such as in Stage One and deep tissue pressure injury (Edsberg et al., 2016). In Europe, the term “pressure ulcer” is still widely used whilst in NZ, Australia, South-East Asia and America the term “pressure injury” has been accepted (EPUAP, NPIAP & PPPIA., 2019). I will use the term “pressure injury” throughout my thesis.

Overview of the Thesis Chapters

This thesis is presented in six chapters:

Chapter One has introduced the focus of this thesis and presented the background and context of the study. This chapter began with an overview of the consequences of pressure injuries within the context of residential aged care and the residents who live there. My research interest was explained. This was followed by a description of the study setting. The chapter concluded with a description of the physiology of pressure injuries.

Chapter Two is my literature review and discussion of the literature. This chapter critically analyses the research in context of pressure-injury prevention particular to residential aged care and the older adult. The first section of this chapter focuses on the burden of pressure injuries before discussing the differences between avoidable and unavoidable pressure injuries. Health challenges specific to residential aged care are then examined. The second section of this chapter concentrates on assessment and interventions of daily practice required to prevent pressure injuries. Finally, interventional studies in residential aged care will be reviewed.

Chapter Three presents the case study methodology used for this study to answer the research question as to how pressure injuries are managed in residential aged care. This chapter gives a detailed account of the ethical considerations and case study research process used in this study.

Chapters Four and Five present the findings from this study. Chapter Four addressed the first theme identified from the data, “The Context of Residential Aged Care”, and Chapter Five concentrates on the second theme, “Assessment and Interventions of Daily Practice”. These will be discussed alongside additional subthemes.

Chapter Six is the discussion in which I provide a critical analysis of my findings with reference to the literature. Limitations and implications for future research are discussed before concluding this thesis.

Conclusion

The aim of this study is to explore and answer the question: How are pressure injuries managed in residential aged care from the perspective of CMs, RNs and HCAs and through analysis of policy and guidelines? This chapter has presented the background to this study along with concepts which are central to the research topic. In NZ, residents in aged care are becoming more dependent with more complex needs. Pressure injuries are costly and impact significantly on the quality of life for those inflicted. Frail older people have increased risk of developing pressure injuries and nurses are integral to the prevention of these injuries. The next chapter provides a literature review of the existing literature on how pressure injuries are managed in residential aged care.

Chapter Two: Literature Review

Introduction

A literature review is important as it helps to establish existing in-depth knowledge related to the question and topic of study. Literature reviews aims to bring already known and relevant scholarly knowledge of a topic together to be critically analysed. A literature review informs the methodology and theoretical findings. It should also identify gaps in current knowledge including limitations of existing research. Finally, key themes and concepts should be organised into a logical format (Watts, 2020).

The purpose of this chapter then was to use research literature to provide a background and foundation to the topic of this study and to consider what is already known that is relevant to my research question about the management of pressure injuries in residential aged care. The chapter begins with my search strategy followed by my search outcomes. I present a review of the literature in relation to: the burden of pressure injuries; the difference between avoidable versus unavoidable pressure injuries; identification of the health challenges particular to residential aged care, and; risk assessment and pressure injury prevention. Finally, I focus on empirical studies of intervention in NZ and Australia that sought to reduce pressure injuries in residential aged care.

Search Strategy

Research for my literature review began in 2018 when I was initially considering my question. It soon became apparent that preventing pressure injuries in residential aged care was multifactorial and complex and so a structured literature review was performed. The inclusion criteria for this review were:

- Qualitative and quantitative studies and review articles that focused on pressure injury prevention in residential aged care and pressure injury prevention related to the older adult

- Articles from peer-reviewed journals
- Written in English language
- Articles published from January 2009 until the current date
- International guidelines related to pressure injury prevention published after 2009

The inclusion date reflects the most up-to-date research. An electronic search was performed using databases which included CINAHL, Cochrane, Joanna Briggs Institute and Scopus.

Combinations of key words and phrases included, *pressure injury prevention, pressure injuries, pressure ulcers, pressure sores, bed sores, decubitus ulcers, prevention, management, care planning, strategies, residential aged care, nursing home, private hospital, rest home and aged care, registered nurses, health care assistants, unavoidable pressure injuries, risk assessment, pathophysiology, cognitive impairment, dementia, pain, nutrition, communication, barriers and facilitators*. Further to this, reference lists from review articles were also searched.

As part of my report an independent systematic literature review was conducted in an attempt to provide some insight into research particular to NZ and Australia. Australia was chosen due to its close proximity and comparable pressure injury prevention management guidelines and health care environment. The terms *New Zealand and Australia* were used with *pressure injury prevention, pressure injuries, pressure ulcers, pressure sores, bed sores, decubitus ulcers, prevention, management, care planning, strategies, residential aged care, nursing home, private hospital, rest home and aged care*. A total of seventeen articles were deemed relevant after reading through the abstracts, and incorporated into the review. Excluded articles comprised articles which were not related to pressure injury prevention or relevant to residential aged care and/or NZ. Duplicates, opinion pieces and literature reviews were also excluded.

In addition, I included the guideline document developed as a collaboration between the European Pressure Ulcer Advisory Panel (EPUAP), National Pressure Injury Advisory Panel (NPIAP) and the Pan Pacific Pressure Injury Alliance (PPIAP) who collectively represent 12 countries (EPUAP, NPIAP & PPIA., 2019) in the review. The document called, “Prevention and Treatment of Pressure Ulcer/Injuries: Clinical Practice Guideline. The International

Guideline” was used as it provides well-accepted, up to date, evidence-based recommendations for pressure injury prevention and treatment.

Search Outcome

A wide range of studies from various disciplines and countries were found using these searches but studies about pressure injury prevention with a particular focus on NZ and residential aged care were limited. The independent systematic literature review only yielded five relevant results from NZ. Studies, with a particular focus on older adults living in residential aged care, were predominantly from Australia, United Kingdom, Europe, America and Canada and many were based in an acute hospital setting. Some of these studies which were relevant to my study and/or have a focus on the older adult have been included in my literature review.

The Burden of Pressure Injuries

Pressure injuries are a major cause of preventable harm globally regardless of age and impose a large financial burden. An Australian observational study, set in a residential aged care setting with 20 participants who had 23 pressure injuries, found there were high financial costs associated with pressure injuries (Wilson et al., 2018). These expenditures were associated with dressings, staff time (including external clinicians), pressure-injury equipment, nutritional supplies and medications. Pressure-injury severity was usually associated with higher cost of treatment (Wilson et al., 2018). Furthermore, a systematic literature review, which aimed to provide insight into the cost of pressure injury prevention and treatment, found that preventing pressure injuries was associated with less costs than treating them (Demarre et al., 2015). There is general agreement in the literature that the cost of treating pressure injuries is a significant burden for all healthcare providers and preventing pressure injuries will save costs.

While the financial costs are significant, pressure injuries have numerous other adverse consequences for individuals. A qualitative study by Jackson et al. (2017) which involved 12 home-dwelling adult participants with a current or recently healed pressure injury, found that pain impacted negatively on all aspects of life. Dressing removal and changes, medical

treatments, and repositioning were found to be especially painful and were associated with patient fear (Jackson et al., 2017). Furthermore, Briggs et al. (2013) undertook surveys in nine hospitals in the United Kingdom to investigate pressure injury related pain for people at risk or with a pressure injury. This study also found pain associated with turning for pressure relief. Pain also made it difficult for participants to adopt comfortable positions, move, mobilise and sleep (Briggs et al., 2013). The issue of pain is particularly important because healing is not always achieved and pressure injuries, with the associated pain, can become chronic (Jackson et al., 2017).

Aside from significant pain, research reveals several other perceptions of loss associated with pressure injuries. A qualitative study by Jackson et al. (2018) interviewed twelve participants with pressure injuries and five carers. Their results confirmed that having a pressure injury resulted in multiple negative effects. Participants reported loss of mobility and independence, loss of personal privacy and dignity, loss of social engagement and ability to enjoy and remain engaged in previously enjoyed activities. Participants also expressed feelings associated with loss of control of personal autonomy (Jackson et al., 2018). Subsequently, pain and loss contribute to other negative effects such as low mood, anxiety, anger, frustration, depression, lack of energy and social isolation (Gorecki et al., 2009; Jackson et al., 2018; Kim et al., 2019). Combined with advanced age, malnutrition and co-morbidities, physical deconditioning can also occur very quickly, compounding potential for further physical and psychological decline (Hopkins et al., 2006). Not surprisingly, prevention of pressure injuries is the primary goal in residential aged care. Assessment and interventions for pressure injury prevention should be evidence-based and resident-centred (Hommel & Santy-Tomlinson, 2018).

Avoidable Versus Unavoidable Pressure Injuries

Within the literature there is a continuing discussion and debate about the issue of whether all pressure injuries are unavoidable. Pressure injuries can be considered indicators of inadequate care and significant breaches of patient safety (Hommel & Santy-Tomlinson, 2018). Yet according to the Wound, Ostomy and Continence Nurses Society (WOCN) position paper

(2017), an incidence of zero may not be an attainable goal (Schmitt et al., 2017). Results from the National Ulcer Pressure Advisory Panel (NUPAP) Consensus Conference during 2010 determined that there are patient situations where pressure injuries cannot be avoided despite appropriate assessment and interventions (Black et al., 2011; Schmitt et al., 2017). The development of unavoidable pressure injuries is influenced by many risk factors which are often present in older people living in residential aged care.

Unavoidable pressure injuries can occur at the end stages of life due to the physiological changes as a result of chronic disease over days, weeks and months until finally death (Sibbald, Krasner, & Lutz, 2010). According to a recent report published by the NZ Aged Care Association (NZACA), in NZ, 38% of deaths for people aged over 65 years and over, happen in residential care (Hughes, 2020). Residents often have clinical complexities which include multiple co-morbidities related to aging and end of life. This can compromise several physiological systems including the renal, hepatic, cardiac, pulmonary, or nervous systems. Langemo et al. (2015) argue that there is an underreporting and lack of recognition that the integumentary system can also fail. Residents may also refuse care despite education and other attempts at appropriate individualised pressure relieving interventions and pain control. In these situations, the development of a pressure injury would likely be deemed unavoidable (Schmitt et al., 2017).

According to NUPAP, unavoidability can only be determined after a pressure injury has occurred and the process of care is retrospectively evaluated (Black et al., 2011). The Wound, Ostomy and Continence Nurses Society (WOCNS) now includes definitions of avoidable and unavoidable pressure injuries which can be applied to clinical settings (Ayello et al., 2019; Schmitt et al., 2017). The term 'unavoidable' can be used if an individual develops a pressure injury despite the provider evaluating correctly the persons clinical condition and risk factors and all appropriate pressure relieving interventions have been put in place (Ayello et al., 2019). It is important that pressure relieving interventions are regularly monitored and evaluated with interventions adapted and amended as appropriate (Ayello et al., 2019; Schmitt et al., 2017).

According to Langemo et al. (2015), if unavoidable pressure injuries do occur at the end of life, palliative care should focus on the values and wishes of the resident and their family.

Interventions are likely to focus on pressure redistribution using appropriate equipment, repositioning, maintaining nutrition and hydration to the extent possible, dressings to control wound related symptoms, and pain management (Langemo et al., 2015). Furthermore, when pressure injuries do occur, Alahmadi (2010) argues for a blame-free environment where healthcare workers can report errors within a culture of learning from mistakes while maintaining a focus on systems and continuous learning.

Despite some pressure injuries being unavoidable, it is accepted in the literature that the majority of pressure injuries are avoidable with appropriate assessment and individualised pressure-relieving interventions (Lavallée et al., 2018). Whether a pressure injury is avoidable or not, RNs and HCAs working in residential aged care, require a deep understanding of pressure injury prevention practices. These must be evidence-based, for the implementation of best practice (EPUAP, NPIAP & PPPIAs., 2019).

Health Challenges within Residential Aged Care

Evidence of increasing dependency in NZ residential aged care over the last 20 years has been made evident by the 2008 Older Persons Ability Level (OPAL) study indicated by mobility, continence and cognitive function. This longitudinal study showed that in 2008, 56% of residents in Auckland rest homes and private hospitals had high dependency compared to just 36% twenty years ago (Boyd et al., 2009). According to Broad et al. (2015), 47% of New Zealanders over 65 years will use residential aged care, with two-thirds of those being over 85 years of age or above. A combination of geriatric conditions and multi-systemic factors can accumulate making the older adult more susceptible to pressure injury development (Jaul & Calderon-Margalit, 2013). Resident acuity is also predicted to increase together with population aging (Broad et al., 2015; Boyd et al., 2009).

Accordingly, a recent Australian study conducted in eight tertiary referral hospitals across Australia, found residents living in aged care were 75% more likely to present or acquire a

pressure injury within the first 36 hours of hospitalisation (Latimer et al., 2019). A recent New Zealand Ministry of Health audit of 528 residential aged care facilities identified 299 (57%) of these as having residents with pressure injuries. Within these 299 providers there were a total of 821 pressure injuries with 196 of these injuries involving full-thickness skin loss. A majority of these residents were receiving hospital-level care and the pressure injuries were acquired in the facilities (Ministry of Health, 2018). Recognising pressure-injury risk with the goal of preventing these injuries therefore must be considered a priority in NZ residential aged care facilities.

Undertaken in NZ, a study by Carryer et al. (2017), provided further insight into the increasing demand in aged care due to complex health issues and high-care needs. They explored the prevalence of serious health challenges for the older adult focusing on pressure injuries, incontinence, malnutrition and falls. They collected data using a national-prevalence survey known as the National Care Indicators Programme – New Zealand (NCIP-NZ) which originated in the Netherlands and was designed to monitor health care problems. Similar studies have been conducted regularly in other European countries. The researchers analysed data collected over a single day from 276 residents, aged from 66 to 103 years, from 13 residential aged care facilities. Using descriptive statistics, they found the level of care-dependency was high with 40% identified as completely or very care-dependent. The residents on average experienced at least one of the four conditions explored and over half of them reported having two or more (Carryer et al., 2017). In particular, they identified 80% of residents as being at some risk of pressure injuries, and 20% at high risk. Comparative data from the same survey instrument used in Germany, Austria and the Netherlands suggested that NZ had the highest prevalence of pressure injuries, incontinence and falls (Carryer et al., 2017). Considering the population of people aged 80 plus is expected to quadruple between 2010 and 2050, effective prevention initiatives are most certainly required.

Similar findings were made by Weststrate and Adams (2013) who also studied the incidence of pressure injuries, incontinence, malnutrition and falls using the NCIP survey in NZ. They evaluated 366 residents with an average age of 83.8 years from 16 aged-care facilities. This

study highlighted the interconnection between the four issues. Residents with pressure injuries had a higher incidence of incontinence, falls and malnourishment when compared to the group without these issues (Weststrate & Adams, 2013). Their study highlighted the importance of viewing and addressing these core health challenges in an integrated way to prevent pressure injuries.

Providing another interesting insight, Whitehead et al. (2015) sought to identify the relationship between staffing and quality care in NZ residential aged care. They studied 23 rest homes and 21 private hospitals in Auckland using a longitudinal descriptive survey which explored the relationship between direct-care staffing with quality indicators. Quality indicators were related to the prevalence of pressure injuries, falls, new fractures, weight loss, urinary infections, polypharmacy, indwelling catheters and the use of daily restraints. Their analysis suggested a trend which showed a reduction in adverse events, including pressure injury rates, as Registered/Enrolled Nurses time per resident increased. (Whitehead et al., 2015). Other studies measuring quality care have also shown a direct link between increased staffing and fewer pressure injuries (Backhaus et al, 2014; Dellefield et al, 2015; White et al., 2020). It seems reasonable to conclude therefore that the very minimal requirements for Registered Nursing time in residential aged care, and the increasing dependency of residents, could contribute to safety being compromised.

Correspondingly, a cross-sectional study examined the relationships between good versus poor working environments in aged-care facilities in the USA, and its association to quality care. The researchers used multi-state RN survey data with a Practice Environmental Scale of the Nursing Work Index to examine this link. The sample included 245 nursing homes in four states which included 674 of their RN employees. Their study showed nursing homes with supportive work environments had fewer pressure injuries and hospitalisations (White et al., 2020). Positive working settings supported nursing staff with continuing education, showed positive leadership, had formal preceptor and mentoring programmes, and nurses participated in quality improvements.

Another challenge for the aged care sector in NZ is the ability to attract, recruit and retain staff. Skilled and experienced staff are required to implement effective pressure injury prevention. According to a recent report by the New Zealand Aged Care Association (NZACA), this can be attributed to a number of reasons which include higher pay for RNs working for District Health Boards, negative media coverage of inadequate care, negative stories and experiences reported by colleagues, low staffing levels, and student placements that have not been positive (Hughes, 2020). The NZACA report advocates for proposals which not only attract nurses into this field of nursing but also increase the desirability of developing a career in residential aged care (Hughes, 2020).

The first section of my review has presented the findings from the literature on some of the serious health challenges particular to residential age care. These were the burden of pressure injuries for individuals, families, institutions and the government, the question of avoidable versus unavoidable pressure injuries, and the health challenges within residential aged care. The next section of my literature review will focus on risk assessment and interventions in the context of the older adult in residential aged care. This section will firstly discuss risk assessment. The findings from the review about interventions are addressed in five sections related to: aged related skin changes and skin status, health status/co-morbidities, cognition, immobility, and nutrition and hydration.

Risk Assessment

Evidence suggests that assessment to identify individual risk is the first step in the process of pressure injury prevention (Lovegrove et al., 2018). In residential aged care, risk can be ascertained through clinical judgement and/or the use of a validated risk assessment tool such as the Braden, Waterlow, or Norton risk assessment scale. Validated risk assessment tools incorporate highly predictive risk factors to help identify individual risk. A score is given which determines the level of risk which can then be used to guide the type and intensity of pressure relieving interventions (Lim et al., 2019). The significance of each risk factor must be determined and understood by the healthcare worker (Lim et al., 2019). The most common risk

assessment tools in use today were developed more than 30 years ago without the insight of recent knowledge. According to “The International Guideline” (EPUAP, NPIAP & PPPIA., 2019), validated risk assessment tools provide a practical framework which is reliably measured and can be used as a clinical reminder as well as an auditable tool. The authors recognise that this is just one form of assessment that a healthcare worker can draw from.

A recent systemic review by Moore and Patton (2019) found no certainty of evidence that the use of a structured assessment tool reduces the incidence or severity of pressure injuries. In addition, a study from North-Eastern America, showed a large variation in nurses’ interpretations of the Braden Scale which threatened consistent and accurate assessment (Choi & Kim, 2014). Furthermore, a Brazilian study found that although nurses working with the older adult considered the Braden Scale an important tool in the prevention of pressure injuries, due to time restraints and high workloads, it was often only applied to meet institutional protocols (Debon et al., 2018). Giving another interesting insight, a state-wide point prevalence survey in public hospitals in Western Australia, which involved data collected from 2,281 patients, found pressure injury risk assessments were being used but were not always converted into management plans (Ferguson et al., 2019). These studies all advocated for expertise in the application of skin assessment and continuing education to accurately identify risk and improve safety.

Clinical judgement by caregivers is also considered an essential component of risk assessment. This includes interpreting and synthesising information on the health care status of individuals and then making the judgement to take action (Balzer et al., 2014). A German mixed method study by Balzer et al. (2014) identified that nurses consider numerous factors when assessing pressure injury risk without using a risk assessment tool. These risks included conditions and circumstances leading to pressure injury risk while also taking into account risk lowering circumstances such as a patient’s self-care abilities. An earlier study by Webster et al. (2011) evaluated the effectiveness of two pressure-injury risk assessment tools and found no evidence that these tools were superior to clinical judgement. Both authors highlighted the importance of clinical judgement whether a risk assessment tool is used or not. Nonetheless, a systemic review

by García-Fernández et al. (2014) highlighted the complex interplay of pressure ulcer risk factors highlighting the impact of key biomechanical factors such as pressure, shear and friction along with physiological factors when assessing for risk that are currently not clearly articulated in existing risk assessments. These authors proposed a risk assessment conceptual framework which incorporated these complexities.

Of course, effective pressure injury prevention requires application of appropriate interventions. Lim et al. (2019) proposes the incorporation of pressure injury prevention bundles comprising commonly used preventative interventions to help guide preventative decisions. Likewise, an American study set in a >500 bed, New York hospital, developed an 8-item pressure injury care bundle that was directed at all nursing staff. The initiation of this program showed a trend towards improving patient outcomes by decreasing pressure injury rates (Baldelli & Paciella, 2008).

Instead of a structured risk assessment tool, the Health Quality & Safety Commission of New Zealand advocates use of SSKIN which is an acronym for a set of evidence based preventative pressure injury interventions which can be used by all healthcare workers as a checklist to ensure no prevention element is missed. It includes considering or undertaking the following:

- **Surface** – provide a supportive and pressure relieving surface
- **Skin Inspection** – undertake regular checks for discolouration and pain on bony prominences (such as hips and heels) and under or around medical devices
- **Keep moving** – change position often
- **Incontinence**– keep skin dry and clean
- **Nutrition** – eat healthily and drink plenty of fluids

(Health Quality & Safety Commission New Zealand, 2021)

Regardless of the assessment method used, once individual risk has been ascertained, it is imperative that appropriate, individualised preventative interventions are implemented (EPUAP, NPIAP & PPIA., 2019). Documentation of interventions is then required to ensure continuity of care (Lovegrove et al., 2018). The next part of my study will focus on the physiological

changes in the older adult that make this population more susceptible to the development of pressure injury.

Age related skin changes and skin status.

Age related skin changes can predispose older people to the risk of developing pressure injuries (Farage et al., 2009). Skin changes include flattening of the dermo-epidermal junction, slow turnover of skin cells, loss of collagen and elastin fibres, thinning of the layers of the skin, decreased vascular perfusion and oxygenation, atrophy of sweat glands and impaired neurological responses (Farage et al., 2009). Consequently, aging skin is less resistant to sustained pressure and shearing forces.

Urinary and faecal incontinence, which is more prevalent as people age, can lead to maceration and also contribute to skin fragility and breakdown (Mervis & Phillips, 2019a). Chemical irritation produced by urine, sweat and faeces can cause alterations to the protective barrier of the skin, decrease skin elasticity as well as disrupt the normal balance of bacteria (García-Fernández et al., 2014). These processes reduce the tolerance of the skin and the body's ability to resist external forces (Hommel & Santy-Tomlinson, 2018). Demarre (2015) conducted a study in Belgium that demonstrated that pressure injuries were associated with non-blanchable erythema, higher body temperature, and incontinence associated dermatitis. Non-blanching erythema indicates risk of further skin breakdown, and signifies that preventative measures must be further tailored or up-scaled. Increased body temperature increases tissue oxygen requirements and influences tissue stiffness subsequently increasing risk of deformation. Managing skin temperature and pressure can reduce the risk of ischaemia (Demarre et al., 2015). In residential aged care, it is therefore pivotal that RNs and HCAs inspect residents' skin continuously for any signs of skin changes. RNs and HCAs must cleanse the skin promptly after episodes of incontinence and apply appropriate protective and barrier creams. Skin should be moisturised daily (EPUAP, NPIAP & PPIA., 2019).

Nurses and HCAs must be aware of which pressure points are most vulnerable to skin changes such as the sacrum, coccyx, buttocks, heels, ischium, trochanters, elbows, and any beneath

medical devices (EPUAP, NPIAP & PPPIA., 2019). Visible skin changes can be more difficult to detect when inspecting darker pigmented skin so RNs and HCAs must know to look for other signs of pressure damage which may include subtle changes in skin tone, tissue consistency and pain and temperature changes when compared to neighbouring skin (International Guideline, 2019).

Health status/co-morbidities

As previously reviewed, pressure injuries are more likely to occur in people who have advancing age and serious health issues which include acute or chronic medical conditions and neurological deficits such as many of those people residing in residential aged care (Jaul & Calderon-Margalit, 2013). An Israeli study by Jaul and Calderon-Margalit (2013) which included 174 older adults with a median age of 81, found the accumulative effect of systemic diseases and multifactorial health conditions, such as multiple organ failure, low body mass index, low haemoglobin and albumin, renders the frail older adult very vulnerable to pressure injuries. Older adults with impaired functions of various organs can also be on a high number of medications with complex pharmacological therapy increasing the risk of drug interactions and adverse reactions. A Brazilian descriptive and documental study by Ferreira Lopes et al. (2020), which consisted of 48 medical records, concluded that medications used by the older adult contributed to reduced blood flow and tissue perfusion increasing risk of pressure injuries. These included anti-hypertensive medications, analgesics, diuretics, vasoactive drugs and antibiotics. Prevention of pressure injuries must include the ongoing assessment, treatment and stabilisation of all systemic factors. Nurses must be able to identify drug related problems and reduce polypharmacy.

Cognition.

Cognitive function has been linked to the incidence of pressure injury in residential aged care. Residents with major cognitive disorders have higher mortality and infection rates, reduced mobility and eating problems, verbal fluency, agitation and communication impairments which substantially increase pressure injury risk (Ahn et al., 2013). One Australian retrospective

analysis of care plans and clinical outcomes, compared two different aged care facilities over a six months period to determine if different health demographics and care practices affected the incidences of skin wounds (Brimelow & Wollin, 2018). The authors concluded that cognitive impairment was associated with pressure injury and skin wound prevalence.

Furthermore, a study by Ahn et al., (2013) found nursing home residents with cognitive impairment and pressure injuries experienced severe pain but had difficulty verbalising this, thereby putting them at risk of not having adequate pain relief. Accordingly, it is important that RNs and HCAs working with residents with dementia can recognise verbal and non-verbal signs of pain, which can also often be an early sign of tissue damage. Nurses and HCAs must also require skills in managing behavioural and psychological symptoms of dementia while providing pressure relieving interventions (Ahn et al., 2013).

RNs and HCAs must be skilled communicators as effective communication is central in developing therapeutic relationships and in providing good dementia care (Jootun & McGhee, 2011). The pain experience associated with pressure injuries can manifest as depression, anxiety, insomnia, social isolation and lack of energy (Kim et al., 2019). RNs and HCAs need to recognise and manage mood disorders, as this can contribute towards social isolation, apathy and reduced mobility and deconditioning which subsequently increases pressure injury risk.

Immobility.

In residential aged care, frail older people with limited mobility and activity, often confined to chair or the bed, sometimes with spasticity, are at increased risk of developing pressure injuries (McCarthy et al., 2019). According to Demarre et al. (2015), mobility may be impaired on a permanent basis or just temporarily, so continual assessment and tailoring of interventions is a necessity for residents at risk. If the cause of immobility is reversible or temporary, it is important to start a treatment plan aimed at early mobilisation to reduce or prevent deconditioning.

Friction and shear, which lead to pressure injuries, are more likely to occur in residents who experience mobility limitations (Lim et al., 2019). A study which included 60 patients from an Indiana trauma/neuro-intensive care unit reported lower rates of pressure injuries after using low friction turn sheets as well as disposable microclimate pads to control heat, and body wedges to hold patients in position (Powers, 2016). In addition, a cross sectional survey set in Maryland which included 271 long term care facilities, found a reduction in the number and severity of pressure injuries in facilities that had more mechanical lift assist devices (Gucer et al., 2013).

Support surfaces which minimise pressure have also been shown to prevent tissue deformation and promote comfort. “The International Guideline” (EPUAP, NPIAP & PPPIA., 2019) recommends, while providing care and choosing a support surface, healthcare workers consider the individuals level of immobility, exposure to shear, comfort, medical conditions, body size and weight, spasticity, skin moisture and resident/family goals. Pressure relieving mattresses are constructed from a range or combination of materials such as air, foam, gel and fluid (EPUAP, NPIAP & PPPIA., 2019). High specification support surfaces, which can be static or electric, have been shown to reduce the risk of developing pressure injuries by redistributing mechanical loads imposed on the skin and soft tissues. These mattresses also have features which may or may not impact on temperature and moisture levels of the skin (Beeckmann et al., 2019). A recent meta-analysis by Shi et al (2018), which compared support surfaces for pressure prevention, found that powered active air mattresses were more likely to reduce pressure injury incidence than static mattresses but were often found to be uncomfortable. Hence, the researchers made no definitive recommendations for using one support surface over the other and advocated for more research in this area. Correspondingly, Tomova-Simitchieva (2017), compared three different support mattresses (basic foam mattress, gel mattress and air alternating mattress) on skin properties of the sacrum and heel after two hourly loading. This German exploratory study found that gel and air alternating mattresses provided superior pressure distribution when compared with basic foam. The authors of this study also advocated for more robust research in this area including direct surface comparisons. Availability and costs

associated with purchasing pressure relieving mattresses is also a significant consideration in residential aged care (Beeckman et al., 2018).

Due to damage caused by sustained pressure, regular repositioning is regarded as essential to avoid pressure injuries (McCarthy et al. 2019). Repositioning frequency should be individualised and consider the pressure redistribution support surface in use, tissue tolerance, comfort and treatment goals (EPUAP, NPIAP & PPPIA., 2019). Interestingly, a recent Australian study likened two hourly turning to unintentional institutional abuse due to severe sleep deprivation (Sharp et al., 2019). The researchers promoted individualised patient positioning along with specialised support surfaces designed to improve comfort, reduce pressure and minimise shear.

The heel is a common anatomical site for pressure injuries. A European survey on pressure injury prevalence showed the sacrum and heels were not only the most common locations for pressure injury occurrence but were often the most severe (Vanderwee et al. 2007). A prospective study by Huber et al. (2008) set out to determine the efficacy of heel elevation in the reduction of pressure injuries. The researchers analysed blood flow while using different preventative devices. They established increased tissue perfusion when using a heel elevating prosthesis. This reiterates the importance of checking heels for at risk residents, heel elevation, and the incorporation of heel suspension devices into preventative practice.

Reducing immobilisation and encouraging physical activity and function helps to reduce the risk of pressure injury development. Frail older adults at risk of developing pressure injuries should avoid long periods of time sitting in chairs. A study by McCarthy et al. (2019), set in an aged care rehabilitation inpatient setting in Australia, found sitting in chairs for prolonged times put the older adult at risk of developing pressure-related injuries during their hospitalisation. Strategies which facilitated physical activity as well as appropriate use of bedside chairs and pressure redistributing cushions were shown to influence comfort and reduce the incidence of pressure injuries (International Guidelines, 2019; McCarthy et al., 2019).

Prophylactic foam dressings have also been shown to help redistribute pressure and provide some protection from friction and shearing forces. A randomised control trial by Santamaria et al. (2017) investigated the clinical effectiveness of the application of a multilayer silicone foam dressing prophylactically of residents from 40 Australian residential aged care facilities. Following a risk analysis, they concluded, that for every 12 residents treated with the prophylactic silicone foam dressings, one pressure injury was prevented. They advocate consideration of these dressing alongside evidence based preventative measures (Santamaria et al., 2018). A more recent study set in both the United States and Australia, analysed the cost effectiveness of these dressings and concluded that upfront investment in dressing technology to prevent pressure injuries effectively reduces costs by avoiding costly pressure injury cases (Santamaria et al., 2018). Timely access to appropriate equipment and preventative resources is very important in the prevention of pressure injuries (Latimer et al., 2014).

Nutrition and hydration.

Aging is associated with reduced energy and protein intake and loss of lean body mass (Posthauer, 2014). Unless the older adult has a terminal illness, undernutrition is usually reversible (Posthauer, 2014). Ensuring adequate nutrition and hydration is important as malnutrition and dehydration are significant factors related to both the development of and impaired healing of pressure injuries (EPUAP, NPIAP & PPPIA., 2019). An Australian multi-centre, cross-sectional audit of nutritional status set in 20 hospitals and six residential aged care facilities, found evidence that malnutrition was associated with at least twice the odds of having a pressure ulcer. This study also found the severity and number of pressure injuries increased with the magnitude of malnutrition (Banks et al., 2010). Nutritional factors such as weight loss, reduced appetite, low body mass index and low serum albumin have been associated to pressure injury development (Banks et al., 2010). This highlights the importance of identifying, preventing and treating malnutrition in residential aged care. Nutritional screening should include assessment of weight loss, intake history, dental and oral health, swallowing and chewing difficulties and individual preferences (EPUAP, NPIAP & PPPIA., 2019). An

individualised, interdisciplinary nutritional care plan should be implemented. This may also include input from a facility dietician and consultation with the facility chefs (Posthauer, 2014).

Along with nutritional needs, dehydration has also been identified as placing the older adult at risk of pressure injuries and falls. Dehydration has been shown to reduce elasticity and turgor of the skin as well as blood flow which can increase vulnerability to friction and shearing forces. Dehydration can also contribute towards fatigue and a reduction in energy (Stotts et al., 2009). Changes such as decreased sense of thirst mechanisms, polypharmacy, reduced functional performance plus cognitive impairment (as residents cannot communicate their needs) are just some of the risk factors (Schols et al., 2009).

The only study to assess hydration status in NZ used an audit tool to ascertain current practices in one residential aged facility. The results indicated that residents were not adequately hydrated. They made recommendations which included practical ways to increase the hydration of residents. This included innovative display charts and colour coded lids to highlight the individual needs of residents to families and staff. They also recommended using weight to calculate individual fluid requirements and repeat audits to help measure and verify overall increases in hydrated clients (Hendry & Ogden, 2016). Undoubtedly, RNs and HCAs need to be on the lookout for early signs of dehydration to reduce the incidence of pressure injuries. Signs of dehydration include dry skin, mouth and tongue and concentrated urine, dizziness and confusion (Hendry & Ogden, 2016; Schols et al., 2009).

Staff Family Relationships

EPUAP, NPIAP & PPPIA (2019) recommends patient and family involvement in clinical decision making around pressure injury prevention as a means to tailor individualised pressure prevention care while supporting healthy resident and family relationships. An Australian study by Bauer et al. (2014), in five residential aged care facilities, found the basis of constructive staff-family relationships was positive staff attitudes, mutual co-operation, and meaningful engagement and shared expectations. These were all conditions that assist the healthcare team in providing quality of care. In relation to pressure injury prevention, the importance of staff-

resident and family relationships has been illustrated in a Belgian study, set in five nursing homes cooperating under one umbrella organisation. This study targeted patients with an elevated risk of pressure injuries to investigate the outcome of a patient and family education programme (Paquay et al., 2010). Their inclusion criteria consisted of people requiring hygiene care as this was an indicator for elevated pressure injury risk. The outcome was fewer people with pressure injuries and fewer pressure injuries per person. Comparatively, a qualitative descriptive study by Roberts et al. (2017) of 19 patients in four hospitals found that education empowered and motivated patients to participate in pressure injury prevention and those patients who did also benefited positively from nurse-patient partnerships and personal and positive interactions. Likewise, an interpretive study by Latimer et al. (2014), involving 20 adult inpatients at two Australian metropolitan hospitals, reported that most participants voiced a desire to have a more proactive role in pressure injury prevention. Effective communication and positive nurse-patient relationships provided a foundation for this to occur. The authors found that many participants disengaged with their care when they felt ignored and not involved in their care. Participants in this study also acknowledged that people with cognitive impairment or disability, although more reliant on the healthcare workers to make decisions, benefited from some form of involvement albeit more passive involvement (Latimer et al., 2014).

Communication and Teamwork

The nurse-patient relationship is clearly important but studies have also highlighted the significance of teamwork, effective delegation and communication between RNs and HCAs to improve patient outcomes including a reduction in pressure injuries. Campbell et al. (2020) completed an integrative review of articles from intervention studies related to communication, teamwork and delegation between RNs and HCAs. The authors found that having unification between RN's and HCAs, which was built on foundations of trust and respect, influenced positively the incidence of hospital-acquired pressure injuries and falls while increasing job and patient satisfaction. Similarly, a qualitative study set in six Massachusetts Veterans Health Administration nursing homes, which interviewed 23 staff members, found that teamwork and effective communication as well as leadership and supportive team structures were facilitators

in the prevention of pressure injuries (Hartmann et al. 2016). An earlier study by Dellefield and Magnabosco (2014) found that co-operative practices between RNs and HCAs and overall positive communication between all staff members including management, contributed to processes associated with better care outcomes.

In addition, teamwork within multidisciplinary teams has been shown to reduce pressure injury incidence. A descriptive study by Miller et al. (2019) set in a 400-bed medical centre in the North-eastern United States, created a multidisciplinary pressure injury prevention team with the goal of reducing preventable pressure injuries. This team was led by a certified wound care nurse and plastic surgeon. Team members included nurses, physical and occupational therapists, nurse specialists as well as quality and safety, process improvement, informatics, analytics and supply chain/product analysis. With the implementation of this team, the prevalence rate of all stages of pressure injuries decreased between 2015 and 2018. This included an 89% reduction of full thickness pressure injuries. Positive outcomes were attributed to a team approach which facilitated a culture shift of greater awareness and shared responsibility in the prevention of pressure injuries. Similarly, drawing from findings from a previous grounded theory study, Samuriwo (2011) also highlighted the valuable roles that different team members play in the prevention of pressure injuries and reiterated the importance of input and collaboration between nurses and the multidisciplinary team to achieve this goal.

Interventional Studies in Residential Aged Care

The link between recommended practice and actual practice is complex as it can be difficult to achieve best practice in real clinical settings. Some of the barriers to implementing best practice approaches in clinical settings have been addressed by using guideline-driven, multifaceted pressure injury prevention strategies. A study by Edwards et al. (2017) showed that multifaceted interventions can be effective in reducing the prevalence and severity of wounds by achieving uptake of evidence into practice in residential aged care facilities (Edwards et al., 2017). Data were collected before and after six months of implementation from seven aged care facilities in Australia. The project team visited, educated and supported the staff over this six-month period.

They called this ‘the champions for skin integrity model’ which consisted of: use of local champions, wound specific education for individuals and groups, multidisciplinary and link clinician network development, and ongoing audits and feedback. When pre- and post-implementation samples were compared, they found a significant decrease in wounds of all types (54% pre versus 43% post $p=0.041$) including pressure injuries (24% pre versus 10% post $p=0.001$). These results suggested an increase in evidence based wound management and prevention strategies which align with international guidelines (EPUAP, NPIAP & PPPIA., 2019). Some of these strategies included greater use of pressure relieving mattresses, hip and heel protectors and low friction sliding sheets. There was evidence of increasing numbers of residents exercising, as well as regular application of moisturiser and use of soap substitutes, higher use of risk assessment tools and increased availability and use of protocols for prevention and management of wounds (Edwards et al., 2017).

Similar results have been found in other studies. The PRIME (Pressure Ulcer Prediction and Prevention System) trial was also a pre- and post-intervention study which involved 23 residential aged care facilities in Australia over a 15-month period (Santamaria et al., 2009). Their findings suggested that pressure injury prevalence was reduced by just over half (52% $p<0.001$) post implementation. This research team conducted evidence based, specifically tailored pressure ulcer prevention education sessions for all the staff at each facility. Education was tailored to meet the individual needs of staff members depending on their role and responsibilities. Staff were also trained to use a pressure ulcer data incidence monitoring system and wound imaging system. Interestingly, their research also revealed the relationship between advanced frailty and pressure ulcer development. These residents were twice as likely to have a pressure injury compared to those less frail, highlighting the association between individual risk factors and pressure ulcer development (Santamaria et al., 2009).

A study by Murray (2012) involving one 250 bed facility in Sydney, Australia, gave insight into the importance of education particularly focused on HCAs (Murray, 2012). The results suggested a decrease in the prevalence of pressure injuries from the previous year (from 11% to 7%) following the provision of education. Questionnaires suggested that staff had improved

knowledge of skin care and pressure injury prevention and increased understanding of the importance of their role in reducing incidence. There was also anecdotal evidence that HCAs had improved confidence and workplace satisfaction (Murray, 2012).

Another interventional study conducted in Australia by Hada et al., (2018) highlighted the importance of accurate, clear communication between staff members during clinical handover in the prevention of pressure injuries. This study highlighted the importance of education on the quality of communication during handover in two geriatric and rehabilitation wards in Brisbane. Handover is the communication that occurs between two shifts of healthcare workers with the purpose of communicating important information about resident care including pressure injury risk. Their education focused on conducting a clear, concise handover at the patients' bedside which encouraged patient and family participation. The handovers also involved a safety, environmental and equipment scan. The authors reported results that suggested a reduction in adverse events which included a 75% decrease in the number of pressure injuries (Hada et al., 2018).

These results suggest that workplace and contextual factors play an important role in facilitating pressure injury prevention and care and that this relationship is multifactorial indicating that a specific, single recommendation is unlikely to be effective. Comprehensive interventions also appear to foster improved staff morale, confidence and overall job satisfaction as well as improved resident and family relationships which have been shown to impact on quality of care including pressure injury prevention.

Conclusion

This chapter set out to review national and international research on pressure injury prevention focused on pressure injury prevention in residential aged care and pressure injury prevention related to the older adult. There is a large amount of research on pressure injury prevention internationally but there have been very few studies in NZ which focus on residential aged care. The literature provided evidence of the cost of pressure injuries both financially, physically and psychologically. Due to compounding vulnerabilities, the older adult living in residential aged

care is particularly vulnerable to developing pressure injuries. The research revealed the unique challenges particular to residential aged care and the complexity of caring for the older adult with the aim of preventing pressure injuries. Interventions to support and educate RNs and HCAs, with the goal of preventing pressure injuries, are imperative.

Chapter Three: Methodology and Methods

Introduction

This chapter presents the methodology and methods applied in the study. This chapter begins with a description and rationale for the exploratory case study methodology chosen, then the methods used are explained and justified before moving onto ethical considerations and how they were addressed.

The Research Question

The aim of this study was to investigate RNs' and HCAs' current practices for pressure injury prevention in residential aged care, with a focus on understanding these in a context-constituted and holistic manner. The aim of the study is to answer the research question: How are pressure injuries managed in residential aged care? The literature review, presented in Chapter Two, showed that in NZ, residents in aged care are becoming more dependent with more complex needs. Pressure injuries are costly and impact significantly on the quality of life for those inflicted. Frail older people have increased risk of developing pressure injuries and RNs and HCAs, with different and unique roles, are integral to the prevention of these injuries.

Research Methodology

An exploratory case study methodology was used to investigate how pressure injury prevention is managed in two residential aged care facilities in Auckland, NZ. Data for this study were collected between October 2019 and November 2019. This case study methodology facilitates exploration of a phenomenon (or case) from multiple perspectives within a given real-life context. Explorative case study methodology seeks to answer the “how” and “why” questions of a phenomenon. It is particularly appropriate when the boundaries between phenomenon and context are not clear, and when the behaviour of those involved in the study cannot be influenced (Baxter 2008, Yazan 2015; Yin 2018). In case study methodology, multiple data-collection and analysis methods can be used to gain insight into multifaceted and highly

contextualised phenomena (Almutairi et al., 2014). By using multiple sources of data, I aimed to develop a rich understanding of the current state of pressure injury management practice in two residential aged care facilities. The goal was to gain an understanding of the whole of the phenomenon under investigation by exploring it using a range of lenses (Cope, 2015). Of paramount importance was the need to understand nursing practice in a holistic way, taking account of the complex contexts in which nurses work (Baxter & Jack, 2008; Walshe et al., 2004).

Case studies can use qualitative and quantitative methods, can be retrospective or prospective, can focus on one or many cases, can explore, describe, explain or evaluate and can employ inductive or deductive approaches (Walshe et al., 2004). A case study can be used to study common or seldom arising phenomena (Luck et al., 2005). This flexibility and diversity have been seen in both positive and negative ways. On one hand, case studies can be used to investigate a wide range of phenomena. On the other hand, the lack of shared agreement between case study approaches potentially means there are not consistently shared standards of practice and rigour (Luck et al., 2005; Walshe et al., 2004). Another critique has been the lack of generalisability, an inevitable feature of case studies, which has been seen by some as a weakness of case study methodology (Schell, 1992). Despite this, the value and popularity of case study methodology has increased over the years. According to Hyett et al., (2014), the problems alluded to above are not insurmountable and credibility can be achieved in case study design when researchers have a clear epistemological position and provide rationales for key methodological decisions (Hyett et al., 2014).

There are a range of approaches and methodologies that guide the case study approach which can embrace different epistemological orientations, including relativist and interpretivist orientations (Yin, 2018). I have adopted a relativist perspective which acknowledges multiple perspectives and world views which are relative to the persons or groups holding them and with findings that are observer dependent (Yin, 2018; Crotty, 1998). This perspective complements a constructivist view that truth is relative and humans construct knowledge and meaning from their unique experiences (Yin, 2018). The adoption of a realist, constructivist perspective allows

a close relationship between the researcher and the participants, and allows participants to tell their story from their own perspective, giving the researcher insight and understanding into the participants' actions (Yazan, 2015).

Case studies are employed in a range of social sciences and healthcare disciplines which involve people and explore processes, activities and events. The ability of case study methodology to address complex fields such as education, social work and healthcare has long been recognised and it can be used to create an in-depth multi-faceted understanding of complex issues (Crow et al. 2011; Luck et al., 2006; Walshe et al 2004). From a healthcare perspective, Walsh et al, (2004) have argued that case study methodology is particularly appropriate for complex contexts due to its ability to deal with complex, context-dependent, changing environments while addressing this from multiple perspectives including clinicians, health and social services and voluntary and statutory agencies. In the present study the phenomenon and context are contextual and unique. Residential aged care in NZ is operated by private organisations with shareholder responsibilities making affiliations and motivation difficult to track and understand. Facilities are staffed by a multidisciplinary group of people including RNs and HCAs with different roles and skill levels (Hommel & Santy-Tomlinson, 2018). Residents are becoming frailer with more complex needs as the age of older adults' increase (Connolly et al., 2014; Frey et al., 2017). Case study methodology was chosen for its ability to address the multi-faceted environment of residential aged care while exploring how pressure injury prevention was managed.

There are a range of theoretical principles and frameworks that underpin case study methodology with popular approaches proposed by Yin, Stake, Merriam, Flyvbjerg, and Eisenhardt, who have all written extensively on this topic (Hyett et al., 2014). Yin and Stake have similar rationales for choosing case study methodology but use different approaches with respect to study design. Yin (2018) suggests a more structured design approach for case study method while Stake takes a more flexible approach with no insistence on theoretical propositions or development of theory through review of relevant literature (Walshe et al. 2004, Yazan 2015). Identification of appropriate theory and theoretical propositions is also a basis for

addressing the labour-intensive nature of case study research which has also been a criticism of case study methodology. Yin (2018) argues that researchers have to revise and bring together a much larger recorded volume of notes and spend more time determining what is important to code and analyse (Schell, 1992). Because I am a novice researcher, I decided to use Yin to guide my case study as his clear and structured approach helped me more readily navigate through the research process.

Qualitative research, in general, seeks to explore and deepen our understanding of individuals' perceptions and interpretations. In case study methodology in particular, the researcher seeks to understand a phenomenon or case from multiple perspectives (Cope, 2015; Luciani et al., 2019). As previously discussed, Yin uses propositions to guide and help with the research process. Yin suggested that propositions and issues are necessary to lead and guide the development of a conceptual framework and keep the research within feasible limits (Baxter, 2008, Yin, 2018). Baxter (2008) equates Yin's propositions with hypotheses in that they are both predictions of the possible outcomes of the research study and guide data collection and discussion. My thesis used the foundation document, Guiding Principles for Pressure Injury Prevention and Management in New Zealand (May 2017) and its six principles: People First, Leadership, Education and Training, Assessment, Care Planning and Implementation, Collaboration and Continuity of Care, as well as my literature review, to guide and develop my propositions for this case study. I also acknowledge my own positionality and that my own social perspective and background as a Wound Care Nurse Specialist working in residential aged care shaped my propositions and how I interpreted the data. Propositions alerted me to potential challenges/issues specific to residential aged care and influenced my indicative questions and coding. My propositions included: potential issues related to increasing complexity of care and low staffing levels, the importance of accurate and timely risk assessment and escalation of appropriate interventions, the importance of having an educated and knowledge workforce and access to appropriate recourses.

Yin (2014) categorises case studies as single holistic case studies, single embedded case studies, holistic multiple case studies and embedded multiple case studies. My study used a single

embedded case study. This means the overall focus is the case: How is pressure injury prevention managed in residential aged care? I used one case which includes two private hospitals. The embedded nature of the case included the perceptions and experiences of the CMs, RNs and HCAs working in the aged care facilities as well as the relevant guidelines and policies.

Methods

In the following I describe the methods used to undertake this study. I firstly discuss the setting and the participants before moving on to data collection and analysis. I consider research rigour and ethical considerations including informed and voluntary consent, privacy and confidentiality, minimisation of risk. I finish with consideration of social and cultural principles.

Setting and participants.

A purposive sampling technique was utilised. Purposive sampling is often used in qualitative research for the selection of participants that can best provide information-rich data that speaks to the research question and phenomenon under study (Luciani et al., 2019). The inclusion criteria consisted of CMs, RNs and HCAs working in residential aged care who were directly involved in providing pressure injury prevention interventions as part of their clinical practice. This study was undertaken in two residential aged care facilities located in the Central Auckland and South Auckland Regions of the North Island, NZ. They both provided hospital and rest home level of care and were managed under different providers. The facilities had to sit outside the Waitemata District Health Board where I work as a Wound Care Nurse Specialist. The decision to focus on two facilities was based on theoretical and practical considerations, and involved a balancing of breadth and depth. I wanted to gain a deep understanding of the interaction of the different participants in their particular setting but did not want to limit the study to only one facility. In order to gain a range of perspectives, I wanted to have more than one participant from each role and, because each facility has only one CM, this required at least two facilities be involved. Given the constraints of this being a Master's thesis, involving more than two facilities would have required me to interview fewer participants per facility.

I initially approached four facility CMs by email asking about interest in my research topic. Two managers replied to express interest. Once initial interest was confirmed by email, a flyer and information sheet with my contact details were sent (refer to appendix A and B). The information sheet was provided to fully inform potential participants about my study and the interview process. Potential participants were then able to contact me either directly by phone, email or through their CM.

All participants made initial contact through their CM. The CMs also facilitated the place and times of the interviews. There were ten participants in total, with an even number from each facility, comprising two CMs, four RNs and four HCAs. Using purposive technique, this small sample was adequate to arrive at analytical generalisations and data collection was concluded.

Data collection.

Semi-structured interviews with individual participants were selected as the most effective way of gaining rich insight into their perceptions and experiences of pressure injury prevention. Propositions guided my indicative questions (see appendix C). Questions were based around pressure injury risk assessment and everyday interventions of daily practice. Participants were questioned on perceived facilitators and barriers from both an organisational and care provision perspective. Viewpoints were sought about teamwork, education and equipment provision. I practiced the questions and my interviewing skills with a colleague beforehand and gained useful feedback.

The interviews were audio-recorded and the tapes were transcribed verbatim by a professional transcriber who had signed a confidentiality agreement (see appendix D). Field notes were taken at the time of interview and I kept a journal in which I recorded key impressions of each interview later on the day it was conducted. All of the participants preferred to have their interviews at their place of work, and these were arranged by their CMs. Time was set aside for the interviews during work time which placed minimal burden on the participants. The meetings were held in quiet, private rooms. There were no non-participants present during the interviews.

The interviews ranged from 35 to 60 minutes. Mutual respect guided the interview process and open-ended questions allowed participants to express their perspective openly. My interview questions steered my interviews but were flexible and conversational. Prompts were used to help direct the interviews. Participants were advised that they could stop the interview process at any time but none opted to do so. One participant opted to occasionally pause the audio recording while she contemplated her answers, and twice recording was temporarily stopped due to interruptions. No interviews were repeated. Due to practical considerations many of the interviews were undertaken with little time in-between each session. This allowed little time to reflect between interviews on the quality of the data collected and on my interviewing style, which would have been ideal for a novice researcher. Nevertheless, I was satisfied that my questions prompted rich responses.

Informed by the recommendations of Yin (2018) that case study methodology uses multiple sources, I also reviewed facility guidelines and policies related to pressure injury prevention. Collecting more than one type of data can contribute to the overall rigor and quality of a study (Luciani et al., 2019; Yin, 2018). Yin (2018) suggests that official documents that informed practice can provide insight into decision making and institutional culture.

Data analysis.

A key analytical approach was the use of pattern matching. For case study analysis, pattern matching is a suitable technique if it is harmonious with the purpose of the study and the research questions are answered (Almutairi et al., 2014; Yin, 2018). Pattern matching is a logical method of analysing qualitative data by identifying patterns of meaning and themes from research data which is informed from the literature and theoretical propositions (Yin, 2018). This is achieved through a rigorous process of data familiarisation, data coding and explanation building. Explanation building is a repetitive pattern matching technique of recursively comparing the findings to the case study propositions. This includes a process of revising and refining ideas as many times as required until a robust explanation is found. Rival explanations must be considered as new insights are discovered (Yin, 2018). Areas of convergence,

complementarity and dissonance are acknowledged and declared (Farmer et al., 2006). Yin (2018) recommends using an electronic data base to manage and organise the data. This is a way of providing a chain of evidence making the collection process clear and explicit to increase reliability and transparency of the case study (Honey, 2010; Yin, 2018).

Using the pattern matching approach, my analysis began with repeated listening to the audio recordings, and then reading, and re-reading the transcripts to grasp a deeper level of familiarisation and understanding of the data before identifying patterns. I also referred back to the journal entries in which I had recorded my impressions of key patterns at the time of the interview. This also gave me the opportunity to reflect on the information available while considering the overarching question and case.

The information collected from each of the data sources was coded by myself using qualitative analysis software Nvivo™ version 11. The use of this tool provided a visual format that presented information systemically and logically to allow comparisons, detection of differences and noting of patterns. Each data source was analysed and displayed separately before being corroborated. The interview data were analysed using deductive, inductive and constructionist approaches. At the beginning stages of my analysis, I used the codes which I had established from my propositions. As the analysis progressed and new insights and rival explanations were considered, additional codes were added, revised, sorted and reworded. I used the same codes which I developed from my interview transcripts to then code the policy documents to identify corresponding patterns, themes and concepts across the data sets. The final set of codes and sub-codes used for analysis are summarised in Table 1. A more detailed summary of codes with examples is included as Appendix E.

Themes and trends were then created allowing a higher-level analysis to take place. The data were refined and checked against the central concepts of the research question. The case remained the central focus and the data were triangulated to ensure the interpretations were credible and dependable. Table 1 presents my codes with examples (See appendix E).

Table 1

Summary of Codes and Sub-Codes

	Codes
Assessment and Interventions	Collaboration with residents and families
General deterioration	Communication
Immobility and keeping residents moving	Complexity of Care:
Incontinence	Co-operation and compliancy
Increasing frailty	Dementia
Knowing your resident	Multiple complexities
Low mood	Staffing
Nutrition and Hydration	Education and knowledge
Pain	Leadership
Risk assessment	Organisational support
Skin	Budget
Collaboration with multidisciplinary team	Equipment
Dietician	Policy
General Practitioner	Required documentation
Nurse Specialist	Professional role and identity
Physiotherapist	Recording and communicating statistics

Research rigor.

Triangulation of data is considered a key step in enhancing the validity of the research.

Triangulation helps ensure that findings and interpretations are credible and dependable and provides a form of justification for themes (Creswell, 2003). The main goal of triangulation is to explore convergence, complementarity, and dissonance (Yazan, 2015). According to Yin (2018), using different sources of evidence is a major strength of case study methodology when compared to single sources of information. Yin (2018) argues that research findings are more likely to be in-depth, contextual, convincing and accurate if several sources of information are used and converged. As previously discussed, I used evidence from multiple sources to corroborate my findings and provide rigor by comparing results from different perspectives. By converging data from CMs, RNs and HCAs perspectives, different participants revealed,

confirmed or disconfirmed my findings. Policy and guidelines were also used and converged giving me insight into institutional culture and decision-making processes. By using “how” and “why” questions and using theory and theoretical propositions, external validity was addressed (Yin, 2018).

Investigator triangulation can support construct validity by having key informants to review draft case study reports and findings (Patton, 2015; Yin, 2018). In all stages of my research, meetings with my research supervisors were undertaken to discuss methodological decisions. A second researcher experienced with case study methodology (Prof. Stephen Neville) independently reviewed transcripts and provided guidance and direction and conformation of my themes and subthemes.

Internal validity focuses on accuracy and strong research methods. Yin (2018) also recommends four analytic tactics to ensure internal validity which were discussed during my data analysis phase and include pattern matching, explanation building and addressing rival explanations. Documentation of the research process is also considered important to ensure reliability and transparency. Yin recommends the use of a data base and, for that purpose, Nvivo™ was used in this case study as previously discussed (Schell, 1992; Yin, 2018).

Ethical Considerations

Ethics is fundamental to good research practice and is an essential measure to protect all participants (Doody & Noonan, 2016). Ethical approval for this study was gained from AUTECH, reference number 19/225 (see appendix F). The next section of this chapter will demonstrate how the AUTECH ethical principles guided my approach to the design of my study.

Informed and voluntary consent.

Participation in this study was voluntary and participants were fully informed about the nature of my study and the interview process before agreeing to participate. I initially provided an information sheet about my study. The information sheet explained the voluntary nature of my research (refer to appendix B). It ensured transparency and assisted the potential participant in

the process of providing informed consent before participating (refer to appendix G). It provided my contact phone number and email address so potential participants could contact me with any potential questions, queries or concerns.

Before the interview commenced, all communication went through the CMs with no individual RN or HCA contacting me independently. Before interviews were started all relevant information was again explained as clearly as possible and the informed consent process was reiterated. Any further questions were answered. The right to withdraw from the study at any time or abstain from answering any specific questions without consequences was also reiterated. A consent form was signed before interviewing began.

Respect for rights of privacy and confidentiality.

All participants chose to complete the interviews at their place of work in a quiet, private room. Confidentiality issues associated with interviews being audio recorded were explained and were part of the informed consent process. Participants were advised that the audio recording could be stopped at any time if they wished. The identity of participants was protected by using a unique identity code on the audio recordings and data sheets. I referred to participants in this study by using their individual titles (CM, RN, HCA) followed by a number (e.g. CM 1). No one other than myself and my primary supervisors have access to the codes. Confidentiality was also maintained by not using the names of facilities in this study or including details that would allow the reader to identify them. These were referred to as 'Facility 1' and 'Facility 2'. This was sufficient to ensure confidentiality due to the large number of aged care facilities, RNs and HCAs in the Auckland region. I asked the participants to not name residents or discuss any identifiable information about their residents.

Electronic data was saved on a secure USB stick and along with printed transcripts, kept in a secure locked cupboard in a secured office. A single computer was used for analysis and this is password protected. The professional transcriber contracted to transcribe the digital recordings signed a confidentiality agreement (see appendix D). The participants of this study were informed that all research material will be destroyed after five years through the faculty secure

document destruction service as per the AUT research document disposal policy. The hard drive and USB stick will also be permanently destroyed.

Minimisation of risk.

All questions were related to participants' current practice. This could bring out issues and discomfort concerning past experiences with older persons such as when pressure injuries may have occurred or if facility practice was perceived as not being up to standard. Should counselling or support be required participants were able to access these services through AUT support clinics. Participants were informed of this option during the consenting process. To minimise the risk of harm I addressed potential issues around perceived power imbalances by choosing aged care facilities that I do not visit in my current role as a Wound Care Nurse Specialist. Before obtaining consent, I encouraged participants to discuss with me any concerns or perceived risks they may have had so these could be identified, discussed and addressed.

Social and cultural sensitivity including commitment to the principles of the Treaty of Waitangi.

This study did not specifically target Māori participants, but all research undertaken in the community within NZ will have relevance for Māori as we work towards achieving equitable health outcomes. As participants were recruited from within residential aged care it was likely that they could come from a range of cultures, value systems and backgrounds which may differ from my own. I have visited residential aged care facilities in my role as a Wound Care Nurse Specialist for many years and have gained familiarity around the social and cultural context of residential aged care. I have worked closely with and built strong relationships with CMs, RNs and HCAs and have reflected on the cultural perspectives of these institutions and discussed my research ideas with RNs and HCAs working within residential aged care. The participants recruited for this study came from a range of different cultures. None identified as being Māori. There was no necessity for specific social or cultural support.

Conclusion

This chapter has described the design, methods and processes which have been used in this study. An exploratory case study methodology was chosen to answer the research question as to how pressure injuries are managed in residential aged care. The work of Robert Yin guided my methodological approach. Ethical responsibilities were upheld. Propositions guided my research process. Multiple sources of data were used which included interviews from CMs, RNs and HCAs from two residential aged care facilities as well as facility policy and guidelines. An electronic data base was used using codes to assign meaning to data. Analysis and rigor were achieved by using pattern matching and explanation building. Competing explanations were compared and contrasted allowing for new insights to emerge. These processes were undertaken to enhance the rigor of data collection and analysis.

Chapter Four: Findings Part One

Introduction

The purpose of this case study was to explore how pressure injury prevention is managed in two residential aged care facilities, from the perspective of CMs, RNs and HCAs. The next two chapters report the findings from the data collected during participant interviews, as well as from relevant facility guidelines and policies. This chapter starts with a table summarising the two themes (table 2), and the associated subthemes, created in this study. This will be followed by information about the demographic profile of the participants before commencing with a written account of Theme One with its four associated subthemes identified during analysis of the data. Theme Two, with subthemes, will be discussed in Chapter Five.

Table 2

Summary of Themes and Sub-themes

Theme 1: The Context of Residential Aged Care	Theme 2: Assessment and Interventions of Daily Practice
Role demarcation	Assessment
Staffing	Risk assessment tools
Communication	Interventions of daily care
Education and knowledge	Collaboration with residents and families

Demographic Profile of Participants

There were ten participants in this study, eight females and two males. The participants comprised two CMs, four RNs and four HCAs. All of the participants had been born overseas and migrated to NZ as adults. Five of the RNs had immigrated from the Philippines and one RN from India. One of the RNs was trained in NZ while the others were all trained before immigrating to NZ. For all of the RNs, working in residential aged care was their first nursing job in NZ. For the RNs interviewed, the average number of years working within residential

aged care was three years. Three of the HCAs originated from Fiji and one from India. The average years of working in residential aged care for the HCAs was nine years. This included two HCAs who had worked for the same facility for 12 years. A summary of the demographic data is presented in Table 3.

Table 3
Summary of Participants

Pseudonym	Gender	Years working in New Zealand residential aged care
CM 1	Female	6 years
CM 2	Male	6 years
RN 1	Female	1 year
RN 2	Female	3 years
RN 3	Male	2 years
RN 4	Female	1 year
HCA 1	Female	7 years
HCA 2	Female	12 years
HCA 3	Female	5 years
HCA 4	Female	12 years

Note: CM = Clinic Nurse Manager, RN = Registered Nurse, HCA = Health Care Assistant

The Context of Residential Aged Care

The first theme presented in this chapter, “The Context of Residential Aged Care”, encompasses the complex cultural dynamics within residential aged care which impact on how RNs and HCAs work together to provide pressure injury prevention. The first subtheme, role demarcation, was prominent across the data set and highlighted the distinct role differentiation perceived by all of the participants, even when this could potentially delay some pressure injury interventions being put in place in a timely manner.

The second subtheme relates to the stressful environment of residential aged care and the context of reoccurring staff shortages and the difficulties of working with bureau staff who are unfamiliar with residential aged care in general and the residents of the facility in particular. All

of the participants expressed that low staffing levels were of concern, and discussed the negative impact this has on their ability to provide pressure injury prevention interventions.

The third subtheme highlights the importance of communication and teamwork which was emphasised by all of the participants. All of the participants recognised the importance of effective communication and that if communication fails, escalation of care could be impeded. Some participants described dissatisfaction when communication issues were encountered and one participant expressed feelings of being blamed. The majority of the participants also described novel ways of communicating with each other such as stop and watch forms and toolbox talks.

The fourth and final subtheme, underscores the importance several of the participants placed on education. This also included the importance of teaching and orientating new staff in pressure injury prevention.

The following section presents analysis of the four subthemes: role demarcation, staffing, communication, and education and knowledge.

Role demarcation.

The first subtheme, role demarcation, captures the very distinct and defined roles perceived by the CMs, RNs and HCAs. In the case of pressure injury prevention, the role of all HCAs was to provide daily personal cares and to identify and feedback to the registered nurses any signs of skin breakdown or concerns or changes in residents' general condition. It was then the responsibility of the registered nurse to assess, plan and escalate care by putting in place appropriate interventions. First line staff, who were most often the HCAs, had limited autonomy to respond to pressure injuries and to make preventative decisions independently, which led to delays between identification of risk and interventions being started. Even for very experienced HCAs, with years of experience working in residential aged care, levels of responsibility, autonomy and tasks expected remained the same. The typical responsibilities of HCAs were summed up by RN 2 who said:

The people who are having more interactions with the residents are the care staff. Yes, they are the ones who do the cares and the showers... the HCAs are the ones who are directly involved and spend more time with the residents, so they can see if there are any changes... "I have noticed it yesterday, ah it is a different one, "ah it's much redder or this or that...". The people who are having more interactions with the residents are the care staff. (RN 2)

This is important because skin inspection is crucial for early detection of pressure damage. Once skin changes are identified, which is often by the HCAs, it was up to the registered nurses to start a pressure injury care plan:

"So, they're the first ones (HCAs) who notice if there is some redness. They report it to us and then it's up to the nurses to assess and determine if it needs more monitoring" (RN 2).

"We just tell the RNs... Then it is up to the RNs... the RN then directs us... we identify... During maybe the cares or the shower, when I see the pressure injury I do not hesitate. I call the RN straight away" (HCA 4).

RNs were responsible for ensuring the HCAs have the required knowledge and skill to be able to identify and communicate early warning signs of pressure injury risk. Most of RNs emphasised the importance of directing and guiding HCAs to recognise and communicate skin and physical changes immediately after identification:

"... so that's why we emphasise to our caregivers their communication is important ... small changes in skin integrity are really, really important because they can lead to bigger problems in the future if they are not taken care of" (RN 2).

"They (HCA's) should report it straight away to the RNs. So, I think it's good to direct the caregivers what to do. Remind them all the time because they are a big part of it" (RN 4).

The sooner that preventative cares are implemented, the less likely it is that further skin damage will occur. RNs relied on HCAs to report skin damage so that preventative interventions could be escalated as soon as possible. Once pressure injury risk was identified and reported, there were processes around assessment and decisions for the RN to make. A typical response from all of the RNs was described by RN 1:

"Yes, we rely on them (HCAs) to do the skin checks because we can't do them.... once identified we write an incident report about it and then we start a pressure injury care plan already from the beginning" (RN 1).

All HCAs articulated very clear boundaries within their perceived scope of practice. HCAs were clear that they were not permitted to make pressure injury prevention decisions themselves. A characteristic response was:

... our job as a caregiver, we keep an eye on the residents. We do their daily activities, so that's showering, washing, everything like bowel cares, everything we do. And part of it is to check like any redness because that's where it begins. Any pressure injuries we just hand it to the nurses so they can observe it. (HCA 1)

The majority of HCAs had many years of experience. All of the HCAs articulated the importance of getting appropriate pressure relieving mattresses for at risk residents in a timely manner, but saw this as a decision only the RNs could make. HCA 1 described her role in the process of ordering an air mattress (a recognised preventative intervention) once she had identified risk:

Well, it's not our call to say if someone needs an air mattress... We can't just say, "Oh yes that resident needs an air mattress". No, it doesn't work like that. It needs to go through the proper channels ... I have to get a RN to assess first. When they have assessed they will ask us, so it is then that we go to the cupboard and take it out and inflate it and we'll put it in. (HCA 1)

Facility 2 had another step in the process of ordering equipment. Once risk is identified it was up to the RNs to notify the facility physiotherapist or physio-assistant who then assess and make decisions around mattresses and equipment. The physiotherapist and physio-assistant work daytime hours Monday to Friday, potentially delaying the time between identifying risk and implementing appropriate equipment even further. RN 4 described the process of ordering an air mattress if an at-risk resident is identified on a Friday evening:

We ask them (the physio), "Look this resident is high risk, I think we need an air mattress. Can you come in, assess if they need an air mattress?" And they usually agree and then put an air mattress in. Or sometimes as well they will say, "Oh this one needs some booties". So, if they (the physio) are off for the weekend we turn them every two hours. (RN 4)

Fixed professional demarcations that limit HCAs autonomy potentially delayed pressure injury interventions. HCA 2 and 3 described how they communicate with the RNs when they come across situations when interventions they recognise as being important in the prevention of pressure injuries may have been unintentionally forgotten by the RN:

Yes, that's how we communicate here. Any small changes we will communicate to the appropriate person. And when we know if it's not done, we have that right, we will come up and we'll voice to them. "Look this is not done... This is supposed to be done. Why is it not done? Can it be done?" (HCA 2).

"We just follow up. The next day we just tell the RN, like, "Yesterday we informed you that the resident was at risk and nothing has changed". So, after that, it is their decision what to do next" (HCA 3).

These clear and defined roles that HCA 2 and 3 described were also reiterated by both clinical managers and very much part of the culture in both facilities. CMs expected repetitive and frequent communication by the HCAs until appropriate interventions were seen to be implemented. This was discussed by CM 1:

HCAs rely on the RN as most of the decisions come from the RN but HCAs communicate... so then the nurses then go and assesses and then from there on interventions are put in place... I think if I remember correctly one caregiver said, "Oh, we thought that the nurses knew..." Yes, yes, so I just said, (keep telling them) "Even if you have to tell your nurses 20 times, 30 times" (CM 1).

Professional responsibilities and clear role demarcations were reiterated in Facility 1's policy for Pressure Injury – Prevention and Management. The policy was directed at all staff to provide skin assessment and the provision of fundamental cares in the prevention of pressure injuries. Role demarcation was evident in policy regarding decisions around equipment and it was clear that equipment allocation was a nursing decision. An extract from the policy of Facility 1 illustrating the process of assessment and escalation of care when deciding on an air mattress states:

The qualified nurse will determine the appropriate pressure relieving mattress or support surface each resident/ client requires based on their assessment including:

- *Level of immobility/inactivity*
- *Body size and weight*
- *Need for microclimate control and sheer reduction*
- *Risk for development of new pressure injuries*
- *Number, severity and location of existing pressure injuries (Policy: Facility 1)*

According to Facility 1's policy, all staff, including HCAs were provided with education around the appropriate use of support mattress:

All direct care staff will be trained in the maintenance and use of all mattresses/support surfaces in use. Manufacturer's instructions must be available for staff to ensure they are used appropriately. (Policy: Facility 1)

Despite all participants in Facility 2 articulating clear professional responsibilities when it came to ordering equipment, including communication with the facility physiotherapist by the RNs, Facility 2's Pressure Injury Risk Management and Skin Care Policy did not stipulate processes specific to organising equipment, or who was responsible for this. Their policy was generalised and was directed to all staff involved in resident care throughout the organisation. The policy specified the expectations that appropriate pressure relieving devices were to be put in place for all at risk residents and advocated education for all of their care staff:

Assess and document resident's skin integrity regularly, especially when their health status changes

Ensure appropriate mattress and pressure relieving devices are in place.

Education of Pressure Injury Risk Management and Skin Care will be provided for all care staff. (Policy: Facility 2)

Staffing.

The relationship between having adequate staff and providing quality care is an important factor to consider in relation to pressure injury prevention in residential aged care. All of the participants expressed concerns about high staff turnover and reduced staffing levels and the negative impact it has on providing preventative interventions. Statements about safe staffing levels in the context of pressure injury prevention were not observed in either facility policy.

It is the responsibility of facility organisations to ensure enough staff members with the right skill mix are provided for best practice in pressure injury prevention and management. Nine out of the ten participants highlighted high turnover of staff as an issue, especially related to the turnover of registered nurses leaving the aged care setting for higher pay working in District Health Boards (DHB). Several participants expressed a sense of powerlessness around this. CM 1 and 2 describe this phenomenon:

That was actually our frustration last year because most of the senior nurses who worked here had left when the new mega agreement for the DHB was signed so I mean I cannot stop them from leaving... but it is a frustration because we had some nurses

come and we train them and then six months down the line they say, "I'm sorry but I need to go to the DHB...". But then again, it's their choice... It is a frustration but well, I'll just have to get over it and I'll just move on. (CM 1)

"Most of our nurses are quite new to aged care. Like they've been here for one, two years or less than a year. So, the turnover for the nurses is really high. Normally they will only last for a year. Right before they go to the DHB" (CM 2).

Staff shortages were perceived to impact on staff's ability to provide preventive interventions in a timely manner as nurses and HCAs were forced to prioritise their high workloads. Routine interventions were reported by all participants as getting missed at times, due to staff deficiencies which included pertinent interventions such as pad changes, toileting, turns, paperwork and communication. Participants felt that failures or delays in the delivery of these routine interventions substantially increased pressure injury risk and moisture related skin breakdown. This was summed up by HCA 3:

It is very busy. And the RN, I see the RN is also very busy. RNs do come and help us when we call them, they never say no, but there are you know times when it's really busy. You can't even talk to the RN... Then I find, because everything is then lacking. My paperwork, my afternoon tea, my two-hourly toileting. Turns I have to do I can't do because I don't have help. It's very challenging and stressful and then I get upset. (HCA 3)

With high staff turnover, new nurses are being constantly orientated to their new role. CM 1 describes how difficult it can be for new staff to identify pressure injury risk when they are new to the job and unfamiliar with the residents:

...if the nurses have been there in the facility and caring for those residents long enough, they know their residents so they know if, "Oh there's a behavioural change, why is there a behavioural change?" But if they're new they might just (think) you know, "Oh maybe she's just always like that". So that adds up to the frustration. And then the next thing you know there's already a pressure injury because the nurses who were on were new. (CM 1)

New staff required education and support related to pressure injury risk assessment and prevention before being able to work safely and independently in the prevention of pressure injuries. It was the responsibility of existing staff to orientate employees and teach them how to recognise the early signs of pressure injury and preventative strategies. With high staff turnover, this was seen as a regular occurrence and added to the workload and stress, which subsequently

impacts on quality care. Feelings of weariness and frustration were described by RN 2 with the constant frustration of having to train new staff:

... So when they get their work visas we have finished their orientation and then by the end of like say one month or two months they're gone. It's just so hard ... And it's frustrating because when you orient them and when they finish orienting, they don't stay for say six months... we had one who started first week of November. I think finished the orientation period end of November and resigned in December. It's just so hard. And then you have to teach again. Somebody new... the staff turnover for nurses really is quite difficult because it's affecting everything. (RN 2)

Bureau staff (casual contracted employees) were used when staffing was low. As with new staff, bureau nurses were often new to the facilities which impacted on working conditions for the nurses. Recognising subtle changes can prompt early treatment for pressure injury prevention but bureau staff do not typically know the individual residents or their unique requirements. Bureau staff may also struggle with knowing processes involved in relation to putting pressure injury interventions in place, meaning pertinent cares get missed or delayed. This not only puts residents at risk but increases pressure on facility staff to supervise, teach and support bureau staff, increasing staff responsibility and stress in an already pressured working environment.

CM 2 describes his perspective on this:

If we're short of staff then we will normally look for a bureau cover or agency cover. But those agency covers are not really that good because they don't know the facility... They don't know the residents specifically. They don't know what we have put in, the planning that is in place. So again, it's for the nurses to handover or distribute information with regards to specific residents. As much as possible the bureau should not work on their own. (CM 2)

Bureau HCAs were also frequently used to cover staff shortages. HCA 3 also recognised the risks for residents associated with working with unfamiliar bureau staff as well as reported feeling a sense of complete responsibility and stress related to this:

We are getting bureaus now. They are good but some of the bureaus are like first time they come to this site. So, they have no knowledge... We never leave new staff and a bureau. Never. It's always has to be the older staff and then the bureau. It is stressful because if she's new, she doesn't know anything... And I have to take all the responsibility for the clients and explain everything. It's very hard. Yes, it does happen. I'm talking for other HCAs do. They suffer, they suffer too, so I'm talking on behalf of them too. (HCA 3)

Participants reported being asked to do extended shifts and working long hours to cover for staff shortages. Participants worried that working long hours can contribute to caregiver fatigue,

which can result in errors and mistakes being made which potentially impact on all quality indicators including increased pressure injury prevalence. For example:

“Whereas sometimes I do some shifts or the clinical lead will do some shifts as to make sure that everyone’s safe and the nurses are sometimes extending hours or working another additional shift so that we can cover those gaps” (CM 2).

Communication.

Participants all highlighted the importance of communication in their daily practice. Different methods of communication were used depending on staff roles and organisational expectations. Methods of communication included face-to-face contact, conversations at handovers, weekly and monthly clinical meetings, toolbox talks, written stop and watch forms, and communication through general documentation such as incident forms, written nursing assessments, care plans and progress notes. It was through these varying modes of communication that staff remained informed so interventions for pressure injury prevention, on a daily basis, could be carried out effectively.

Due to the different scopes of practice and well-defined roles, the second sub-theme, communication, captured the importance that all participants placed on everyday communication in the prevention of pressure injuries. Furthermore, a lack of communication, especially at the very first signs of skin deterioration (stage one) or physical changes, could potentially cause more serious harm:

... in rest home or aged care facilities, we (RNs) don’t do the cares ourselves, so communication from the HCAs is very, very important. If they tell us as soon as they know there’s a redness, if it’s just a redness from where they’re lying-in bed and they wake up and there’s a reddened area, as soon as they inform us it would be much better. I believe in prevention better than cure. So, if they tell us anything that they have noticed and we check it and then actually, “Oh that’s just from marks lying in bed that’s fine”. But if it’s a pressure injury grade one, it’s easier to treat that one compared to when it’s already blue and when it’s already grades two or three. (RN 2)

The importance of communication was briefly reflected in Facility 1’s policy (but not Facility 2’s) and the policy was directed at all healthcare workers:

Being observant and promptly reporting any signs of pressure injury or skin damage (Policy: Facility 1).

Despite this, all of the participants agreed that teamwork, trust and communication went hand in hand in the prevention of pressure injury prevention:

“Our registered nurses rely on us because we are the ones actually dealing with the residents like daily hands on and we are sort of like the eyes and the ears for the residents, so yeah” (HCA 1).

“Trust is very important. Like there are times that it’s very hard for RN’s sometimes to check straight away. Sometimes they ask if they can check later and we have to say, “No, just come straight away” (HCA 4).

The HCAs worked together to provide essential care of each resident. Some HCAs emphasised the importance of communication between themselves as a way of supporting one another and ensuring nothing important gets forgotten:

“But with caregivers we always communicate like, “Hey, how are you? We found this one like this so just keep an eye, if any changes, just inform the nurse”. That’s sort of our communication we have here” (HCA 1).

I’ll just get my mind running around from eight a clock till three o’clock just to see what I did, what I’ve forgotten... when my buddy goes home at one thirty, when she’s on a short shift, I ask her if there is anything, she has to tell me, anything which I’ve forgotten? So, I try, very rare, it’s very rare I forget. (HCA 4)

In a busy working environment, the potential for things to get missed or forgotten is high. HCA 4 reported note-taking as a strategy to remind herself of what she has to communicate to the RNs so nothing is forgotten:

Actually, very rare that communication is broken but as soon as something comes up, I’ll just write it down even if I’m in a resident’s room, I’ll just quickly write it down. Make it handy... Refer straight away. And then always before I go home, I just recall everything that I did from the morning. (HCA 4)

Clinical managers have responsibility for overseeing and supervising both RNs and HCAs.

Both clinical managers recognised the importance of good communication between the different staff members and claimed that they encouraged this. They reported making themselves available to staff to discuss any concerns around communication or care. They provide ongoing support and advocate for staff when issues occur:

“I do tell the HCAs that, “If you find that your nurses haven’t done anything yet, even after telling them, please come to me so that I can follow it up... “. I will follow up and say, “Have you done this” Have you done that?” Because if I do it myself then they will not learn?” (CM 1).

“Every time they need something or they have an inquiry, they can always ask me, but I think it’s just the follow up from the nurses or direction from the nurses to the health care assistants that’s so important, communication” (CM 2).

All HCAs reported feeling well-supported by their clinical managers who provided an avenue for open communication, leadership and support. A typical response when discussing leadership within their working environment was described by HCA 3:

Our manager just wants safe handling. Everything safe. So, when we tell when something is not safe or something, he tries different ideas with us. We will see how it works and he comes on the floor and he asks. “Is everything alright? Anything lacking?”. He’s very nice. We can walk in the office any time we want. No problem. (HCA 3)

All participants recognised that when information was not relayed, escalation of care could be delayed, potentially contributing to the formation of preventable pressure injuries. CM 1 expressed her feelings of dissatisfaction when she encountered perceived inadequate assessment skills and lack of communication by staff around a resident who developed a pressure injury:

... because like I did question the caregivers, “So why have you not reported it to the nurses? Has nobody noticed any changes in her mobility?”. Because at that time that resident was still quite mobile. And they should know that the resident would be limping because where the pressure injury was. When she walks and she puts pressure on it there would be some sort of pain and, then, how come nothing was reported? (CM 1)

Similarly, RN 1 described her discontent when there are communication failures between HCAs and RNs and important information pertaining to the residents’ general condition was not conveyed:

Sometimes no, we never heard from the staff who are taking care of them, that they are developing the redness. The pressure areas. Like if we’re (RNs) not aware of that, we can’t provide care... as I mentioned before, the communication failure. So sometimes yeah, it’s very unfair that even they developed, such as when they (residents) are declining, such as when they are not eating much. Sometimes they (HCAs) don’t tell us like, “Oh they refused their breakfast” or, “They refused dinner”. We never know that sometimes. It’s a big challenge for me... it does require a collaborative effort between caregivers and nurses. (RN 1)

Participants all acknowledged the challenges healthcare workers face to meet the multiple and complex needs of residents in residential aged care. RN 1 emphasised the importance of communication and teamwork between HCAs and RNs in the busy environment of residential aged care:

As RNs, we can't reach the HCAs every day because we are running behind with our concerns. In every shift we are running behind the concerns. We do secondary rounds. We do visit the residents but we are more concentrating on the residents who have concerns. Initiate. So, it's team work. Once somebody finds someone who is not feeling well. They have to communicate. (RN 1)

All HCAs in this case described challenges related to working in a busy, stressful environment which can contribute to communication breakdown between them and the RNs. HCA 3 describes struggling at times to find time to speak with RNs due to the combination of staff shortages and time restraints:

It is very busy and then I have to, sometimes like I'm still waiting for my buddy to come to work. And the RN, I see the RN is also very busy, RNs do come and help us when we call them, they never say no. But there are you know times when it's really busy. You can't even talk to the RN. (HCA 3)

Relatedly, HCA 4 relies on her HCA colleagues to ensure important information is relayed to the RNs in the busy working environment where multitasking, distractions and juggling jobs is a constant:

It is sometimes like distraction, if I'm coming out of one room and I'm being called or someone is ringing a bell. It's a very challenging job, health care assistant. Very challenging. The pressure, sometimes due to time management it doesn't work. Breaks and everything. So, we have to be like juggling sometimes, but mostly it's like we're working in pairs, we always talk, communicate, we have to tell this to the RN so if I'm not telling, my partner is telling. (HCA 4)

Due to the preventative nature of pressure injuries sometimes staff felt blamed when a pressure injury occurred. HCA 3 describes a situation when she felt accused of personal failures. She also expressed empathy for the residents in this situation:

Sometimes due to work pressure it's hard. Yeah it has been. I actually don't mind if I'm scolded. I tell the nurses what I did and then what maybe was negligence by the RNs or maybe negligence by me, or maybe like, my buddy hasn't turned a client and then when I come next, he was my client and then I get the blame. So, we just talk. We always listen to our RNs. If they told us, next time, we'll keep an eye on you, this and that. It has happened. I just apologise even for the things that I haven't done. This is part of it. That's why the HCAs, we always tell everything straight away because we don't want to take the blame and we feel very sorry for the residents too. (HCA 3)

Handovers.

All participants described collaboration and teamwork as being very important. Participants reported face to face handovers as an effective way of communicating between the different disciplines and shifts. RN 3 and 4 reported this as a way of communicating important information to the HCAs:

“It is during handover we discuss things more in depth” (RN 3).

“The short-term care plan is not seen by the health care assistant but every handover we tell them, “You need to check this you know”, “Turn this”, or “Monitor this” and “blahblahblah” (RN 4).

Likewise, HCA 1 and 2 reported finding handovers an excellent opportunity to liaise face to face with CMs and RNs on an everyday basis and between shifts:

“... but it’s usually during the handovers that most of our communication occurs with the registered nurses... So, we communicate with them. So, the morning nurses, afternoon nurses and afternoon staff will be all sitting together” (HCA 1).

Yes, every morning we get our handover. If we have more concerns, every morning and every three o’clock. As soon as the shift comes in, before we start our shift and our clinical manager also joins us. If she’s here early she will join otherwise she will join in the afternoon, normally she stays there until we settle down. (HCA 2)

Some of the RNs and HCAs from Facility 1 described a handover book which all staff were expected to write in if they noticed any significant health changes with their residents. This is expected to be read daily by all staff. RN 1 reported this as another efficient way to communicate important information:

“And the handover book (is) where we mention that we have noticed redness, small redness. Even if it’s small” (RN 1).

The clinical manager also uses the handover book as a way of overseeing and supervising staff:

“Because in our handover, our handover booklet, which we fill out at the end of the shift, the clinical manger can go through that every day as well. So, what happens today, they will check it tomorrow” (RN 2).

Weekly clinical meetings.

At Facility 1, weekly clinical meetings were held which RNs and senior HCAs were expected to attend with the purpose of discussing general happenings or any recent concerns:

... every week we have clinical meeting. We just discuss what we can do for the residents. Just to minimise the risk. The clinical meeting is basically a discussion on what has happened in the past week. How many calls we've had, did we have any patients, do we have any patients who are deteriorating, do we have any concerns about wounds we think are not healing or pressure injuries deteriorating. Something like that. (RN 2)

CM 1 also gave an example of using weekly clinical meetings as a way of reflecting on care and communicating concerns:

... when the pressure injury was reported, it had deteriorated already to the point that there was just like a covering there. But there was no wound plan in place, things like that. I mean things like this happen so I was really frustrated that how come no one saw this and then when we noted it, it was already stage 3 so we had, you know, more work needed to be done, to be put in place because it wasn't caught early on. Something like that. So yeah so, we talk about it in the nurses meeting. (CM 1)

Toolbox talks.

Toolbox talks are short, purposeful education sessions. Facility 1 uses toolbox talks during handover time as an efficient and easy way to educate and communicate information between the different disciplines of staff and different shifts. RN 2 described how toolbox talks work in her facility:

... it's a tool box talk. It's like focussed brief education session. Say 10 to 15 minutes during handover time. So, if we noticed that there are incidences, increased incidences in pressure injury, we focus on the pressure injury like prevention, what needs to be done, what the caregiver should do, those sorts of thing... And then we discuss it during handover and then we pass it again to the next shift... if you're not there during the discussion then you can at least read it. And then sign your name that you understand. (RN 2)

Both RN 2 and HCA 1 described toolbox talks as an opportunity to reflect on care retrospectively and implement solutions:

"... And sometimes we also have this toolbox talk. If something goes really wrong or something, so a toolbox talk means that every staff knows what is to be done" (HCA 1).

"It's a very brief one, like ok we are having incidences, high increased incidences in pressure injuries, please be reminded these are the signs to watch out for, these are the things that you have to do" (RN 2).

RN 2 reported toolbox talks as a useful tool that enables her and the clinical manager to monitor what has been taught in these sessions and to which staff. Once toolbox talks were attended, staff were expected to sign their names. If pressure injuries occurred, accountability was expected as described by RN 2:

Yes, because they can't say that, "Oh, I don't know". "You signed your name there, that means that you have understood what we are trying to say. Why didn't you do this one?"... then the clinical manager will say, "Why? What is the reason why this wasn't reported? You were on that shift. Why didn't you check this one? You signed that one during the handover. It was discussed during handover, your name was on the toolbox talk, it was discussed during the general staff meeting and during the caregivers meeting, why?" (RN 2).

The CM from Facility 2 described using a toolbox talk to help reflect on care when there had been communication breakdown and errors had occurred:

Yes, we have done toolbox talks for the staff so that we can have them in small groups and we have a certain topic to discuss. If it's a really major wound that we didn't, we failed to identify, we will discuss this. Or if the interventions were not followed or because a wound became infected ... Yeah and I think they learn best if it's something that had happened. But bear the consequences for it. Because they were able to relate to that. (CM 2)

Stop and watch forms.

RNs and HCAs from Facility 2 used "Stop and Watch" forms as a way of providing instant written communication when there are any signs of skin changes or concerns. This tool ensured an initial, efficient form of communication through documentation between HCA's and RNs:

"For those kinds of incidences, the first thing that they (HCAs) need to do is fill in what we call a staff watch warning tool. Then they will fill in the change in the skin condition and they will submit it to the nurse" (CM 2).

Stop and watch forms also provided documented proof that important information has been relayed between the disciplines:

The HCAs will tell you pretty quickly if there's something wrong. Because we do have a stop and watch tool. Which is a paperwork where if they notice anything wrong with a patient, it says they can just circle that and give it to the RNs. So, it's one way of documenting as well. (RN 4)

RN 4 described the stop and watch form as a written reminder when multi-tasking and working in a busy stressful environment:

"Because sometimes even if they tell the RN that this patient does have these symptoms but the RNs don't respond straight away sometimes it's forgotten and they forgot to handover. That's why we have that paperwork" (RN 4).

Stop and watch forms are documents that enabled the clinical manager to monitor what has been communicated and follow up appropriately.

"... because we have got a folder which is a stop and watch folder. That is not only the RNs watching, that is clinical leader as well" (HCA 3).

“Maybe every day it’s collected ... so the clinical leaders, if there’s nothing written on the RNs side, so they will question the RN. The HCA told you this why didn’t you do this?” (RN 4).

Monthly Quality meetings.

Monthly quality meetings were held in both facilities, although these were not specifically included in either facility’s policy. There were systems in place, which were included in both facility policies, for recording all pressure injury occurrences. These meetings were an opportunity for managers to communicate with all staff, discuss pressure injury prevalence while comparing incidences with other facilities within each organisation:

... And then we have our monthly meeting where we discuss all the incidents like how many the statistics compare to last month, how are we doing, are we improving the number of falls, are we improving our bruising, how many pressure injuries do we have. Where did we get it, did it come from hospital or did they develop here? (RN 2)

At Facility 2, all staff were expected to attend. This usually included the business manager, clinical manager, RNs, HCAs, physiotherapist and physio assistant:

Actually, they’re having a meeting every month. These are quality meetings and all staff need to go. It’s compulsory and you need to join that one, even if it’s your day off. So, you need to come and they pay you for that one and after that they just discuss where and how many pressure injuries are going on and skin tears going on and how we prevent them in the meeting, they just discuss. (HCA 4)

RN 2 highlighted quality meetings as a way of bringing all staff together to communicate and stay informed, in “The Context of Residential Aged Care” requiring twenty-four-hour nursing and HCA’s cover:

... So sometimes we work mornings, we work afternoons, we work nights. In a fortnight you can do three shifts, different. So that’s how we, all of us, if we attend the meeting, we can say what is our concern... we encourage participation and attendance so that you will be aware of what is our statistics for this one, our incidences. (RN 2)

If the number of pressure injuries had increased, these meeting were an occasion to increase awareness, reflect and make changes if required:

“So, if our facility goes high, higher than the average for all of the facilities within the organisation, then you have to do something. You put a corrective action plan through for that one” (RN 2).

“Yes, we do have monthly staff meetings, so we do discuss pressure injuries and if our numbers have increased. So that they’re aware that we need to do something about it straight away” (CM 2).

This was also seen as an opportunity for successes to be discussed and acknowledged by management allowing reflection in a positive way:

She (business manager) will discuss how many numbers of the residents currently on this stage or how many skin tears, how many you know. It feels good when you're working on that area and you have the lesser of residents... Because during quality meetings all the caregivers attend. So, the business manager always says "Good job to this wing. There are no pressure injuries during this month", and things like that. (RN 4)

These meeting were seen by HCA 4 as an opportunity to develop new skills and discuss potentially better ways of doing things. HCA 4 also found these meetings an opportunity to relay any concerns and to get advice.

These meeting are helpful, really helpful. And if we have any problems, we just can tell them in that meeting and they take action on that one. Like if any client they need like any changes, they're going to tell us. And if they need any mobility changes... and after that they tell us what we need to do next. (HCA 4)

Written assessments, care plans and progress notes.

It was agreed by all participants that clinical documentation was an essential component of pressure injury prevention, enabling continuity of care and communication between the different health care disciplines involved in the residents' care. Written assessments, care plans and documentation in the progress notes were also forms of written communication used to communicate important information. Both facility policies advocated assessment and preventative pressure injury prevention actions be documented in appropriate sections of the residents' care plans. All participants agreed that it is the responsibility of the RNs to write the incident forms, assessments and care plans and document in the notes as per each facilities requirement. The expectations around RN documentation when a resident first arrives at their facility was articulated by CM 2:

Because after the initial assessment is done, the nurses will need to do a care plan. A person-centred care plan... there is a section there for skin or pressure injuries where they will indicate if the resident has a pressure relieving mattress or if they have pressure injuries and what's the interventions. We write it down in detail. (CM 2)

At any stage, once risk is identified, it is up to the RN to firstly assess and then escalate care.

This includes filling out an incident report including a corrective action plan and then a detailed pressure injury care plan. This is described by CM 2:

Then once the nurses receive the staff stop and watch form, the nurses will assess the skin. If it's really a pressure injury stage one or what else is that? And that nurse will fill in an incident report. Then on that incident report it contains a corrective action plan, or a box for corrective action plan... So, they will need to start a pressure injury care plan... and they need to make sure that all the interventions are in place. For example, turning, application of a barrier cream if it's a stage one. Providing a detailed wound care plan if it's a stage two and above. (CM 2)

There are also expectations on how often nurses have to write in the notes depending on residents' level of care and their care needs:

... because it's part of our policy for hospital level of care, nurses do two notes in the span of 24 hours. And for rest home the nurses should do three notes in a week... But if the residents are sick, of course then they should do it every shift or as needed. (CM 2)

Turning and toileting charts were used as a visual reminder of how often and when healthcare workers last moved or toileted residents. This was used as another way to document and communicate care. These were used to streamline processes and ensure that important interventions did not get missed. The RNs role was to decide when these should be started and then to oversee these processes:

"So, the RN starts a turning chart, two hourly turning chart, two hourly toileting charts because we need to check the pad two hourly and if they are a bit wet, we need to change that one" (HCA 4).

Clinical documentation is also a way of providing tangible and clear proof of care provided. All written documentation was used in case there was an investigation into a serious event such as an undetected pressure injury, as described by CM 2:

... and a staff member reported a bruising on a resident's leg, foot. And it was not identified as a pressure injury although it was on a bony prominence. Then it got worse and it became unstageable ... so when we identified that it was already unstageable our normal process is for the staff to do an incident report then they submit it to me, then I'll do an investigation about it. (CM 2)

HCA 3 highlighted the importance of documentation as a way to convey what had been done:

Yes, so now we are told, "Write even the RNs name. Which RN did you tell... sometimes things get missed... And like this is a very big company and it will come from the head office, the regional and then the head office. Everyone has to do their part. Documentation is very important...". Like I try and do my documentation every day. (HCA 3)

She also expressed the importance of documentation if their care was ever to be questioned or investigated:

There are certain HCAs who don't do it. But I always remind them. I always tell them, write it down. Just save your back. I always tell them. Like sometimes, like fellow HCAs, I said, "Please, probably something will come up, don't ignore, just do it. Do it" (HCA 3).

Making sure that all of the clinical notes, documentation and care plans, including notes associated with pressure injury prevention, were up-to-date, completed accurately, and with sufficient information, can be very time consuming especially in the busy environment of residential aged care. This was highlighted by CM 1:

... there're just too many documents that you need to do ... Yes, from the floor. Especially my nurses. Like in the morning you have to really tell them to go for your breaks or else they won't be able to go for their breaks because they're like constantly running because they have dressings to do, this to do and that to do, and then you have to do your notes and then me as a clinical manager as well, I try to do what I can to help them but I also have my paperwork to do. (CM 1)

Education and knowledge.

Making pressure injury prevention a priority for staff by providing education is an important part of pressure injury prevention. This was reflected in both facilities' policies. Facility 1's policy advocated for staff training during orientation and twice yearly:

All direct care staff and qualified nurses will receive regular education on pressure injury prevention and management during orientation and at least two yearly thereafter. (Policy: Facility 1)

While Facility 2's policy was more general:

Education of Pressure Injury Risk Management and Skin Care will be provided for all care staff. (Policy: Facility 2)

All participants recognised the importance of education in pressure injury prevention and viewed this as a high priority. Both CMs articulated that staff education was important and reported that they ensured regular yearly mandatory training sessions occurred, which covered both prevention of pressure injuries as well as management. This was articulated by CM1:

We have our mandatory trainings four times a year. That ensures that all the staff have gone through the education process and pressure injury is one of the topics that we really are quite wanting for the staff to know about. Because given that the people that we take care of, they're quite at risk. So, we need them knowing what to do.... because like when you talk about pressure injuries, it's not just about the product that you use. There's the nutrition, there's incontinence, there is the mobility, there's a lot of factors. (CM 1)

Most of the participants articulated satisfaction with the education offered around pressure injury prevention. These education sessions were reported by participants as being comprehensive. The sessions included education about manual handling, including how to move and handle residents safely, and the correct use of equipment such as hoists and sliding sheets.

Typical responses included:

“We get the right education for everything, for every minor thing, how to care for them, how to take care of the skin and wounds, everything. We get proper education here” (RN 1).

We do have like mandatory training here for two days... Like it covers basically everything you need to know which is done once a year. And manual handling training is given here. And in our mandatory training we also have the guy who does the beds and those skills. They will come in every four months so everyone knows how the air mattress works... And any new training that comes up or even when the public hospital has some trainings, they send staff there. (HCA 1)

Although CM 1 and RN 4 felt that their education could be improved and grown by getting increased access to specialist education which was more clinically focussed:

I think if we had a regular yearly training, I should say from one external provider or support. I think if our education came from a nurse specialist or someone who’s really an expert, an expert on wound care and pressure injuries. Yes, more clinical nursing focussed education. (CM 2)

During our RN meetings we discuss pressure injuries. We usually have someone to come in and discuss pressure injuries and then we do online studies as well. In our own time... I think I need more trainings. Although we do have the basics, I think we need to have some more on prevention, early detection, giving us more information that we never heard before, something like that ... because it’s hard when you do it on your own. When you’re doing your own research. (RN 4)

Orientating and educating new staff was also seen by most participants as an important part of their role to ensure essential knowledge was shared, and new staff were well supported.

Orientation gives new staff opportunities to shadow experienced staff as well as meet with other members of the multidisciplinary team. There is also time allocated to orientate themselves with facility policy including on pressure injury prevention:

They (new staff) get a proper orientation ... Yeah, one to two weeks... They follow us so they know what is to be done, what is expected. We also let them have time for all the policy and procedures. And they will go around all departments like kitchen, caregivers, registered nurse, so they will sort of have a guide of every little thing, what they need to know. But like two weeks is quite a short time so when they come on the floor, we keep telling them, informing them. (HCA 1)

I think education, educating the staff that are caring for the residents, nurses and then all staff. Educating, giving them the necessary information that they need, to like identify it at the beginning... because if you don't know what you're looking for you can't see the issues. So, you need to have this knowledge so that you can identify, prevent them. (RN 3)

Conclusion

The first section of my findings chapter has addressed Theme One, “The Context of Residential Aged Care”. This was categorised into four subthemes, role demarcation, staffing, communication and education and knowledge. The next chapter will focus on my second theme, “Assessment and Interventions of Daily Practice”.

Chapter Five: Findings Part Two

Introduction

This chapter presents the findings from Theme Two starting with, “Assessment and Interventions of Daily Practice”. The findings are then structured using four subthemes which incorporate: assessment, risk assessment tools, intervention of daily care, and collaboration with residents and their families.

Assessment and Interventions of Daily Practice

The second theme, “Assessment and Interventions of Daily Practice” relates to the complex and multidimensional nature of providing care in relation to pressure injury prevention within the residential aged care environment. Once risk is ascertained, individualised pressure relieving interventions must then be put in place to meet the needs of every resident.

The first subtheme, assessment, captures the importance all participants placed on risk assessment and highlights the expertise of nurses and HCAs as they provide care for residents with multiple co-morbidities and high care needs. The second subtheme, risk assessment tools, focuses on the different approaches to risk assessment which can be determined by using clinical judgement and/or a more structured approach such as using risk assessment tools. The majority of the nurses recognised the benefits of using an assessment tool despite only one of the facilities having this as part of their policy.

The third subtheme captures the complex and holistic nature of care given to prevent pressure injuries. This subtheme captures the skill and high standards of care provided by all of the participants and encapsulates the daily fundamental cares provided by nurses and HCAs with the goal of reducing pressure injury incidence. The final subtheme, collaboration with residents and their families, reveals the importance all participants placed on establishing therapeutic relationships with both residents and their families.

Assessment.

Assessment is the vital first step in the prevention of pressure injuries. This includes the identification of risk factors. The significance of each risk factor guides all decisions around implementation of appropriate pressure relieving interventions. Risk factor indicators can include older age, skin and health status, activity and mobility limitations, nutrition indicators, moisture and general physical and mental health status. The importance of assessment and subsequent interventions were integrated throughout both facility policies. Facility 1's policy was much more comprehensive and had integrated the ACC SSKIN bundle with interventions. All participants articulated the importance of ongoing individual risk assessment. CM 1 discussed the importance of starting the assessment process even before admission:

.... it's sort of common knowledge already, so like for an example, if we get an admission and we ask, "What is the person like?", and then the hospital would say, "Immobile", so we think ahead, "Ok let's put an air mattress in, let's do this and do that", and then the other interventions will just follow once we meet the resident. (CM 1)

RN 1 highlighted the importance of a full physical examination and skin assessment on admission to help establish residents' immediate vulnerabilities and pressure injury risk:

At the time of admission, we do the skin assessment, whole skin assessment. A physical examination we do. So, then we will get to know if they have any pressure injuries or skin tears or redness on the skin, skin issues we come to know. So that's very helpful. (RN 1)

With increasing high care needs and complex health issues the frail older adults can have multisystemic factors which increase the risk of pressure injuries. CM 1 described two residents, each with multifactorial issues which included immobility, malnutrition, fragile skin, incontinence, contractures, dementia and Parkinson's disease:

Immobility, malnutrition, some of them have very fragile skin as well. So some of them, even if like you're just holding on the skin, on the hand, they would have a skin tear... this patient had come in already with a pressure injury in the sacral area, was incontinent, was bedridden, had got contractures and was very difficult to give medications as well...

We do have one resident here who's got a pressure injury on the heel, on the outer heel, on the left leg. She's got dementia, she's got Parkinson's, so she's got everything. Although she's already on an air mattress but given that she's got cognitive issues she's

declined cares and with her Parkinson's worsening as well it's very challenging to a point that they deteriorate. (CM 1)

Pain can be a first sign of skin breakdown and pressure injuries. When residents are not able to communicate pain verbally, nurses and HCAs must monitor for any behaviours that may indicate discomfort. RN 4 described the challenges of looking after a woman with dementia who could not verbalise her needs and wishes:

She doesn't understand English and she doesn't talk much, but she can say yes or no. Her facial expression usually is blank. So, you can't actually tell if she's in pain, what is happening to her. You can't ask her how are you or anything like that. So, we use non-verbal clues. They usually do some grimace or just hold which part is painful. (RN 4)

RN 2 described the process of assessing pressure injury risk daily and adjusting interventions to meet the changing needs of one particular resident. As the resident's overall frailty increased, an air mattress previously used periodically to reduce the risk of pressure injuries, became a permanent intervention:

She used to be mobile, and then she had a fall, went to hospital. She recovered which was good initially. When she was still recovering, we put in the air mattress and then she started walking again, we took out the air mattress. And then she had an infection which put her to bed for quite a long time. That's when we put the air mattress in again. Until now, after that, about I think three weeks of infection, series of infections, she lost her interest in mobilising. So she's more of like bed and chair rest now. Because of the chest infection we put the air mattress in until she recovered. But then she hasn't recovered. (RN 2)

Risk assessment tools.

Most of the nurses referred to a range of assessment tools as a way of providing a structured approach to risk assessment. Clinical judgement by nurses was also considered important in the prevention of pressure injuries. Both facilities use the International Resident Assessment Instrument for Long-Term Care Facilities (interRAI-LTCF), which is a comprehensive clinical assessment which focuses on a resident's function. Facility 1 also used the Braden Assessment tool for residents on admission. The Braden scale is made up of six subscales which measure risk components including sensory perception, moisture, activity, mobility, nutrition, friction and shear. This is incorporated into Facility 1's pressure injury prevention and management policy:

Risk assessments will be repeated for all residents six monthly using InterRAI-LTCF, or when there has been a significant change in status where 2 or more areas have changed. In addition to this the paper-based Braden assessment should be completed at any time if there are any concerns related to skin integrity or change in clinical condition (Policy: Facility 1).

CM 1 expects nurses to incorporate the Braden Scale with a full physical skin assessment when admitting a new resident to the facility:

We do the Braden and we do a physical skin assessment, just looking for bruising, discolourations, or anything... And then we do have the Braden as well that we do every admission just to see where they're at. Where their pressure risk is. Apart from that, if a person deteriorates or if we see if the caregivers report or there's some skin colour changes then the RNs do a skin assessment. (CM 1)

RN 2 reported using the Braden Risk Assessment score as a tool to help predict individual risk.

The subscales also helped guide her approach with the implementation of an individualised management plans:

Because when we get the score, we can assess the dependency of that particular resident... Yes, we do find the Braden Scale useful. Because once you do the assessment, it will then guide you in what interventions you need to put in place like regular turning. After you put that one, ok you have to put the air mattress on, you have to ask how the physio is going with the mobility exercises or how they are doing trying to walk them. And then you also have to consider referring to the dietician for supplementary. (RN 2)

Facility 2 did not incorporate a risk assessment tool into their policy but used the interRAI-LTCF as their main assessment tool:

An interRAI assessment is completed for each resident on admission and at least six monthly thereafter or when the resident's health status changes.

Triggered interRAI Clinical Assessment Protocols (CAPS) and relevant interventions are to be added to the Person-Centred Care Plan (Policy: Facility 2).

In Facility 2, the interRAI-LTCF is completed on admission and every six months thereafter.

The interRAI-LTCF is also expected to be updated if there are any significant changes in the resident's condition. Despite not using a risk assessment tool in Facility 2, some of the nurses reported perceived benefits of using one. CM 2 described the potential benefits of using a risk assessment tool alongside the interRAI-LTCF from his previous experience with its use. He also found the use of sub-scores useful in directing targeted interventions:

The risk assessment tool would still be better but the interRAI should still be there because it's a whole assessment... When using a Braden you'll able to identify what are

the causes that made the score high. So that you can focus on those causes and make sure, so that for example, if the patient is malnourished and you can do something about it, the nutrition, because you know the cause. Why the score went high or why is the risk high. (CM 2)

RN 4 articulated her perspective on the interRAI-LTCF in relation to pressure injury risk assessment. She noted the more generalised and time-consuming nature of the interRAI-LTCF:

The interRAI is actually, it's not a proper assessment for pressure injury although it will give you a hint that this patient will be, might be at risk for pressure injury. But it doesn't say anything much at all... and you need to do it in between your work and you can't finish it in one sitting especially if you're busy. (RN 2)

Although it is not policy to use a risk assessment tool in Facility 2, RN 4 chooses to use the Waterlow, which is a similar assessment tool, as a useful way of assessing resident risk:

We actually completed a course online about pressure injury prevention and they discussed, how to use the tool... But we don't use it here (the Waterlow), like we don't complete it and submit it. Usually, we just complete the pressure injury care plan, something like that. And then we base it on our interRAI assessment... But sometimes personally I check on the form and then assess the patients who is high risk or not. (RN 4)

RN 4 describes the benefits of using the Waterlow risk assessment tool:

"Because it covers everything from head to toe. Age, malnutrition, although the nutrition part is kind of like, it's hard to predict. Incontinence and everything so yes, I think it's better" (RN 4).

Interventions of daily care

Regular skin inspection, mobilisation, managing incontinence and providing adequate nutrition and hydration are the fundamental daily cares in reducing pressure injury incidence. Providing holistic care that meets the needs of each unique individual is required. RN 2 discussed a resident who required multiple pressure relieving interventions to reduce her risk of developing a pressure injury:

Yeah she went to hospital and lost her confidence walking. She's very, very afraid now... she's 102 years. And because of her dementia as well she doesn't eat as much so we have consulted the dietician. We have on-going physiotherapy input who is still trying to do exercises with her... she's already on an air mattress when she is in bed. We always have to have the cushion when she's on the chair. We do try and give her supplements just to increase her weight... and she's very bony too... There's everything here. (RN 2)

Skin.

Vulnerable skin is more prone to damage and RNs and HCAs must be able to recognise skin changes with a particular focus on bony prominences where pressure injuries are more likely to occur. The importance of skin assessment is included in both of the facilities policies. RN 2 and HCA 3 spoke about skin inspection as an intervention of daily practice:

“Like before you get them off the bed and you put them to bed at night when you do the cares and just quickly check the heels because that’s where mostly the pressure injuries are” (RN 2).

“Yes, like as soon as we start our cares, we assess from head to toe doing the cares, our eyes are always open to see everywhere pressure sores can be anywhere. Ears, elbows, knees, sacrum, hips” (HCA 3).

Reddened areas that do not blanch can be one of the first signs of skin damage due to pressure.

HCA 4 described checking for blanching erythema:

“But we know like when we press that area, if it stays a long time the same colour, that is a pressure injury to us” (HCA 4).

Dry, fragile skin is more prone to damage from pressure, friction and shearing. CM 2 discussed the importance of daily moisturising:

“... we use daily moisturisers. Just to make sure that their skin is well hydrated” (CM 1).

When skin is vulnerable or there are early signs of damage, prophylactic multi-layer foam dressings can be applied over pressure points to protect bony prominences, help re-distribute pressure and reduce shearing and friction. Facility 2 had appropriate use of foam dressings included in their pressure injury policy. RN 2 described a situation when she used a multilayer foam dressing:

... if there’s a pressure injury grade one for example and especially if it’s on the bony prominence, especially on the lumbar and sacrum, that’s what we use as a protective dressing. And then we check it daily, that’s what we usually put in our care plan, our wound management plan. (RN 2)

When pressure injuries did occur, some of the nurses reported that expertise from wound care experts from their local District Health Boards was useful and supportive:

“Yes. Like we had a resident whose wound was really not healing and all these things so I was constantly giving them pictures, asking for advice” (CM 1).

We had a very challenging case and we used the outside resource, the Community Wound Specialist. We have consulted with them... They said you're doing well and your management plan is good but I think you can try this one, so we tried it for two weeks and they had said get back to us. So, we told them and then they said ok go back to the one you're doing before. It was very reassuring. (RN 2)

Due to age-related skin changes, incontinence can predispose residents to skin breakdown and maceration, which increases pressure injury risk. Keeping skin dry and clean with regular toileting and access to good quality continence products and barrier creams are important components of reducing incontinence associated dermatitis and subsequent pressure injuries.

Continence management is incorporated into Facility 1's policy unlike Facility 2. All participants expressed knowledge around continence management in the prevention of pressure injuries. CM 2 describes everyday interventions which includes incontinence products and pad rounds to protect skin from moisture:

"We use incontinence pads, different pads as per the needs of the resident, depending on the type of incontinence. Sometimes they (the residents) do toilet themselves... and we use regular toileting... And the pad change, the pad rounds we have daytime and night-time as well" (CM 1).

Avoiding alkaline soaps and using barrier creams helps to protect fragile skin:

"We do have barrier creams that the staff can use. And at the moment instead of using fatty creams and other moisturiser we do have a molicare skin lotion that we use and the body wash lotion... PH appropriate soap. And those are for all the residents" (CM 2).

RN 4 consulted with the GP and considered other causes when presumed incontinence associated dermatitis did not improve:

And then that includes checking the skin daily making sure it's clean and dry. We usually ask the caregivers to do it... And we apply some creams... And if it gets worse, we usually ask the doctor to chart some antifungal cream, or something if it's infected and then we take a swab and send it to lab. So that's always the process. (RN 4)

HCA 3 reported a structured approach consisting of two hourly turning, toileting and pad checks as a way of providing regular skin hygiene:

We have two hourly toileting charts. And then every two hours we go and check. If they are in bed, while turning we check the pads. So, it all depends on the indicator on the pad how full it is but if it's faeces we change it straight away. If it's urine we just go according to the indicator. And for the clients that are on recliners, two hourly we take them to the room and then we check the same, the indicators and at that time they are released off the pressures. (HCA 3)

Mobility.

Frail older adults with limited mobility and activity are at risk of developing pressure injuries.

Facility 1 had a very comprehensive policy around support surfaces and repositioning based on skin assessment. Facility 2's policy consisted of just one sentence: ensure appropriate mattress and pressure relieving devices are in place. Neither policy referred to the importance of keeping residents active but all participants articulated the importance of keeping residents as mobile as possible. Both facilities had strategies and events in place to encourage participation and mobility:

We have an exercise programme during the morning. Where residents listen to music and they do some movements... someone comes in for music, for dancing, some kids or primary school children comes to present or to socialise with the elderly. And we also have walking groups where they walk around the facility. They also have band outings. (CM 2)

We just encourage them to walk. If the person is mobile, he's walking, so we just take them to the dining room, to the toilet and after that, like in the morning, we have activity there with the OT, so we just take them there. (HCA 4)

It is important to work with residents to help them move to maintain strength and avoid deconditioning which can increase pressure injury risk. HCA 3 talked about strategies she has for encouraging independence and physical activity:

Yes, it's a goal. We want to keep them mobile and independent as much as they can. Like we encourage them first like in the morning, for showering, we tell them to brush their teeth. If they can wash their face. We can do the hair, just, maybe like washing the hair. We do it, how much they can reach, we tell them to do it. We tell them to do their private parts as much as they can but when they don't or can't do it, we do it. But we encourage and then for walking and dressing the same. We encourage. If they can't then we do it. Even that brushing of the hair and putting the makeup on. Shaving, we said, you do it, I'm checking, I'm looking. And if they can't then we finish it off. And feeding we encourage. Sometimes it's difficult but I sit with them. (HCA 3)

Best practice suggests long periods of time sitting in chairs should be avoided as the continued application of pressure can cause damage to the skin, resulting in a pressure injury. All participants recognised the importance of mobilisation and encouraged their residents to walk as often as possible. Typical responses were:

"We don't really go to the hoist straight away. So a few steps is good enough for us" (CM 1).

“For patients who are not walking much, we will try walking them to the toilet. So, it promotes their independence. Like they can walk. Even where possible we can walk, we will try to walk even from the chair to bed, we’ll try to walk. With two people or one person” (HCA 1).

“Yes, but as much as possible we encourage them to walk and we promote independence all the time... Yeah toileting, getting up on a chair... Even like for a short distance” (RN 4).

HCA 1 described a novel way to get her residents to exercise their arms:

... so we’ll encourage them ... A perfect example I would say, when I was giving them a cup of tea and I asked in the morning team at 10 o’clock, who wants a cup of tea? Whoever wants a cup of tea raise your hands and whoever’s going to keep it up for the longest I’ll give them the tea first. So it is sort of like exercise it is. (HCA 1)

Participants described the importance of regular position changes for bed-bound residents. HCA

4 described a resident who had a pressure injury that required three people for turning:

“We have one client before who’s got really bad pressure injury. On the bottom and after that we need to turn with three persons. Like at night, we have two staff on but we need to take an RN as well with us... And she’s better now, no pressure injury” (HCA 4).

Pain can sometimes be a barrier to providing pressure injury prevention interventions. RN 1

described the challenges she faced when a resident found position changes painful. She found offering empathy, encouragement and painkillers before turns can help:

... because it was like it’s so painful for her and she doesn’t want touch on her body. Yeah. But sometimes we encourage them, we have to do this, we have to. ... So we can offer the painkillers just to make them comfortable and ask them to turn ... Yeah sometimes, it’s very hard to convince them. What we are going to do and what is happening with them. (RN 1)

CM 1 reported challenges when residents’ or families’ wishes do not support pressure-relieving interventions, which can increase the risk of pressure injuries developing. Small adjustments instead of full turns are sometimes negotiated. CM 1 discussed this challenge:

Well, I guess one challenge is if the resident or the family is not cooperative. That’s really the major for me, the major deterrent in ensuring that the interventions will have an effect to their not developing or to prevent the pressure injury from deteriorating... Even slight, not necessarily 90 degree turns. They are just repositioning. Sometimes, even if they say, “Ok you can reposition me” but the next thing you know they are already again on their preferred position. (CM 1)

Both facilities utilised the expertise of a physiotherapist and physiotherapy assistant to develop resident-exercise programmes and encourage mobility:

Yes, I would say it's very, very important that each of us do our part in preventing the occurrence of pressure injuries. For example, our physical therapy and physiotherapy assistant they do the walking exercise. (RN 1)

She (physiotherapist) helps with the mobility. She keeps updated with mobility and the mobility chart in the room. She keeps on changing that as required. And the physio comes like almost every day. And sometimes when she's not there then we help with the physio assistant with walking. (HCA 3)

Despite both facilities using physiotherapists and physio-assistants to encourage resident mobility and exercises, this was not included in either facility policy. In Facility 2 it was also up to the physiotherapist to assess and order air mattresses and pressure relieving devices. CM 2 described this process:

Our physiotherapy assistant is the one who is looking after all the equipment. Physiotherapy to order or give us some you know proper fitting ... We actually plan, we ask them, "Look this resident is high risk, I think we need some air mattress, can you come in, assess if they need air mattress?". And sometimes they usually agree and then put some air mattress in... Or sometimes as well they will say, "Oh, this one needs some booties" (CM 2).

Nutrition and hydration.

All participants were aware of the importance of good nutrition and hydration for skin health for the prevention of pressure injuries. This was also reflected in both facility policies which specified that nutrition status be assessed using the InterRAI-LTCF assessment tool. RN 2 reported getting the kitchen staff involved to provide an individualised menu for a resident with a poor appetite:

When we notice that our residents don't like the regular meals, we do ask our kitchen cook to go and talk to them and offer them alternative food. What they prefer to eat. We have a resident who's also like that who doesn't like to eat. She said, she's not doing any work during the day so she doesn't think she needs to eat. She just gets a cup of coffee in the morning and then lunchtime just picks on the fruit. But when the kitchen staff spoke to her, she said, "Oh can I have some sandwiches with cheese and tomatoes and some bacon so that's what the kitchen prepares for her" (RN 2).

Eating a well-balanced diet and drinking enough water are very important to maintain healthy skin and reduce pressure injury risk. Nutritional problems need to be identified early on as to enable appropriate intervention. Dieticians provide individualised, specialised information for dietary good health. Dietician involvement was incorporated in Facility 1's policy but not in Facility 2's. A majority of the nurses articulated the importance of nutritional care and referrals to dieticians were made in both facilities:

“Our dietician visits once a month. They give us advice, they can do, recommend supplements or prescribe it as well ... We also refer to the dietician straight away. With the purpose of healing, wound healing” (CM 1).

... we do involve the dietician, the dietician says ok give some supplementary drinks, add some of this on the food. If they still don't eat their food, we still have to cater to what they want to eat. At least they're eating something... We do a monthly weight monitoring. If they lose like 5% then we put monitor their weight increase and refer them to the dietician as well. (RN 2)

Appetite and food intake often decreases as a person ages. Culture can also influence food preferences. Families were encouraged to bring in food to the tastes of the individual:

“... but the family brings in food because the resident couldn't, doesn't eat as much as when the son is the one bringing in the food, and he was losing weight” (RN 3).

Low mood can also impact significantly on residents' appetite, sociability and mobility consequently increasing pressure injury risk. RN 2 described strategies she put in place when nursing a woman who was depressed after her daughter went on holiday for three months:

One daughter went for a holiday for three months. So, after she went away the mother stopped eating ... We encouraged her to eat but she didn't have an appetite. “I'm not doing anything so I don't think I need to eat”. That sort of thing. So, we have checked her, doctor has ordered all the tests to see if there's something wrong with her. If she's having UTI, if she's having anything with her blood... The GP added some mood stabilisers ... She's just sad and then we involved the dietician. We asked our kitchen cook to come and talk to her and offer her what she would like to eat just so they can prepare it for her. But she just doesn't want to eat. It's quite difficult. Until the daughter came back. (RN 2)

Collaboration with residents and their families.

The importance of building therapeutic relationships with the residents and their families was recognised by all of the staff. Residents and families must make shared and informed decisions and have an understanding of the reasons behind pressure relieving interventions for better health outcomes.

Sometimes pressure relieving interventions conflict with residents perceived wants and needs, increasing pressure injury risk substantially. This has been acknowledged in Facility 1's pressure injury prevention policy which advocates discussing the risks and benefits of interventions with the resident and family/whānau. This is advocated by CM 1:

“But what I usually remind my nurses is, as long as you follow the protocol you try and encourage, you involve the family in it, that's the only thing that we can do. I mean we

cannot force the person to turn if he doesn't want to. He's got his rights. As long as, I keep on reiterating, as long as the family is well informed then we've done what we can" (CM 1).

RN 4 acknowledged the perspective of residents and families:

"No one wants to be turned every two hours... Imagine how they feel throughout the day and night turning every two hours... So, acceptance from the patient, acceptance from the family restricts us... so we usually don't do the full turn ... just adjust their position" (RN 4).

Shared decision making requires nurses to engage with families. RN 1 described the importance of involving families so there are no surprises if pressure injuries occur despite intervention as well as getting agreement on outcomes and goals:

Because it's important to keep an open communication with the family. So that they won't be surprised if something happens... And then we also try to involve them in the care, like encourage them to talk to their parents or their family about the importance of making turns and if the family says ok that's fine yeah. When he's comfortable, whatever makes him comfortable, that's fine. At least they know the risk, they know. We have already explained to them the reason. (RN 1)

CM 2 talked about interactions with the resident to help them take ownership of their risk of pressure injuries:

If they do not have cognitive issues, we do talk to the resident about the risks. Especially explain to them if they are higher risk or if they have a certain amount of risk, like if they need to be turned or they need to have a good balance of nutrition, then we need to explain to them the purpose of those. That they will be able to understand why are we doing these kinds of interventions for them. (CM 2)

Residents can have clinical complexities at the end stages of life which increase the risk of skin failure and pressure injury development. RN 1 discussed conversations she has had with families, offering information and giving the family reasons for interventions:

We have to explain what happened and what we have done for them ... because once we know that the resident is declining, we have to communicate with them that she's not cooperating with us for the cares, she's not cooperating with eating, or drinking. So, a pressure injury might develop. So, we must communicate with them... if we found any redness, we just call the family over the phone and we let them know that we are starting this wound plan and implementing interventions. The intervention we'll discuss with them. (RN 1)

Resident and family cultural beliefs and concerns must be addressed to provide holistic care in the prevention of pressure injuries. RN 2 and HCA 3 described how they engage with families and encouraged them to get involved:

They might not be here every day (the family), but at least when they come, if they can join our care staff, when we do the cares, they can see for themselves... Yeah, so then you get them involved in the care so they can actually see the challenges ... It's sort of like to encourage the resident with the family. Encouraging them but at the same time showing the family the situation. (RN 2)

We encourage them (families). We ask them if they are there, we ask them, would you like to come and help us? Some says yes, some just want to stand and see what we are doing. We give all the opportunities for them to help us. They want to see. Some of them are very particular. They want to see we are doing cares well or not, so we allow them in. (HCA 3)

Conclusion

This chapter described the findings from theme two, “Assessment and Interventions of Daily Practice”. Four sub-themes were presented. These sub-themes included: assessment, risk assessment tools, interventions of daily care and then collaboration with residents and their families. This completes my findings chapters.

Chapter Four and Five presented the findings from participant interviews which included CNs, RNs and HCAs working within residential aged care who provide pressure injury prevention interventions as part of their daily practice. Facility protocols around the prevention of pressure injuries were also incorporated into the findings. The two dominant themes, “The Context of Residential Aged Care” and “Interventions of Daily Practice” have captured the complexity and multidimensional aspects of working within residential aged care with residents with high care needs. The next chapter critically analysis and discusses the findings in context of the literature while addressing the research question.

Chapter Six: Discussion

Introduction

This study set out to explore how pressure injury prevention is managed in residential aged care using an exploratory case study methodology. A single embedded case study was used which included two private residential aged care facilities. The embedded nature of the case drew on data from interviews with CMs, RNs and HCAs, as well as from relevant policies and guidelines. Data were collected and analysed using the methods proposed by Robert Yin. Findings were presented in Chapters Four and Five. This final chapter begins with a short summary of the themes that were identified: “The Context of Residential Aged Care” and “Assessment and Interventions of Daily Practice”, and their subthemes. In this chapter I will continue on to my discussion which aims to answer the research question in context of the literature: How are pressure injuries managed in residential aged care? Finally, this chapter will close with implications for future research and identify the limitations of this study and a concluding statement.

Summary of Findings

The participants of this study were CMs, RNs and HCAs who worked in residential aged care and provided pressure injury prevention interventions as part of their daily practice. The first theme identified from the data, “The Context of Residential Aged Care”, had four subthemes: role demarcation, staffing, communication and education and knowledge.

The first theme, “The Context of Residential Aged Care”, encompassed the culture that contributes to prevention of pressure injuries in residential aged care as CMs, RNs and HCAs work together to prevent pressure injuries. This included distinct role differentiation which could impact on RNs and HCAs autonomy, contributing to a delay between identification of risk and delivery of preventative interventions getting delivered in a timely manner. The role of all HCAs was to provide daily personal cares and feedback to the registered nurses any signs of skin breakdown or concerns or changes in residents’ general condition. It was the RNs

responsibility to provide support, guidance and delegation of care to the HCAs while overall responsibility always remained with the RN. It was also seen as part of the RNs role to ensure HCAs have the obligatory knowledge and skills to provide delegated care.

Participants also expressed concerns about reduced staffing, high staff turnover and working with inexperienced bureau staff as a barrier to providing pressure relieving interventions. Also highlighted in the first theme was the importance participants placed on formal and informal communication, teamwork and trust between CMs, RNs and HCAs. Participants recognised that when information was not relayed, escalation of care could be slowed. Education and knowledge were valued by all of the participants which included the importance of educating and orientating new staff.

The second theme, “Assessment and Interventions of Daily Practice”, also had four subthemes: assessment, risk assessment tools, interventions of daily care and collaboration with residents and their families. All of the participants recognised the importance of ongoing individual risk assessment and were conscious of the complex and multifactorial factors which increase pressure injury risk. Nurses referred to a range of validated assessment tools while recognising the importance of clinical judgement. All of the participants described interventions to provide holistic, quality care to frail older adults with multisystemic co-morbidities and high dependency. Participants all placed value on building therapeutic relationships with residents and families and saw value in shared decision making and getting agreement on shared outcomes and goals.

In the following section the findings of this study will be discussed in context of the literature.

The research question will be addressed: how are pressure injuries managed in residential aged care?

Professional Roles

It is well established that a skilled and knowledgeable workforce is vital to meet the complex and high care needs of residents in the prevention of pressure injuries (Moore & Price, 2004; Tubaishat et al., 2013). Unregulated HCAs played an essential role in the prevention of pressure

injuries and their knowledge and skills impact significantly on outcomes for all residents. In NZ, HCAs work under the supervision of RNs. Supervision and delegation are part of the Nursing Council of New Zealand competencies for RNs and RN standards are set by the Nursing Council of NZ (Nursing Council of NZ, 2011). Carpenter and Thompson (2008) concluded from their study of three large residential aged care facilities in the United States, that HCAs “demonstrated flexibility in their management of numerous interruptions, critical thinking as they constantly reprioritised tasks, and discernment regarding residents’ individual needs” (p.29). The results of the present study support Carpenter and Thompson’s finding. HCAs were able to clearly articulate knowledge about pressure injury assessment and describe prevention interventions, including requirements around pressure relieving equipment.

Participants in this study felt that timely access to organisational resources is important to assist pressure injury prevention. Previous research has demonstrated that access to adequate equipment supports clinicians to deliver best practice (Anand et al., 2014; Latimer et al., 2014; Tayyib et al., 2016). Getting the right equipment, at the right time, is an important part of pressure injury prevention (Beeckmann et al., 2019; EPUAP, NPIAP & PPIA., 2019). However, it takes time to make decisions and order equipment. In this study, professional demarcations limited the autonomy of HCAs, and this potentially exacerbated delays in implementing pressure injury prevention. Similarly, RNs needing to consult with a physiotherapist before ordering equipment also caused delays. Although some RNs and HCAs reported valuing the expertise the physiotherapist offered, the delay to get equipment, including out of normal working hours, was a barrier to getting equipment in a timely manner.

To address the assessment-to-intervention gap, A Quality Improvement Programme to Reduce Pressure Injuries in NZ (2015), called for a more streamline approach to clinical practice. They recommended authority for caregivers to order equipment based on a shortened, uncomplicated prevention tool they called “assessment at a glance” (p. 41). Caregivers assess risk by using three visually casual factors such as mobility, age and continence. With responsibility of ordering equipment sitting with the receiving carer, this would remove the need for HCAs and RNs to go through third-party approval, ensuring that residents have the right equipment at the

right time. More comprehensive assessments could be carried out at a later stage by the RN (or physiotherapist) consistent with the individual needs of each resident.

Staffing

The increasingly stressful working environment of residential aged care was also a dominant finding across the data set. It is important to note that pressure injury prevention is just one aspect of care to ensure resident safety. All of the participants rated pressure injury prevention as being very important, but reported a number of challenges including complexity of care with increased RN responsibilities, high volume of paperwork, high workloads, numerous interruptions as well as high staff turnover, reduced staffing levels and working with inexperienced bureau staff. These contextual factors are recognised by the Accident Compensation Commission (ACC). In the ACC foundation document, *Guiding Principles for Pressure Injury Prevention and Management in New Zealand (2017)*, the authors have advocated for policy which includes appropriate staffing levels and skill mix to provide best practice (Health Quality & Safety Commission, 2017). In this study, adequate staffing levels in context of pressure injury prevention was not included or integrated into either facility policy. Overall, participants appeared powerless and resigned to these difficult working conditions.

Despite demanding working conditions, all of the participants in this study placed high value on pressure injury prevention. Studies have reported both positive and negative attitudes of healthcare workers in pressure injury prevention (Beeckman et al., 2011; Kaddourah, Abu-Shaheen, & Al-Tannir, 2016; Moore & Price, 2004; Tubaishat et al., 2013). Positive attitudes of nurses towards pressure injuries have been correlated with higher motivation and application of adequate prevention (Beeckman et al., 2011). Nevertheless, despite positive attitudes to enhance practice in relation to pressure injury prevention, this is not enough to advance practice when there are contributing barriers, such as insufficient time and lack of education, which are outside the control of individual healthcare workers (Moore & Price, 2004; Tubaishat et al., 2013).

The relationship between quality indicators, including the relationship between pressure injury incidence and staffing levels, has been well studied and reported (Backhaus et al., 2014; White

et al., 2020; Whitehead et al., 2015). In addition, numerous NZ studies have highlighted increased co-morbidities, dependency, complexity and higher care needs for those living in residential aged care than previous years. (Broad et al, 2015; Boyd et al., 2009; Carryer et al., 2017; Connolly et al., 2014; Frey et al., 2017; Weststrate & Adams, 2013). Frailty increases susceptibility to pressure injury development (Jaul & Calderon-Margalit, 2013). Studies have also shown a direct link between pressure injury prevention and increased nursing time per resident (Backhaus et al, 2014; Dellefield et al, 2015; White et al., 2020). Staffing levels need to increase, not only to meet the needs of the rising medical complexity of residents in aged care, but also to ensure safe nursing care is provided. This is particularly relevant for pressure injury prevention. For example, important interventions, such as repositioning, are difficult to carry out unaided and can be time consuming. With increasing workloads and staff shortages, pressure injury prevention may not be prioritised (Moore & Price, 2004). In addition, due to staffing shortages, working with inexperienced bureau staff was also reported by the majority of the participants in this study. A study by Castle et al., (2008) found that high use of bureau staff in residential aged care was associated with a significant reduction in quality. According to a New Zealand Nursing Organisation (NZNO) research report in 2017, most NZ residential aged care staffing levels fall below internationally recommended benchmarks. The NZNO is calling for a review of staffing and skill mix in aged care and advocate for a pilot project to test the use of mandatory staffing levels (New Zealand Nurses Organisation, 2017).

Correspondingly, some participants also reported frustration over high staff turnover due to RNs leaving to work for higher pay at District Health Boards. Pay equity needs to be addressed as well as innovative ways of increasing and attracting RNs into the aged care sector. New Zealand Aged Care Association (NZACA) advocate for a multi-interventional approach which supports initiatives in aged care to attract and reduce staff shortages. A recent NZACA report included recommendations such as initiatives which provide funding incentives to support persons with undergraduate degrees to become registered nurses. This report also suggested increased funding for preceptors in aged care to help support undergraduate and postgraduate nursing students. They also promote anti-stigma campaigns, nurse practitioner funding, and focused

professional development and recognition programmes in aged care (Hughes, 2020).

Furthermore, regulation of standardised and mandatory education and qualifications for HCAs has been debated internationally and in NZ for many years. Due to the increased complexity and responsibilities of the RN role in residential aged care, and with heavy workloads and increasing documentation, NZ academics, Shannon and McKenzie-Green (2016), advocated for ongoing discussions and reviewing of nurses and HCA roles and scopes of practice with the goal of improving quality of care for all residents. Our older adults deserve protection from preventable pressure injuries and other quality indicators. More research and funding are required to find innovative ways of increasing and retaining staff in residential aged care while turning attention to potential factors which may influence the quality of resident care including pressure injury prevention.

Additionally, an American study by White et al. (2019) showed how nursing home environment can influence practice in the prevention of pressure injuries. This study advocated, in addition to having adequate staffing and resources, also having a working culture which supported and valued its nurses and provided sound leadership, continuing education, preceptor and mentoring programmes, engagement of staff in quality improvements and problem solving, positive communication, recognition of work well done and formal processes for responding to employee concerns as well as a no blame culture (White et al., 2020). With better RN work environments, not only did they have less pressure injuries and hospitalisations but also increased job satisfaction, care quality and job retention. Safe staffing levels and positive working environments will overall improve the quality and safety of care and reduce the numbers of pressure injuries in residential aged care. This should be reflected in facility policies.

Leadership, Teamwork and Communication

Effective leadership and teamwork have been reported as facilitators in the prevention of pressure injuries (Dellefield & Magnabosco, 2014; Hartmann et al., 2016). The importance of good leadership, communication, trust and teamwork, as well as supportive team structures

were consistently reported as crucial in the prevention of pressure injuries, by all of the participants. Communication reported by participants in this study was both informal and formal. Informal verbal communication happened between staff during their shifts as they attended to their daily duties while more formal communication happened during planned handovers, weekly and monthly clinical meetings and communication through general documentation. Novel strategies had been put in place to help facilitate communication including stop and watch forms, toolbox talks and the use of handover books. Clinical documentation was also seen as a way to provide proof of care provided.

High functioning teamwork, which fosters dynamic and effective relationships between RNs and HCAs has been shown to improve patient outcomes including pressure injury prevention (Campbell et al., 2020). Unified relationships between RNs and HCAs reduce the risk of missed interventions. Campbell et al. (2020) calls for more interventional studies which link improved teamwork, delegation and communication between RNs and HCAs, with patient outcomes such as reduced pressure injuries. In addition, Dellefield and Magnabosco (2014) found that positive performance feedback given by nurse managers could potentially improve caregivers' level of motivation in the area of pressure injury prevention. Furthermore, a study by Hartmann et al. (2016) found having clear organisational goals in relation to pressure injury prevention with leadership being actively involved in formal quality improvements, enhanced performance. Quality improvements that involved and included all staff, including HCAs, were also catalysts to success in the prevention of pressure injuries. Furthermore, having leadership support with the procurement of supplies and equipment was also a facilitator to pressure injury prevention (Hartmann et al., 2016).

Participants in this study reported taking part in monthly clinical meetings where statistics were discussed and compared. These meetings included RNs, HCAs, management and others from the multidisciplinary team. A majority of the participants reported finding these meetings useful as they were an opportunity to bring staff together from different shifts, reflect on care, take pride in successes, and discuss ways of improvement when required. Understanding and discussing prevalence rates with caregivers has been shown to raise awareness of the issue and

the likelihood that staff will consider pressure injury prevention important (Moore & Price, 2004; Tubaishat et al., 2013). Gathering and reflection of data helps healthcare workers to establish pressure injury prevalence and allows reflection on practice and goals (Moore & Price, 2004). Although reporting systems were in place, and included in pressure injury prevention and management policy for both facilities, monthly quality meetings were not.

All of the participants not only spoke of the importance of communication, but the frustration of competing demands which sometimes caused communication breakdown. Finding time to communicate while multi-tasking and juggling jobs with compounding distractions, impacted on RN and HCAs ability to provide pressure injury prevention interventions. Some participants expressed dissatisfaction and frustration when communication breakdown appeared to contribute to skin breakdown and one HCA expressed feelings of being blamed when unintentional errors occurred. A study by Alahmadi (2010) highlighted the importance of teamwork and communication which included a commitment to learning from mistakes and seeing errors as an opportunity for learning and improvement. Focusing blame on individual workers potentially omits system weaknesses and limits the ability to examine them and prevent them from happening again.

Education and Knowledge

All of the participants in this study rated knowledge and education on pressure injury prevention as being considerably important. This also included supporting new staff. Healthcare workers with sound knowledge base have been shown to make well informed, better clinical decisions (Moore & Price, 2004; Tubaishat et al., 2013). There is some evidence to suggest that HCAs with higher levels of education attainment provide greater levels of quality care and experience heightened levels of job satisfaction (Shannon & McKenzie-Green, 2016). In the present case study, the majority of the participants felt their education requirements were being met, although some felt their education could be improved by getting access to more specialised education from sources outside the organisation. Several studies have found that interventions that employ multiple strategies for pressure injury prevention were the most effective (Edwards

et al., 2017; Hada et al., 2018; Murray, 2012; Santamaria et al., 2009). The strategies making up these multifaceted interventions included: individual and group education tailored to each discipline, skin champions for skin integrity, linking nurses with others within multidisciplinary teams, ongoing audits and feedback, and ideas which encourage open and focused communication. Policy that incorporates staff access to quality pressure prevention education is imperative.

Risk Assessment

All of the participants recognised risk assessment as the necessary first step in preventing pressure injuries. Risk assessment aims to identify the susceptibility of individuals to pressure injury development (EPUAP, NPIAP & PPPIA., 2019). The benefits and limitations of validated risk assessment tools (such as the Waterlow, Braden or Norton) have been debated by many researchers (Choi et al., 2014; Debon et al., 2018; Ferguson et al., 2019; Lim et al., 2019; Moore & Patton, 2019). Sound clinical judgement and the consideration of comprehensive risk factors are recommended by guidelines, whether a validated risk assessment tool is used or not (EPUAP, NPIAP & PPPIA., 2019).

The results of this study showed that participants were aware of, and conducted, holistic, individualised risk assessments. Balzer et al. (2014) demonstrated that there are a number of factors, and often complex individual considerations, that must be made when assessing for pressure injury risk. Healthcare workers must consider multiple characteristics when assessing pressure injury risk. They weigh up observed risk factors with protective conditions, while balancing some conditions as more important than others. overall care dependency and self-care abilities are core underlying considerations when assessing for risk (Blazer et al., 2014).

Furthermore, the existence and intensity of direct aetiological factors such as pressure, shear, friction and moisture (as well as the occurrence of predisposing factors) which decrease tissue tolerance, must also be considered (García-Fernández et al., 2014). These aetiological factors incorporate and differentiate the cause, enabling assessment of all of the appropriate risk dimensions.

Both facilities used the interRAI-LTCF as their main assessment and, in both facilities, interRAI-LTCF assessments were completed by RNs. There appears to be no previous research in New Zealand as to the effectiveness of the interRAI-LTCF for pressure injury risk assessment. Interestingly however, a NZ study by Vuorinen (2020), who explored RNs experiences, feelings and attitudes toward the interRAI-LTCF, identified that nurses working in dementia units found the interRAI-LTCF assessments did not adequately reflect deterioration when residents become bedbound. As dependency increases, pressure injury risk is heightened, and is therefore unlikely to be reflected adequately in the interRAI-LTCF assessment. More research is required in this area.

Facility 2 did not use a validated risk assessment tool but used the interRAI-LTCF only to assess for pressure injury risk. Despite this, the CM and an RN from Facility 2 both expressed a preference for using a Waterlow risk assessment tool and one nurse actually chose to use this informally as a way to ensure she did not miss anything. Facility 1's policy was for RNs to use a Braden risk assessment as an initial, and thereafter six-monthly, screening process, or during times when there are concerns. Facility 1 had also incorporated into its policy the ACC SSKIN acronym and had integrated comprehensive bundles of care under each category. This provided a check list of preventative interventions for all healthcare workers. Care bundles are designed to improve patient outcomes and processes of care by identifying key interventions from evidence-based guidelines (Rello et al. 2011). Baldelli and Paciella (2008) found a decline in pressure injuries after developing a similar 8-item pressure injury care bundle program. Utilising a risk assessment tool that all carers can access, which also incorporates bundles of care depending on risk, could potentially benefit all healthcare workers in residential aged care in the prevention of pressure injuries.

Interventions of Daily Care

Risk assessment is the important first step in the prevention of pressure injuries, but the application of appropriate, individualised pressure relieving interventions is pivotal (EPUAP, NPIAP & PPPIA., 2019). Strategies which facilitate optimal health and physical activity for all

residents have been shown to reduce pressure injury incidence (EPUAP, NPIAP & PPIA., 2019; McCarthy et al., 2019). All participants were able to articulate holistic care which reflected the often complex and multifactorial challenges of looking after frail older adults with variable and fluctuating dependency and cognition. The care they described included strategies to prevent pressure injuries, while considering residents' emotions, cultures, and opinions as well as incorporating resident mobility, autonomy and participation into everyday practice. It must be acknowledged that despite Facility 1's policy being reasonably comprehensive, it still tended to focus more on assessment and interventions for high-risk residents, rather than everyday prevention practices. This is consistent with a finding by Jackson et al. (2016) who analysed influential policies related to pressure injury management and found policies almost always concentrated on those at risk and mainly focused on treatment approaches. Early prevention needs to be reflected in policy to help eliminate pressure injury as a form of resident harm.

A majority of the nurses described supportive, positive relationships with the multidiscipline team which included general practitioners, dieticians, physiotherapists, and gerontology and community nurse specialists from local District Health Boards. Miller et al. (2019) found the implementation of a multidisciplinary team in their 400-bed medical centre, not only reduced preventable pressure injuries but increased awareness around the importance of skin assessment. In addition, Samuriwo (2012) highlighted the important role that the multidisciplinary team played in supporting nurses in clinical practice in the management pressure injuries. Nurses need to be proactive in seeking input from the different disciplines in the multidisciplinary team and this should be reflected in facility policy.

Overall, a majority of the participants described their facilities as a "home" and put high value on quality care and positive interactions with both residents and their families despite the challenges faced when providing pressure injury prevention interventions. Studies have highlighted the importance of resident and family communication and the benefits of shared decision making (Bauer et al., 2014; Latimer et al., 2014; Paquay et al., 2010). Research suggests that relationships which are underscored with good communication and exchanges of

information such as residents likes, dislikes and nuances is highly regarded by both families and staff (Bauer et al., 2014). Research has also demonstrated that educating residents to participate in their pressure injury preventive care can not only motivate residents but also reinforce positive resident-nurse relationships (Paquay et al., 2010; Roberts et al., 2017). This was briefly acknowledged in Facility 1's pressure injury prevention policy, which advocated discussing the risks and benefits of interventions with the resident and family/whānau. Positive interactions with residents and their families were reported to be supported by both clinical managers and the majority of the participants.

Some participants acknowledged barriers in providing pressure prevention interventions related to issues around certain residents' willingness to participate with pressure injury prevention strategies. Difficulties arose at times due to residents having different priorities, needs and wants to those of the healthcare workers', as well as because of cognitive issues. These findings were similar to other studies which have also identified individual factors such as non-concordance as a barrier to patient participation in the prevention of pressure injuries (Latimer et al., 2014; Roberts et al., 2017). Cognitive disorders have also been linked to increased incidence of pressure injuries and RNs and HCAs must develop therapeutic relationships and be skilled communicators in providing effective dementia care (Ahn et al., 2013; Brimelow & Wollin, 2018; Jootun & McGhee, 2011, Kim et al., 2019). In addition, not all pressure injuries are preventable and this must be taken into account when planning and delivering care (Black et al., 2011; Schmitt et al., 2017). In this study all of the participants recognised the importance of considering the psychological and cognitive status of individuals. The majority of the participants acknowledged the importance of engaging, informing and involving families at these times with the goal of improving outcomes for the residents. It was up to the RNs to inform families and make sure they have an understanding around planned care and why pressure injuries may occur. This included informing families about increased pressure injury risk when challenging behaviours from residents occurred and at the end of life.

This case study has explored and described how pressure injuries are managed in residential aged care and reflected on barriers and facilitators to pressure injury prevention. This study has

illustrated the interplay between providing pressure injury prevention in residential aged care and organisational structures. Context-specific barriers to best practice in pressure injury prevention have been identified and discussed in relation to the wider literature. This thesis contributes knowledge about the problem in the New Zealand Residential Aged Care setting. Despite very challenging circumstances, participants considered pressure injury prevention a high priority and endeavoured to provide successful strategies to reduce their prevalence. The commitment of staff at all levels, to pressure injury prevention is admirable and indicates that education and facility processes motivate staff to endeavour to provide excellent care, however they are impeded by often insurmountable barriers. Reduced staffing levels related to the pay disparity between nurses in aged residential care and the DHBs contribute significantly to the inability to attract RNs to aged residential care, or to keep them. This is a significant finding to the research and may be unique to New Zealand.

Limitations

Case study design allowed me to explore and get a rich and detailed description of how pressure injuries are managed from CMs, RNs and HCAs perspective within my case. Facility policies in the prevention of pressure injuries were also analysed. Being a bounded case study, this is not necessarily generalisable to other aged care facilities and may not reflect the experiences of all RNs and HCAs working in aged care. This case study was also set in two Auckland facilities which does not represent facilities from smaller and more rural settings. Further research studies are required to test the findings in other settings and contexts.

The study was voluntary at the level of facility and participant. This meant that it may be more likely that the two facilities, and the staff who participated, have better than normal pressure injury prevention knowledge and practices. Therefore, it should not be assumed that this study's findings about the level of commitment and knowledge about pressure injury prevention would be typical of other facilities.

Data collected for this study was mainly from interviews and the robustness of the study was strengthened by the triangulation of data, between interviews and policies, and between

different participants. However, there were no independent observations of practices to confirm that all self-reported practices were in place. There was also no independent evaluation of how effective the two facilities were. How future studies might address these limitations is discussed in the following section.

Future Research

This case study reviewed how pressure injuries are managed in residential aged care in two NZ aged care facilities, from the perspective of CMs, RNs and HCAs. Facility policies on pressure injury prevention were also examined. These findings are unique in the context of pressure injury prevention in residential aged care in NZ. There is a large amount of literature internationally around pressure injury prevention but very few studies particular to residential aged care in NZ. Therefore, more NZ research is required in the area of pressure injury prevention in residential aged care. In particular, it will be important for more intervention studies to evaluate the effectiveness of strategies employed for pressure injury prevention in residential aged care facilities in NZ.

As demonstrated in this study, the organisational context plays an important role in influencing the effectiveness of pressure injury prevention. Future research should consider capturing this context and consider professional roles, staffing levels, complexity of care and heavy workload demands. In addition, research that considers teamwork, delegation of care and communication between RNs and HCAs would also potentially influence positive care outcomes in the prevention of pressure injuries.

Furthermore, the existing research demonstrates a need for studies on the effectiveness of the interRAI-LTCF as an adequate tool to assess pressure injury risk. Moreover, studies of how evidence-based pressure injury care is used and learnt by RNs and HCAs would help further the knowledge base. More research is also required in the area of pressure relieving mattresses as currently there are no definitive recommendations for using one surface over another.

Further research could build our knowledge of actual practice through empirical observations of health care practice and through studies that used an objective measure of effectiveness in

pressure injury prevention. For example, the practices and process employed in facilities with low pressure injury incidence could be compared to those with high pressure injury incidence. Additional research particular to aged care and pressure injury prevention would provide empirical knowledge on how pressure injuries are managed with the goal of reducing pressure injuries and improving the quality of life for our older adults.

Conclusion

The aim of this study was to investigate how pressure injury prevention is managed in residential aged care by using explorative case study methodology. CMs, RNs and HCAs were interviewed and facility policies on pressure injury prevention were reviewed. Two themes were identified from the participant interviews, “The Context of Residential Aged Care” and “Assessment and Interventions of Daily Practice”. These themes captured complex cultural dynamics as well as the multifaceted nature of providing care to reduce pressure injuries in residential aged care. Participants rated pressure injury prevention as being very important and provided evidence of individualised, holistic care despite difficult working conditions.

The perception that pressure injuries occur because of poor quality care must change. Implementation strategies to reduce pressure injuries in residential age care must reflect the increasing dependency and complexity involved in caring for frail older adults while also acknowledging the importance of organisation infrastructures which underpin the goals of reducing pressure injuries in residential aged care. The negative implications of staff shortages must be recognised as a source of resident harm. The link between the increasingly stressful working environment of residential aged care and its influence over pressure injury incidence must be acknowledged. Nursing leaders have to advocate for safer working environments and address the various components that influence this. Pay equity with District Health Board nurses needs to be addressed as well as finding innovative ways of increasing and attracting RNs into the aged care sector. Furthermore, education and skill advancement for staff including HCAs need to be considered with the goal of improving quality of care in residential aged care.

Risk assessment and pressure injury management is just one aspect of care in the prevention of pressure injuries. Policy must reflect the influence of the broader nursing work environment that contributes to factors that increase pressure injury risk. Nursing leaders must continue to advocate for organisational structures which ensure a supported, skilled and knowledgeable workforce with safe staffing levels within cultures that value a climate of open communication and learning.

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Appendix A: Advertising Flyer

Looking for participants for my research

Are you a clinical nurse manager, registered nurse or health care assistant who provide pressure injury prevention interventions as part of your clinical practice?

Here is an opportunity to share your experiences in relation to pressure injury prevention strategies

Feedback related to research findings will be offered in form of a written report or in-service education

My name is Anne Grinlinton and I am investigating how pressure injury prevention is managed in residential aged care. The aim of this study is to explain a realistic portrayal of nurses' current practices related to pressure injury prevention in residential aged care.

My aim is to interview clinical nurse managers, registered nurses and health care assistants who work in residential aged care.

I am happy to share my research findings with participants once my research is completed.

Please contact me if you have any questions and/or if you are interested in participating in this study and I will send you an information sheet

My email is annegrinlinton@yahoo.com

Thanks

Anne Grinlinton

Appendix B: Participant Information Sheet

Date Information Sheet Produced:

08/08/2019

Project Title:

Managing pressure injury prevention in residential aged care

An Invitation

Hello my name is Anne Grinlinton. I am a registered nurse and I am currently conducting a research project as part of my Masters degree at Auckland University of Technology (AUT). This project will be supervised by Professor Stephen Neville and Dr Eamon Merrick (AUT). I invite you to participate in this research project and thank you for considering this opportunity. Your participation is entirely voluntary.

What is the purpose of this research?

I am investigating how pressure injury prevention is managed in residential aged care. In New Zealand dependency of those living in aged care is rising with residents requiring more complex care and with death expected at much shorter periods. Pressure injuries are costly and impact significantly on the quality of life for those inflicted. Frail older people have increased risk of developing pressure injuries and nurses are integral to the prevention of these injuries.

I am hoping that findings from this study will be useful for the ongoing development of pressure injury prevention strategies in residential aged care. The findings of this research will go towards completing my Masters thesis and may also be used for academic publications and presentations.

How was I identified and why am I being invited to participate in this research?

I would like to interview nurses and health care assistants working in residential aged care who are directly involved in providing pressure injury prevention interventions as part of their clinical practice.

This information sheet is provided to ensure transparency which will assist you in the process of providing informed consent before participating in my research.

How do I agree to participate in this research?

If you are interested in participating in this research, please contact the researcher using the email at the bottom of this sheet. Your consent, as per the attached consent form, will be sought before the interview commences.

Your participation in this research is voluntary (it is your choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You are able to withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable as belonging to you removed or allowing it to continue to be used. However, once the findings have been produced, removal of your data may not be possible. A consent form will need to be signed before interviewing can begin.

What will happen in this research?

If you choose to participate, I will arrange a convenient time and place for us to meet for an individual interview which may or may not be your place of work. The interview should take around 45-60 minutes and will be audio-taped so a private quiet place to interview will be required. I will be asking you semi-structured, conversational like questions around your daily practice related to pressure injury prevention strategies.

I will also be asking your facility manager to see and get copies of your facility policies, documents and guidelines related to pressure injury prevention.

What are the discomforts and risks and how will these be alleviated?

The interview questions will be related to your current practice and views related to pressure injury prevention strategies in your work place and it is unlikely you will experience any personal or profession discomfort.

Your views and opinions will be respected at all times. You can choose not to answer particular questions or stop the interview at any time. If you have any questions or concerns, I would like you to discuss these with me so these can be addressed.

What are the benefits?

This will also be an opportunity for you to share your own experiences and challenges in relation to pressure injury prevention and play a part in research development of pressure injury prevention strategies in residential aged care. You will be helping me to obtain my Masters qualification.

How will my privacy be protected?

Maintaining your confidentiality is very important to me. I am aware that residential aged care facilities can be small social systems. I am committed to ensuring full confidentiality and the identity of all participants will be protected to the best of my ability at all times. I will not use names of any participants or the facilities in this project. I will safeguard any disclosure of information from harmful effects.

What are the costs of participating in this research?

The cost of participating in my research is the cost in the terms of your time. I expect you would contribute around 45-60 minutes for your interview.

What opportunity do I have to consider this invitation?

Please take time to consider participating in this research project. If you are interested in participating, I would like to have heard from you by 2 weeks. I can be contacted by email and I am happy to answer any questions that you may have.

Will I receive feedback on the results of this research?

If you have participated in my research, I will be happy to send a summary of my findings to you and provide feedback from my research in the form of a presentation/in-service education on pressure injury prevention at your facility.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Professor Stephen Neville, email Stephen.neville@aut.ac.nz, phone 021 995 689.

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEK, Kate O'Connor, ethics@aut.ac.nz, 921 9999 ext 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet and a copy of the Consent Form for your future reference. You are also able to contact the research team as follows:

Researcher Contact Details: annegrinlinton@yahoo.com

annegrinlinton@yahoo.com

Project Supervisor Contact Details: Professor Stephen Neville, email Stephen.neville@aut.ac.nz, phone 021 995 689.

Approved by the Auckland University of Technology Ethics Committee on *type the date final ethics approval was granted*, AUTEK Reference number *type the reference number*.

Appendix C: Indicative Questions

Indicative Questions

Introductory questions;

To begin with what is your role and how long have you been working in residential aged care?

Where did you do your nursing training?

? Unique challenges?

Could you tell me about your protocols/guidelines you have around pressure injury prevention in your facility?

- Do you refer to these?
- Could you tell me what you find useful or not useful about them?

Do you collect data on pressure injuries?

Risk assessment;

Is pressure ulcer prevention something you consider as part of your daily routine?

Could you talk me through how you assess for pressure injury risk?

Prompts;

- Reduced mobility
- Malnutrition/poor appetite/dehydration
- Incontinence
- Aged related skin changes
- Multiple co-morbidities
- Previous history of pressure injuries
- Pain

What resources are available to help you decide e.g. do you use a risk assessment?

- When?

What thoughts do you have in regards to how useful risk assessment tools are?

Interventions;

Can you describe how you keep residents as mobile as possible?

Prompts;

- Regular toileting
- Physiotherapy to prevent deconditioning
- Exercise programmes
- Social programmes, activity sessions

Can you tell me about a situation when you identified a stage 1 or 2 pressure injury and what you did?

Can you describe some of the challenges you face when trying to put pressure injury prevention strategies in place?

Prompts;

- Organisational perspective?
 - Nursing time
 - Staff turnover
 - Communication barriers
 - Cultural differences
 - Leadership
- Nursing care perspective?
 - Pain
 - Dementia/delirium
 - End of life
 - Eating problems
 - Communication impairments

Are there practices you are expected to carry out but you find difficult or impossible?

Can you tell me about a situation when a resident who is at high risk of developing pressure injuries;

- Has not wanted to be turned?
- Has communication difficulties?
- Poor appetite/weight reduction?
- End of life?
- Increased pain?
- Dementia/delirium

Can you tell me about a time when a resident may have developed a pressure injury and in hindsight you may have done something differently?

Equipment

Can you tell me about the kind of pressure relieving equipment you use in your facility?

Prompts;

- Sliding sheets?
- Heel protectors?
- Specialised pressure relieving equipment?

Could you explain your responsibilities with ordering or accessing pressure relieving equipment?

Could you tell me what are some of the challenges you face when accessing equipment?

What follow up care do you provide if equipment does not arrive as expected?

Can you tell me about a situation where you identified as needing equipment and what you did?

Do you feel you could have more responsibility in relation to ordering equipment?

Could you describe interventions you use to protect skin from incontinence associated dermatitis?

Can you tell me about the documentation you use in relation to pressure injury prevention?

Prompts;

- Turning charts
- Food charts
- Residents' notes

Can you tell me about your experiences with working with the multidisciplinary team?

Prompts;

- GP
- Dietician
- Physiotherapist
- Nursing team/management
- Do you have multidisciplinary meetings?
- Who attends?
- Communication barriers?

Do you ever meet as a team to discuss pressure injury management?

Can you describe the kinds of conversations you have around pressure injury risk and prevention with the;

- Residents?
- Families?

Challenges/enablers;

Tell me about the education you have had around pressure injury prevention?

- What are your thoughts about these sessions?
- Do you have any thoughts about how these sessions could be improved?

How do you think you could be better supported in relation to pressure injury prevention?

I would be interested in hearing your ideas around what you think could be done better in relation to pressure injury prevention?

Appendix D: Transcriber Consent Form

TEWĀNANGAARONUI
O TAMAKI MAKAU RAU

Confidentiality Agreement

Project title: Managing Pressure injury prevention in residential aged care

Project Supervisor: Professor Stephen Neville

Researcher: Anne Grinlinton

-
- I understand that all the material I will be asked to transcribe is confidential.
 - I understand that the contents of the tapes or recordings can only be discussed with the researchers.
 - I will not keep any copies of the transcripts nor allow third parties access to them.

Transcriber's signature: 

Transcriber's name: Erika Gajdocsi

Transcriber's Contact Details (if appropriate): 79 Riverstream Drive,

RD2, Kerikeri, 0295

09 442 2259

021 236 1408

erika@nztranscriptions.com

Date: 5/11/2019

Project Supervisor's Contact Details (if appropriate):

Approved by the Auckland University of Technology Ethics Committee on type the date on which the final approval was granted AIJTEC Reference number type the AUTEK reference

Appendix E: Codes with Examples

Codes	
Assessment and Interventions:	
General deterioration	She used to be mobile, and then she had a fall, went to hospital. She recovered which was good initially. When she was still recovering, we put in the air mattress and then she started walking again, we took out the air mattress. And then she had an infection which put her to bed for quite a long time. That's when we put the air mattress in again. Until now, after that, about I think three weeks of infection, series of infections, she lost her interest in mobilising.
Immobility and keeping residents moving	We just encourage them to walk. If the person is mobile, he's walking, so we just take them to the dining room, to the toilet and after that, like in the morning, we have activity there with the OT, so we just take them there.
Incontinence	We use incontinence pads, different pads as per the needs of the resident, depending on the type of incontinence. Sometimes they (the residents) do toilet themselves.
Increasing frailty	Yeah she went to hospital and lost her confidence walking. She's very, very afraid now... she's 102 years. And because of her dementia as well she doesn't eat as much.
Knowing your resident	One of the reasons why they didn't want to be turned is because they wanted to be facing the door or facing the window or the television.
Low mood	The GP added some mood stabilisers ... She's just sad and then we involved the dietician. We asked our kitchen cook to come and talk to her and offer her what she would like to eat just so they can prepare it for her. But she just doesn't want to eat. It's quite difficult. Until the daughter came back.
Nutrition and Hydration	When we notice that our residents don't like the regular meals, we do ask our kitchen cook to go and talk to them and offer them alternative food.
Pain	She doesn't understand English and she doesn't talk much, but she can say yes or no. Her facial expression usually is blank. So, you can't actually tell if she's in pain, what is happening to her.
Risk assessment	Because it covers everything (the Waterlow assessment) from head to toe. Age, malnutrition, although the nutrition part is kind of like, it's hard to predict. Incontinence and everything so yes, I think it's better.
Skin	Like before you get them off the bed and you put them to bed at night when you do the cares

	and just quickly check the heels because that's where mostly the pressure injuries are.
Collaboration with multidisciplinary team:	
Dietician	Our dietician visits once a month. They give us advice, they can do, recommend supplements or prescribe it as well.
General Practitioner	If we notice that there's not much improvement and two weeks it's not improving, we even ask our doctor to check on it regularly as well. He comes every Wednesdays.
Nurse Specialist	Yes. Like we had a resident whose wound was really not healing so I was constantly giving them pictures, asking for advice.
Physiotherapist	We ask them (the physio), "Look this resident is high risk, I think we need an air mattress. Can you come in, assess if they need an air mattress?" And they usually agree and then put an air mattress in.
Collaboration with residents and families	They might not be here every day (the family), but at least when they come, if they can join our care staff, when we do the cares, they can see for themselves.
Communication	...in rest home or aged care facilities, we (RNs) don't do the cares ourselves, so communication from the HCAs is very, very important.
Complexity of Care:	
Co-operation and compliancy	...if the resident or the family is not cooperative. That's really the major for me.
Dementia	She's got dementia, she's got Parkinson's, so she's got everything. Although she's already on an air mattress but given that she's got cognitive issues she's declined cares.
Multiple complexities	Immobility, malnutrition, some of them have very fragile skin as well. So some of them, even if like you're just holding on the skin, on the hand, they would have a skin tear.
Staffing	That was actually our frustration last year because most of the senior nurses who worked here had left when the new mega agreement for the DHB was signed so I mean I cannot stop them from leaving.
Education and knowledge	We have our mandatory trainings four times a year. That ensures that all the staff have gone through the education process and pressure injury is one of the topics that we really are quite wanting for the staff to know about.
Leadership	He just wants safe handling. Everything safe. So when we tell him (CM) something is not safe he tries different ideas with us.
Organisational support	

Budget	I have to look at the budget as well. Why am I going to use a very expensive product on a resident who is on palliative care?
Equipment	Just a regular pressure relieving mattress and then if they're risk is high enough then we put them on an air mattress.
Policy	Yeah we do actually have a rigid guideline with our pressure injury here.
Required documentation	... because it's part of our policy for hospital level of care, nurses do two notes in the span of 24 hours. And for rest home the nurses should do three notes in a week.
Professional role and identity	We just tell the RNs... Then it is up to the RNs... the RN then directs us... we identify... During maybe the cares or the shower, when I see the pressure injury I do not hesitate. I call the RN straight away.
Recording and communicating statistics	And then we have our monthly meeting where we discuss all the incidents like how many the statistics compare to last month, how are we doing, are we improving the number of falls, are we improving our bruising, how many pressure injuries do we have.

Appendix F: Ethics Approval

29 July 2019

Stephen Neville

Faculty of Health and Environmental Sciences

Dear Stephen

Ethics Application: 19/225 **Managing pressure injury prevention in residential aged care**

I wish to advise you that the Auckland University of Technology Ethics Committee (AUTEC) has **approved** your ethics application at its meeting of 22 July 2019.

This approval is for three years, expiring 22 July 2022.

Non-Standard Conditions of Approval

1. Include a date on Consent Form aligned with the Information Sheet;
2. Amendment of the advertisement to make it clear that you will also be interviewing health care assistants;
3. Either have separate Information Sheets for both the nurses and health care assistants or ensure that the one supplied is inclusive for all participants;
4. Include advice about transcription of interviews in the Information Sheet.

Non-standard conditions must be completed before commencing your study. Non-standard conditions do not need to be submitted to or reviewed by AUTEC before commencing your study.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the [Auckland University of Technology Code of Conduct for Research](#) and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using form EA2, which is available online through <http://www.aut.ac.nz/research/researchethics>.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using form EA3, which is available online through <http://www.aut.ac.nz/research/researchethics>.
4. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form: <http://www.aut.ac.nz/research/researchethics>.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.

Please quote the application number and title on all future correspondence related to this project.

AUTEC grants ethical approval only. If you require management approval for access for your research from another institution or organisation, then you are responsible for obtaining it. You are reminded that it is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard.

For any enquiries please contact ethics@aut.ac.nz

Yours sincerely,



Kate O'Connor

Executive Manager

Auckland University of Technology Ethics Committee

Cc: annegrinlinton@yahoo.com; Eamon Merrick

Appendix G: Consent Form

Face-to-face individual interviews

Project title: **Managing pressure injury prevention in residential aged care**

Project Supervisor: **Professor Stephen Neville**

Researcher: **Anne Grinlinton**

- I have read and understood the information provided about this research project in the Information Sheet dated 08/08/2019.
- I have had an opportunity to ask questions and to have them answered.
- I understand that notes will be taken during the interviews and that they will also be audio-taped and transcribed.
- I understand that I have up to 2 weeks after my interview to advise the interviewer about any corrections or additions to my data.
- I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.
- I understand that if I withdraw from the study then I will be offered the choice between having any data that is identifiable as belonging to me removed or allowing it to continue to be used. However, once the findings have been produced, removal of my data may not be possible.
- I agree to take part in this research.
- I wish to receive a summary of the research findings (please tick one): Yes No

Participant's signature:

Participant's name:

Participants Contact Details (if appropriate):

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Date:

Approved by the Auckland University of Technology Ethics Committee on 22 July 2019, AUTEC

Reference number 19/225

Note: The Participant should retain a copy of this form.