Pressure injury management: An exploration of current practice within New South Wales and Victorian health services.

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B. Occ. Thy. (hons)
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A thesis submitted in fulfillment of the requirements for the degree of the degree of Doctor of Philosophy
The Faculty of Health Sciences
The University of Sydney
Statement of Sources

Declaration

I declare that this thesis is my own work and has not been submitted in any other form for another degree at any university. Information derived from the published or unpublished work of others has been acknowledged in the text and a reference list is given.

Signature: A. Rose

Date: 20/6/16
Statement of the contribution of others

**Supervisors:**
Assoc Prof. Lynette Mackenzie, Course Director Graduate Entry Masters (Occupational Therapy), The University of Sydney
Professor Craig Veitch, Chair Community Based Health Care, Royal Rehabilitation Centre, The University of Sydney

**Collaboration:**
I consulted with many people throughout the duration of this project. Although the process of methodological design and execution was collaborative, the final decisions and intellectual control were mine, as well as the theoretical work around the thesis, including the literature review. I have been the only author of the thesis.
Declaration on ethics

The research reported in this thesis was conducted within the guidelines for research ethics outlined in the National Statement on Ethical Conduct in Humans (NHMRC, 2007) and the Australian Code for the Responsible Conduct of Research (NHMRC, 2007). The research methods outlined in this thesis have received clearance from the several institutions.
ABSTRACT

INTRODUCTION
Pressure injuries (PIs) are a multifactorial issue affecting those with complex chronic care needs. PI is also an important quality and safety issue, which presents challenges across all health service settings (Australian Commission on Safety and Quality in Health Care (ACSQHC), 2012a, 2012b). When PI occur they result in poor client and health system outcomes. Research in the area of PI has traditionally focused on acute and long-term aged care settings. The aim of the research project, which will be described in the present thesis, was to explore current practice in PI management, with a particular emphasis on PI management within community service settings. An enhanced understanding of current practice, captured across the main health service settings that comprise the Australian Health Care System (AHCS), informed new mechanisms to support the workforce in this challenging area of practice.

METHODS
A health services research approach was used to inform the current project. The aim of health services research is to improve health care through enhanced clinical and organisational practices and health care policy (Shi, 2008). All decisions regarding the research process were informed by a desire to influence outcomes of care through the application of the research findings in everyday practice. This applied approach was achieved through mixed qualitative methods, which were selected for their ability to address the research questions (Patton, 2002). Phase One involved two community based case explorations during which data related to the provision of PI services, experience of PI services and perceptions of real need for PI management were gathered. Phase Two involved five interdisciplinary group discussions with clinicians (n=38) from community based, hospital based and long-term aged care settings. These discussions were used to gather a range of perspectives and experiences regarding current practice. Phase Three involved peer validation processes including the provision of overall feedback to health services, two in-depth interviews and a series of presentations to clinicians and researchers at key conferences. All data were analysed using a thematic analysis approach (Braun & Clark, 2006).
FINDINGS AND DISCUSSION

Data collected over the course of this project were aggregated, synthesised and presented at the key levels of operation within health care: the system, client and clinician levels. This approach enabled consideration of the key issues influencing PI management, the capacity for change and the potential impact of innovations at each level of the AHCS.

Participants discussed health systems as well as clinician and client behaviour at length. There were a number of issues occurring at the system, clinician and client levels that influenced PI management. The data suggested that participants were not convinced that the general approaches to PI were meeting the needs of all clients and services. Key issues relating to workforce development included skill-mix and organisation of services, along with education and training. Consideration of the key issues at the system, client and service levels of the AHCS, suggested that longer-term PI needs may be best met by supporting team-based approaches within primary health care. Most participants believed that increasing client and support care involvement in PI management was essential to meet increasing demands for these services. Additionally, the role of clients and their informal support care was found to be necessary in the early recognition of the signs and symptoms of PI, due to its natural history. Clients and their support care would thus benefit from clinicians, learning how to effectively educate clients as partners in their own care.

SUGGESTIONS FOR PRACTICE AND RESEARCH

A new model of care is proposed and its necessary supports are described. This new model of care enhances client access to PI management by ensuring the best use of skills and local resources, toward team based approaches within community based care. By creating a ‘hub’ for PI needs within primary health care, this will better support the transition of PI management between hospital based and community based services, as well as facilitate improved continuity of care and co-ordination of care for those with longer-term PI needs. A necessary support for the model, amongst
others, is a new role that works to address ‘gaps’ and the cross organisational boundaries that influence daily practice. This new role will also provide important support for clinicians in partnering with clients in their own care, by acting as an educative resource within community service settings.

CONCLUSION

As clients and their support care have the greatest opportunity to identify the early signs and symptoms of PI, the up-skilling of clinicians to effectively impart information to lay-persons is necessary. The proposed new model of care and its accompany of supports may assist health services to enhance continuity of care and access to PI services, through the optimum organisation of skills at the local service level. Facilitating greater client and support care participation in PI management may assist health services to enhance preventative efforts, and assist in the earlier identification and expedited management of PI.

KEYWORDS

Pressure injury, Pressure ulcer, community, workforce, allied health, health services research.
KEY CONFERENCE PRESENTATIONS


Acknowledgements

First and foremost I would like to thank my supervisors Associate Professor Lynette Mackenzie and Professor Craig Veitch for their ongoing personal support and encouragement. Each has been an invaluable support at different times throughout the project and I feel very fortunate to have had such sound mentors, for this I will be forever grateful.

I also wish to thank the health services that supported the project, enabling me to collect data and expand the scope of my research. Additionally, I would also like to extend my gratitude to the clients and carers who participated in the study, without their involvement I could not have explored that most crucial element of health care; the client’s experience.

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Finally, I would like to thank all the clinicians that have provided care to my family and I in recent years. Their work, beyond value to all of us, has made this possible.
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<td>Australian health care system</td>
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<td>AIN</td>
<td>Assistant in nursing</td>
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<td>AWMA</td>
<td>Australian Wound Management Association</td>
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<td>BEACH</td>
<td>Bettering Evaluation in Health care</td>
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<td>CEC</td>
<td>Clinical excellence commission</td>
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<td>CDM</td>
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<td>CNC</td>
<td>Clinical nurse consultant</td>
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<td>Diabetes educator</td>
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<td>ECA</td>
<td>Ethnographic content analysis</td>
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<td>EPC</td>
<td>Enhanced Primary Care</td>
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<td>EPUAP</td>
<td>European Pressure Ulcer Advisory Panel</td>
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<td>EN</td>
<td>Enrolled nurse</td>
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<td>ICD</td>
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<td>MBS</td>
<td>Medicare Benefits Schedule</td>
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<td>National Pressure Ulcer Advisory Panel</td>
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<td>NSW</td>
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<td>PHC</td>
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<td>PI</td>
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<td>PNIP</td>
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<td>Practice nurse</td>
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<td>PUPPs</td>
<td>Pressure ulcer point prevalence survey</td>
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<td>RCT</td>
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<td>RN</td>
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<td>SCI</td>
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<td>NIDDM</td>
<td>Non insulin dependent diabetes mellitus</td>
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<td>RA</td>
<td>Rheumatoid arthritis</td>
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<td>TA</td>
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<tr>
<td>TVHCA</td>
<td>Tissue viability health care assistant</td>
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<td>VAC</td>
<td>Vacuum assisted closure</td>
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<td>VET</td>
<td>Vocational education and training</td>
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<td>VIC</td>
<td>Victoria</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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<td>Allied health</td>
<td>‘Professions which are involved in health care, other than the disciplines of medicine, nursing and health administration; for which tertiary qualification exist and which are essential for professional registration or admission to a relevant professional body and whose professional activities focus on client diagnosis, treatment and/or primary health care.’ (Turnbull et al, 2009).</td>
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<td>Clients/consumers</td>
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<td>Community based care</td>
<td>For the purpose of this thesis community based care is defined as the provision of health services to those who reside within their own or someone else’s home. This excludes facilities such as residential aged care. It is recognised however, that some clinicians working in community service settings do provide services to those living in residential aged care. Community based services are delivered by the government, as well as non-government organisations and individual private providers. Additionally, clients and their informal support care provide a large proportion of care in this setting.</td>
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<td>Clinician</td>
<td>For the purpose of this thesis the term clinician has been selected to represent all individuals that are paid to provide health services to consumers. This includes those that have obtained a degree qualification that grants them access to membership of a particular professional group. It also</td>
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includes those that have obtained certificate level qualifications that enabled them to be associate professionals

Health professionals

Those that have specific training related to diagnosis and treatment of patients, and/or the organisation of health care delivery’ (Duckett & Willcox, 2011, p 77).

Hospital

Institutions that provide inpatient accommodation together with medical, nursing and other services. Duration of care is usually on a short-term basis. As well as inpatient treatment some hospitals provide accident and emergency and outpatient clinical services (Palmer & Short, 2010).

Natural History

The natural history of PI refers to an understanding of the course of the disease or in this case the course of PI. This process includes gathering data to understand the natural course of PI over time and to evaluate the results of therapy used to manage PI (Qian –Li, 2011; Zarin, 1996).

Nursing home

A facility that cater for long-stay chronically ill patients, the majority of whom are in the older age groups (Palmer & Short, 2010).

Pressure injury (PI)

A PI is a localised injury to the skin and /or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear. (NPUAP/ EPUAP, 2009).

Regulators

The bodies responsible for exercising the authority over individual or institutional activity in the provision of health
services. The National Boards are involved in permitting health professionals to register for practice, determining the scope of practice of professions, or determining requirements for staff numbers in service settings (AHPRA, 2014).

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<td>Scope of practice</td>
<td>The range of activities that a practitioner in an occupation or discipline may practice. Scope of practice is usually limited to that which legislation allows for specific education and experience, and specific demonstrated competencies (Health Workforce Australia [HWA], 2011a, p. 35).</td>
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<td>Skill-mix</td>
<td>‘Skill-mix’ is a broad term used to refer to the: mix of skills or competencies possessed by an individual; ratio of senior to junior grade staff or generalist to specialists within a single discipline; or the mix of different types of staff within a health care team (Sibbald, Shen &amp; McBride, 2004).</td>
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<td>Skill flexibility</td>
<td>Using multi-skilled workers that can switch from one role to another while employing various skills as required (Atkinson, 1984. as cited in Dubois &amp; Singh, 2009, p. 8)</td>
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<td>Specialist</td>
<td>A clinician who, within a discipline, focuses on a specific health problem, condition or part of the body (HWA, 2011a &amp; b, p. 35).</td>
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<tr>
<td>Support care</td>
<td>Refers to a broad range of health care roles that may or may not require training or qualifications (HWA, 2011a,</td>
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In this thesis support care includes both paid (formal) and informal (unpaid) support care.

**Workforce**

While recognising that the health workforce can be defined quite broadly to include all of those in the health industry, in the current thesis this will be used to refer to the clinicians and managers who are involved in the provision of services.
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CHAPTER ONE

INTRODUCTION

1.1 PRESSURE INJURY (PI) AS A HEALTH ISSUE

This thesis explores the experiences and perceptions of clinicians regarding current practice in Pressure Injury (PI) management. PI is a complex, multifactorial issue, which presents many challenges in all health service settings. PIs are “localised injuries to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear. A number of contributing or confounding factors are also associated with PIs; the significance of these factors is yet to be elucidated.” (National Pressure Ulcer Advisory Panel [NPUAP], European Wound Management Association [EWMA], Pan Pacific Pressure Ulcer Alliance [PPPUA], 2014, p. 12). Although the preventability of PI has been the subject of much debate throughout the history of PI research and right up to the present day, it is commonly accepted that PIs can be prevented in the majority of cases (ACSQHC, 2012b).

The negative impacts of PI development for health services and their clients are well documented and include detrimental effects on client quality of life, feelings such as guilt and blame amongst service providers and carers, and increased expenditure by health services for the treatment of PI (Gorecki et al., 2009). With PI being recognised increasingly as an important quality and safety issue both nationally and internationally, it is imperative that a comprehensive understanding of the implications of PI, at each level (system, client and clinician) of the AHCS is developed. An approach such as this is necessary in informing, the most effective and efficient ways to support clients, carers and clinicians in their management of PI issues. In order to achieve this, a greater understanding of the nature of current practice in the prevention and management of PI is required. Knowledge of this kind may be used to inform the
development of a new model of care and its necessary supports, which could create a fresh approach to PI management.

1.2 WORKFORCE ISSUES

It is important to understand what the nature of current practice is in order to meet changing health care needs and the associated increase in demand for PI management. There appears to be a gap between what the health system is asking clinicians to do as defined by guidelines and policy and what is actually happening in practice. This raises questions regarding what might be needed to support clinicians to better meet client and system need for PI management. Gaining an understanding of current practice is a logical first step in identifying any potential supports needed to improve clinician practice, that may be of benefit to optimising PI management overall. There has been a growing emphasis on workforce issues in recent years and there is a significant body of literature that will be used to inform the analysis of workforce issues pertaining to PI (Dubois & Singh, 2009; Duckett & Willcox, 2011; HWA, 2011b). This work will provide a foundation for an exploration of skill-mix as it relates to PI management. Consideration will be given to existing changes in workforce, which have been found to be successful, for their potential application in shaping workforce changes within the context of PI management (Halcomb, Salamonson, Davidson, Kaur & Young, 2014).

1.3 THE CONTEXT OF PI CARE

To date there has been a clear emphasis on acute and long-term care settings in PI management guidelines and practices. While this has been entirely appropriate given that these service settings are known to address the needs of groups of people at highest risk for PI. The changing nature of health care has led to an increasing recognition that PI management within community service settings requires further attention (Probst & Gethin, 2014; Probst et al., 2014). Clients receiving health services in community settings are perceived to be less at risk due to their higher levels of independent functioning and associated levels of mobility. Nevertheless, clients with more complex and chronic health needs are increasingly being managed within the community, which has more demands
in relation to ongoing wound care (Hurd, Zuillani & Posnett, 2008). For instance, more clients are being discharged earlier from acute settings with open wounds (Probst et al., 2014). Additionally, clients are living longer and often with multiple chronic conditions that require ongoing and complex care. It is well established that these individuals commonly have conditions such diabetes and cardiovascular disease which affect perfusion and circulation, as well as other comorbidities that place them at greater risk for PI (Coleman et al., 2013; Grey, Enoch & Harding, 2006). As PIs are now well recognised as a chronic wound, this further supports the need to explore how longer-term PI needs can be met within the existing organisation of services that comprise the AHCS (Graves & Zheng, 2014a, 2014b).

The existing studies that have investigated PI management within community service settings have emphasised the unique nature of PI management within these service settings, and have highlighted their essential role in meeting ongoing PI management needs, including post discharge from acute services (Berquist-Beringer & Daley, 2011; Probst et al., 2014). A particular challenge in supporting a greater emphasis on PI management within community service settings is that PIs are thought to be less prevalent than in other health service settings (Stevenson et al., 2013). This means that careful consideration of the best way to meet PI needs within this health context is necessary, and is in fact essential for the effective and efficient use of health resources. Many studies argue for additional context-specific research in order to develop strategies specifically tailored to community care contexts (Berquist-Beringer & Daley, 2011; Paquay et al., 2010). This thesis will develop understanding of community based PI management within the AHCS, and therefore will support service development to better meet both client and system need for PI services (Health Workforce Australia [HWA], 2011a).

What is overwhelmingly made clear in the literature, which explores ways to assist clinicians to change their behaviour to incorporate best practice guidelines, is the importance of context in the interpretation of these studies. Many authors recommend the need for context specific research to identify
barriers and facilitators prior to implementation of services within various contexts, as well as to understand the actual effects of interventions within health service settings (Bosh et al., 2011; Harvey & Kitson, 2015). This approach is also needed in PI research, which aims to influence clinician practice in relation to PI management across a range of health service settings. A number of studies have already recommended the need for ongoing support at the local level to assist with implementation of best practice guidelines into everyday work practices. As even in the cases where changes in work practices were detected, sustaining these changes in practice was found to be difficult, and therefore required ongoing support at the local service level (Lewin et al., 2007; Sving, Hogman, Mamhidir & Gunnigberg, 2014; Sving, Gunnigberg, Hogman & Mamhidir, 2015).

1.4 EPIDEMIOLOGY OF PI

Gaining an accurate picture of the occurrence of PI across various health service settings is difficult, particularly so within community service settings (Hopkins & Worboys, 2015; Stevenson et al., 2013; Vowden & Vowden, 2009). According to Graves and Zheng (2014a) PI prevalence rates fall within the following ranges across residential aged care settings (7.6%-53.2%), acute service settings (1.1%-26.7%) and within community service settings (7.6% - 53.2%). A recent study conducted within one New South Wales (NSW) community health service found a prevalence rate of 8.9% (n=71, 95% CI=7.1-11.1%) (Asimus & Li, 2011).

A range of risk factors are known to contribute toward an individual’s susceptibility to PI. The most recent conceptual framework, which is a model of the critical determinants of PI development, incorporates both physiological and biomechanical elements that increase the probability that an individual will develop a PI (Coleman et al., 2014). In Coleman et al’s. framework, a relationship between the mechanical boundary conditions (magnitude and duration of mechanical load and the type of load: pressure, shear and friction) and the individual susceptibility and tolerance of the individual is described (Coleman et al., 2014). The risk factors found to influence the mechanical boundary
conditions and the individual susceptibility and tolerance of the individual include immobility, skin/PI status and poor perfusion (direct causal factors), and poor sensory perception and response, diabetes, moisture, low albumin and poor nutrition (indirect causal factors) (Coleman et al., 2014). Many other risk factors have been discussed and debated in the literature. The role of lifestyle, activity, behavioural and psychosocial elements, as well as issues of access that potentially interact with other risk factors to place someone at risk of developing PI, are also receiving greater attention (Clark et al., 2006).

Given the range of factors that potentially increase the probability that an individual may develop PI, the varying levels of client function encountered and the diversity of service types within community service settings, it is easy to see why current understanding of PI need within community service settings is limited (Berquist-Beringer & Daley, 2011). Regardless of the perceived lower levels of risk within community service settings, greater attention to PI management within this setting appears important given that chronic disease is becoming the predominant pattern of disease, and those with chronic diseases, who often required complex chronic care, are known to be at an increased risk of PI (Coleman et al., 2014; Guihan et al., 2014).

1.5 OUTCOMES OF PI

1.5.1 Clients and carers

PIs have a significant impact on clients when they occur, and this has been clearly demonstrated in the many studies that have explored client experiences of PI and associated interventions for their prevention and treatment (management). Documented impacts having an effect on quality of life include pain, decreased participation in activities of daily living, psychosocial stress, and financial strain (Gorecki et al., 2009). The impact of PI development on those that provide care, both formally and informally, has received less attention in the literature. Feelings of blame, guilt, and failure to report PI or disclose the need
for help have also been described (Baharestani, 1994; Samuriwo, 2010b; Van Rijswijk, 2001).

1.5.2 Health services

PI is recognised as an important quality and safety issue (ACSQHC, 2012). There are significant implications for health services when PI occurs including financial penalties and litigation, as well as negative perceptions of a particular health service (Lawrence, Fulbrook & Miles, 2015). While the costs of preventative strategies are noted to be high in terms of staff time and physical effort, as well as the equipment and manpower resources required to implement prevention programs, it is generally accepted that the costs incurred once PI develop exceed the cost of preventative efforts. Given the underwhelming results in terms of the reduction of PI in the context of significant effort and financial expenditure (Dealey et al., 2015), it is not surprising that the cost of many aspects of PI prevention programs are now being questioned (Palfreyman & Stone, 2014). As the cost of PI care usually correlates with the severity of the wound, early identification of PIs presents an opportunity for health services to increase effectiveness and reduce costs, if PI can be managed expeditiously at an earlier stage.

1.6 A future vision for PI management

A fresh approach for PI management is required, one that is informed by current research exploring existing and necessary strategies to support quality improvement processes and implementation into everyday practice. The structure of the health system has several levels, all of which interact to influence the provision of care. Within these levels there are many different issues impacting upon current practice in the prevention and management of PI. These issues may potentially support or hinder a fresh approach to PI management. Developing an understanding of how these factors could potentially increase the likely success of any interventions implemented to enhance current practice is necessary. Generally, multilevel approaches have been found to be of benefit
when studying and implementing change to address health service quality and safety, and therefore improve both client and health system outcomes (Batalden & Splaine, 2002; Ferlie & Shortell, 2001). Within this thesis, the three core levels that influence health service design and delivery will be presented. These include the health system, client and clinician levels. Each level will now be defined using pertinent literature.

1.6.1 Health system level

There are many factors occurring at the system level that influence PI management with respect to both the way in which care is delivered at the clinician level, and the extent to which clients are able to participate in their own care. The PI literature indicates that there remains a gap between what PI policy is asking of clinicians and what is actually happening in practice (ACSQHC, 2012b; Bosh et al, 2007; Moore, 2010; Moore et al., 2014; Paquay et al., 2008; Probst et al., 2014). Many policies set standards, which are hard to achieve. Inadequate consideration of the significant challenges clinicians face in achieving the ‘aspirational’ goals set in polices, amidst competing priorities and limited resources, particularly within community service settings, is likely to influence clinicians’ attitudes and behaviour in relation to polices.

Consideration of existing policy and how it influences clinician and client behaviour in relation to PI management is necessary in developing and supporting a fresh approach to PI management. Further to this, the potential influence of broader policy directions and existing platforms for health care reform should be used to inform a fresh approach. Health policies can either facilitate or provide barriers to the provision of effective and efficient health care at the client and clinician levels. For instance, there may be limited opportunity for clinicians to work within existing policy, and implement changes arising at the system level unless there is real potential for change. System level incentives for change, such as financial incentives, may also be difficult to implement due to the way services are currently organised. For example, most general practices are still run as small private businesses, and any changes are hard to achieve due
to the costs to the individual clinicians and the absence of local infrastructure to support change (Commonwealth of Australia, 2015b). Nevertheless, system level interventions have been suggested as necessary to support changes in clinician behaviour and practices as part of the implementation of best practice (Flodgren, et al., 2011).

Change within the Australian health system is usually incremental over an extended period of time (Duckett & Willcox, 2011). However, there are opportunities to create a better fit between client needs for PI management and the capacity of the health system to provide PI management services. What is required for this to occur is a comprehensive understanding of current practice in the provision of PI management, across health service settings. The current organisation of services within the health system may in fact constrain the management of a secondary condition such as PI. For instance, a biomedical basis for health care delivery can lead to a fragmentation of services, which has a negative impact on continuity of care for people with PI, especially those in the community (Engel, 1979; Erny-Albrecht & McIntyre, 2013; Duckett & Willcox, 2011).

Recent strategies introduced to reduce fragmentation and improve continuity of care include the consideration of how the health workforce is used. A focus on client needs, and system need followed by a consideration of the skill-mix necessary to meet such need has been encouraged (Duckett & Willcox, 2011; HWA, 2011a). Expanded roles for allied health are recognised as a key component in improving client access to services (Department of Health 2014a, 2014b; HWA, 2011). Nevertheless, achieving changes in professional roles and scopes of practice is challenging for a number of reasons including the entrenched nature roles, which are reinforced by the power differentials within and across professional groups (Duckett & Willcox, 2011; Ferlie, Fitzgerald, Wood & Hawkins, 2005). An exploration of skill mix as it related to PI management will help to build a case for enhanced roles and expanded scopes of practice amongst clinicians, and identify the necessary supports to help to ensure success in achieving changes to professional roles.
1.6.2 Client level

In this thesis, the client level is defined as the factors immediately surrounding or directly related to the client. The client level of PI management described in this thesis draws mainly on the perspectives of clinicians about PI at the client level of service delivery. These data are complemented by case explorations, within which some client perspectives were used to enhance understanding of current practice, including the way in which services are delivered, and how clients experience PI services. The case explorations are used to complement and enhance the perceptions and experiences of clinicians regarding current practice in PI management, rather than to gain an in-depth understanding of the client experience of PI and their management.

A wide range in client need for PI services has been articulated in the literature to date (NPUAP/EPUAP/PPPUAP, 2014; Probst et al., 2014). Although, as identified earlier, there remains limited understanding of what PI need actually looks like within the community. An exploration of PI need within the Australian context, is necessary in support the greater involvement of clients and support care in PI management, as recommend in policy (ACQSHC, 2012a, 2012b). Many factors originating at the client level are known to influence client behaviour in relation to their health care and this will be explored in relation to PI management. Previous research has identified that a client’s knowledge and understanding of PI, and competing health needs to be influential on their participation in PI management (Guihan & Bombarier, 2012).

Another issue impacting on the care a client receives and their ability to participate in their own PI management is their access to PI services. Issues of access have been found to influence a client’s participation in PI management. Although, consideration of the true impact of issues of access have been fairly limited to date (Moore et al., 2014; Oot-Giromini, 1993). Factors that have been described include policies, which prioritise the treatment of PI and
therefore limit access to preventative equipment, and socioeconomic status which also limits access to equipment and products for PI management (Ghaisas et al., 2015). Less well understood is how characteristics of the clinician and the way in which care is organised impacts on client access to and participation in PI management. These factors require exploration within an Australian context.

Client access to PI services with the AHCS will be articulated using the data and a well-known conceptual framework (Penchansky & Thomas, 1981). According to Penchansky & Thomas (1981) client access to services is influenced by characteristics of the system, and clinicians that work within it. Investigating access as it relates to PI management will enable understanding of the strengths and weaknesses, in the interactions between the AHCS, clients, and clinicians.

A greater understanding of how PI occur, the circumstance in which they develop, and what happens to clients and their support care once they are discovered will create a picture of the natural history of PI. A deeper understanding of the factors which influence client access to care, including the early expression of client need for PI services will highlight the importance of potential mechanisms in enhancing access to PI management. These mechanisms may include strategies to increase client and informal support care involvement, such as a having a central ‘hub’ through which longer-term PI management may be coordinated. Bradshaw’s taxonomy of social need will be used to enhance understanding of need as it relates to PI management, this is particularly important in understanding how need shapes system, client and client behaviour in relation to PI management.

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1 The natural history of PI refers to an understanding of the course of the disease or in this case the course of PI. This process includes gathering data to understand the natural course of PI over time, and to evaluate the results of therapy used to manage PI (Qian –Li, 2011; Zarin, 1996).
1.6.3 Clinician level

The clinician level refers to the factors directly related to the clinician, these factors may be internal such as their skills and previous experiences, or they may relate to the issues occurring externally within their environment at the service level. Structural factors implicit in the health system also influence clinician behaviour in daily practice. Many factors occurring at the client level also influence the role, behaviour and decision-making of clinicians. A range of factors have been found to influence clinician behaviours in relation to PI and also more broadly (Harvey & Kitson, 2015; Michie, van Stralen & West, 2011). These include individual knowledge, skills, and attitudes (Moore & Price, 2004; Samuriwo2010a; 2010b). As well as environmental factors such as the attitudes and practice of colleagues, access to skills and resources, and mechanism such as pathways and protocols which are designed to lead clinicians to a consideration of PI needs, and assist in the implementation of best practice through support for decision making (Moore & Price, 2004; Samuriwo2010a; 2010b; 2014; Soban, Mempel, Mujas, Miles & Rubenstein, 2011).

A range of internal and external factors are known to influence clinician behaviour in relation to the implementation of best practice. Clinician behaviour in PI management is likely to be influenced by a clinicians’ ability to fulfill expectations set down in polices and guidelines by experts commensurate with their own professional standards. For instance national standards state that “in the majority of cases pressure injuries are preventable” (ACSQHC, 2012b, p. 55), however, as illustrated in the following chapters, there remains some debate in the literature as to whether or not PIs are all preventable (Thomas, 2006).

Factors that are known to include a clinicians’ ability to meet need and address policy goals, include delays in accessing equipment in community service settings (Macens, Rose & Mackenzie, 2011). Breakdown in continuity of care and delays in accessing skills are known to contribute to poor client and service outcomes in PI and also more generally. For example, Athlin, Idvall, Jernfalt &
Johnsson (2009) noted that PI tended to most often occur during transitions in care, such as when a patient moved between wards. This highlights the importance of considering how transitions between acute and community services, and also within community services impact on PI management. A consideration of the extent to which current supports, likely to have been developed based on knowledge of the PI needs of those in acute and long-term residential aged care facilities, are meeting the needs of clinicians working within community services settings is essential. Could the development of context specific pathways, and mechanisms to support these process better support clinicians to address PI management, and thereby improve client access to PI services?

The careful consideration of the fit between strategies to change or influence practice and their intended outcomes is known to be important and influential on success in changing clinician behaviour (Grol, 1997; Harvey & Kitson, 2015). Several bodies of literature will be used to assist in understanding clinician behaviour in relation to PI management. These include the significant knowledge base informing PI practice and research, the body of literature pertaining to AHCS, and the substantial body of literature that investigates clinicians’ behaviour in relation to the implementation of best practice. The latter body of knowledge encompasses processes and terms such as knowledge translation, diffusion of innovation and implementation science (Canadian Foundation for Healthcare Improvement 2015; World Health Organisation [WHO], 2014). Research in this area aims to facilitate improvements in health care for the benefit of both clients and health systems, through the translation of knowledge to practice (research, health professional experience and policy).

In the current thesis, an understanding of the influences on clinician practice in relation to PI management will be developed further through an understanding of what current practice looks like, and how clinicians use their skills toward PI management across health service settings. A unique contribution of the current thesis will be an enhanced understanding of the unique demands that
community based PI management places on clinicians, and this will help to inform approaches to better address their needs.

Whilst PIs are thought to occur less frequently in this setting, as health care policy shifts care towards community based services, and the number of individuals with chronic complex care needs grow, it is likely that there will be an increase in demand for PI services in the community service settings (Mcgraw & Drennan, 2014). Careful consideration of the unique needs of PI management within community service settings is necessary due to the diversity of services of which it is comprised, the range of client needs likely to be encountered within these services, and the limited resourcing that is typical of this service setting (Kapp, 2012; Kingsley & Murray, 1999; Lewin et al, 2007).

A better understanding of PI management within community service settings and in the context of competing health needs will enable consideration of whether health workforce skills are being used to their full extent. Knowledge regarding existing skills, the way in which they are currently organised and the supports that are available to assist clinicians to develop and use their skills in PI management is needed. This knowledge will enable consideration of whether existing supports are sufficient and whether additional opportunities are necessary in better supporting the workforce in the management of this issue. Mechanisms recommended in maximising workforce skills include new models of care, new roles and education and training. Their potential application in creating a fresh approach to PI management will be considered in the current thesis (HWA, 2011a, 2011b; Nancarrow, 2015).

A consideration of how health care context influences the extent of clinician involvement and interaction around PI management, is important. For example, does the absence of a particular skill within a team or service influence skill–use, skill development and the type of interactions between services and clinicians? The optimum local skill-mix for PI services can only be organised when greater awareness of the range of clinicians and skills that can contribute to PI management, are established. A mechanism to support the best use of skills
toward optimal care includes team based approaches, and the current thesis will explore the supports that may be necessary in facilitating team based approaches to PI management within community service settings (Commonwealth of Australia, 2010).

The current thesis will also explore whether latent reserve capacity exists within the workforce and will illustrate how these resources could be better activated to enhance both client and health system outcomes. The role of allied health professionals is currently underexplored, and as a result they do not appear to have access to all the supports necessary to assist them to take a greater role within PI management. Occupational Therapy (OT) in particular has a generalist skill set which has been adapting to meet PI management needs, particularly within community services settings (Macens, Rose & Mackenzie, 2011). OTs appear well placed to enhance nursing within community service settings. The potential for expanded roles for allied health professional in enhancing continuity of care and improving access to PI management will be further explored (Department of Health, 2014a).

A unique contribution of the current thesis is the exploration of factors potentially influencing clinician practice in PI management, across health services settings. This will develop understanding of what works and what is needed to enhance current approaches to PI management, based on the experience and perceptions of those who are located in community service settings, and those who are involved in working with clinicians in these settings. The importance of supports specifically tailored to community service settings in assisting clinicians to use their skills toward PI management will explored further in the next section.
1.7 IMPROVING ACCESS TO EFFECTIVE PI MANAGEMENT SERVICES

While PI issues are likely to be less prevalent within community service settings compared to acute and long term care contexts, a greater focus on community based PI management may actually support the enhanced continuity of care and improved access to services, that is required to facilitate client and support care participation in PI management. As identified earlier, increasing client and support care participation is an essential component in meeting longer-term needs for PI care. It is important to determine how clinicians can be better supported to increase client and support care participation in PI management. In the current thesis a range of mechanism to support the workforce to better address PI management will be explored, these include new models of care, the potential for new roles, and the opportunity to up-skill clinicians through additional education and training.

1.7.1. Models of care

The development of new models of care has been suggested as a way to assist in addressing future need for health care, particularly in supporting care within community service settings (Commonwealth of Australia, 2009a, 2009b, 2010; HWA, 2011a). New models of care, such as consumer directed models and person centered care models as are already supporting greater client participation in care (Commonwealth of Australia, 2015e; 2015f). The development of new models of care in wound care more generally has been suggested as necessary in enhancing client care, improving access and supporting team based approaches (More et al., 2014). In the current thesis the potential of new model of care in supporting PI management and improving client access to PI management will be explored. The creation of a ‘hub’ located within primary health care will be considered for its potential in assisting in the
management of PI needs, by supporting the transition of PI issues between hospital based and community based services (Sheppard et al., 2010).

Further to this a community based model may better support the management of longer term PI needs by improving continuity and coordination of care, and improving access to PI services through the identification of a clearly identified location through which clients and their support care can seek care and advice related to PI management. A community based model may also provide a platform for the best organisation of local skills, toward PI management within primary health care. For instance, the presence of a model of care may enable General Practitioners (GP) to delegate the management of the PI needs to the clinician best placed to take the lead in PI management, most likely a practice nurse, who is then able to coordinate team based approaches as necessary.

Communication between health professionals across sections and amongst the diverse range of local service providers within community service settings is known to be challenging (Mueke, Kalucy & McIntyre, 2010; Oliver-Baxter & Bywood, 2013). The potential role of new models of care in addressing these issues will be explored. For example, embedded within the previously described model could be mechanisms through which PI skills may be located amongst the range of community based service providers, and used in a coordinated way through the development of pathways. For example, the ‘hub’ could link with a range of private allied health providers and specialist hospital based services when necessary. Thereby, the model serves as a mechanism through which team based approaches may be initiated and coordinated over the long term. The development of mechanisms such as pathways are important in supporting clinicians within community service settings in the coordination of care (Bird, Kurowski, Dickman & Kronborg, 2007; Commonwealth of Australia, 2015b; Oliver-Baxter & Bywood, 2013; Duckett & Willcox, 2011).

The consideration of other necessary supports for this model will include the role of financial incentives in enabling and sustaining the new model of care (Duckett & Willcox, 2011; Flodgren et al., 2011). The potential scope of existing
financial mechanisms in shaping greater attention to PI management within community service settings will be considered. These include the Enhanced primary care (EPC) and Chronic Disease Management (CDM) programs. It is also necessary to consider the potential role of additional financial incentives, such as the introduction of a Medicare Benefits Schedule item number for PI management, in enabling this type of model (Commonwealth of Australia, 2015b; 2015c).

1.7.2 Workforce development

The creation of new and expanded roles to better address health care needs is recommended in enabling the workforce to improve both client and health system outcomes (Department of Health, 2014a, 2014b; Duckett & Willcox, 2011; HWA, 2011a). Exiting roles such as ‘champions’ and ‘facilitators’ have been found to be successful in PI management, assisting in the process of facilitating the translation of knowledge into practice, and changing practice behaviours related to PI management within acute and long-term aged care settings. The potential application of these roles in supporting practice change in community service setting will be explored. As described earlier ensuring ‘fit’ with practice context is critical to the success any strategies designed to change practice (Harvey & Kitson, 2015).

The current thesis will explore whether a new role for clinicians may support the previously described new model of care by working to address ‘gaps’ and assist in the crossing of organisational boundaries. The challenges in the implementation of change within health care are well documented, and the lack of infrastructure to support key policy initiatives such as self-management education for complex chronic care is also known (Cheffins, Toomey, Grant & Larkins, 2012). The importance of supporting clinical staff to address multiple competing health issues amongst those that require chronic complex care is well-researched and well documented (Wagner, 1998). This thesis will consider a range of supports necessary in assisting clinicians to consider an important secondary condition, such as PI, amongst competing health needs. For example,
the development of mechanisms such as red flag within an electronic health record could alert a GP to a previous or existing PI, and therefore trigger an appropriate pathway of response. This may also enable the targeting of limited resources to those most in need of PI services, encourage attention toward PI management within busy primary health care settings and begin to capture data related to PI.

The role of evidence development and infrastructure support grow PI management within community setting will be explored. Data related to PI management and its associated interventions is necessary in developing a knowledge base to support community based PI interventions, delivered by a range of health professionals, including those that are currently underutilised such as allied health. The conduct of further research regarding PI practice within community service settings, particularly primary health care, is likely to be important. Research capacity building has been identified as necessary in developing evidence to support practice in community service settings more generally (Cooke, Nancarrow, Dyas & Williams, 2008). A new role in PI management may support collaboration across stakeholder groups and lead to the development of research skills amongst staff by facilitating participation in research projects. Service evaluation and quality improvement is necessary in supporting the development and maintenance of the new model of care.

Given the emphasis on increasing client and support care involvement in PI, clinicians often involved in PI management may benefit from the opportunity to up-skill in imparting information to lay persons. The development of these core skills are likely to support partnering with clients in their own care. Partnering with clients incorporates principles such as person-centered self-management education, and the development of practical supports for problem solving and assisting clients and their support care to know, how, when and where to seek care for PI management. Interdisciplinary educational models, that up-skill clinicians to partner with clients and assist client with behaviour change, already exist in the area of diabetes management, and have been found to be successful. Diabetes educators are known to achieve changes in client behaviour through
the provision of self-management education and the development of skills such as problem solving and an awareness of when, where and how to seek care (Diabetes Australia, 2012; Drab, 2013; Nancarrow, 2015). This type of educational model, and its potential application within a fresh approach to PI care, will be consider in the current thesis.

Additionally, consideration will be given to whether a new role may assist clinicians to increase client and support care involvement in PI management, through acting as an educative resource at the local level. Diabetes educates are also known to have a role in clinician education (Beebe & Schmidt, 2011; Drab, 2013). The current thesis will explore the potential for a new role to support the best use of local skills toward PI management. For example, a resource and a skill development role that is able to assess learning needs and deliver appropriate education and training tailored to meet individual and local service needs, may be particularly useful within community service settings, where there are less opportunities for the direct supervision and mentoring necessary for skill development (HWA, 2011a; 2011b).

A range of education and training opportunities necessary in supporting clinicians to better use their skills toward PI management, particularly within community service settings are likely to be needed, and will be explored in the current thesis. The importance of the skills necessary for maximising the client's environment, including the use of their support care and also their physical environment, given both the natural history of PI and the limited resources available within community service settings will be investigated. Skills such as these have been found to be important in community based PI management in previous studies (Macens et al., 2011; Rose & Mackenzie, 2011). The consideration of supports to facilitate team based approaches, that would enable greater use of the skills just described, through the increased participation of allied health professionals in PI management will also be explored. These may include new interdisciplinary learning opportunities and the inclusion of interdisciplinary competencies within undergraduate and postgraduate courses (Moore et al., 2014; WHO, 2010).
1.8 THESIS AIMS AND RESEARCH QUESTIONS

The project described in the current thesis, aimed to explore current practice in PI management within the AHCS. An overview of the project can be found in Figure 1. The development of a picture of current practice within community service settings was identified as the necessary starting point, as there was a gap in our understanding of community based PI care within the literature (Probst & Gethin, 2014; Probst et al., 2014; Stevenson et al., 2013). Additionally, the importance of understanding current practice in PI management was further supported by the identification of community based care, as a priority area for research and development, within the Australian Government health reform agenda and the health services literature more broadly (Commonwealth of Australia, 2009a, 2009b, 2010).

Recent health care policy provides a potential platform for a greater emphasis on community based PI management. One which has the potential to improve continuity of PI care and address longer term PI needs amongst those requiring complex chronic care. However, this raises questions about the supports necessary to facilitate enhanced community based PI management. Other policy trends emphasise the need for greater client and support care participation in PI management and health care more broadly, leading to questions about what supports are necessary to facilitate changes in health design and delivery that would enable this type of approach. Given that recent workforce policy had recommend a shift in emphasis from staff-mix to skill-mix approaches to workforce development, which focus attention on the needs of the health system and clients first, followed by a greater consideration of the skill-mix required to meet these needs (Cowman, Clark, Cartmill, Ash & Sheppard, 2011; HWA 2011a, 2011b; Sibbald, Shen & McBride, 2004), it is necessary to consider this type of approach to workforce development in relation to PI. In order to inform a skill-mix approach to workforce planning with PI, a more complete picture of what PI
need actually looks like, particularly within the underexplored area of community based care, was necessary. The current thesis addresses this gap by exploring current practice in PI management using the experiences and perceptions of clinicians who work across health service settings.

The research questions outlined below were used to guide the collection of data, necessary to address the gaps in our knowledge described in the preceding sections.

- What does current practice in PI management within the Australian health system look like?
- What are the experiences of clinicians in relation to current PI practice and what are their perceptions of approaches to PI management?
- How might clients and their carers be supported in their participation in PI management?
- What does community practice in PI management look like?
- What might enhance current approaches to PI management within the community setting?
- What are the client and system needs for PI care and management?
- How is the workforce currently being used in the management of PI issues?
- What supports are necessary to maximise the use of workforce skills toward PI management?

A Health services research approach was used to explore the questions presented above. Health services research provides a body of knowledge and an approach to research, which assists in gathering the information necessary to address complex questions around health care need, understanding actual client demand for services, and informing the allocation of resources (Bowling & Ebrahim, 2008; Searle et al., 2008; Shi, 2008).
1.9 OUTLINE OF THE THESIS

A greater understanding of PI need is required to inform decision making about how PI need can be better addressed within community based services, as well as determining what level of need it is appropriate to try to meet within community service contexts. These questions will be addressed using data collected, analysed and interpreted across three separate yet closely related research phases. Phase One involved case explorations and was designed to address the first significant gap within the literature, relating to insufficient understanding of current PI practice in community service settings. Phase Two involved interdisciplinary group discussions and in-depth interviews, with clinicians involved with PI management, across a range of health service settings. Phase Three involved a peer validation phase, which was designed to enhance the quality of the research, by creating the opportunity for participants, health services, peak bodies for wound management, and the research community to provide feedback regarding the project findings. Phase Three also provided mechanisms through which project findings could potentially influence clinician practice relatively quickly. For instance, the multiple conference presentations, and the feedback provided to participating health services, ensured regular contact with those on the ground providing care.

In Chapters two and three of this thesis, the background for an exploration of current PI practice is established, through literature reviews of the pertinent literature. Chapter two focuses on the natural history of PI, recent trends in approaches to the management of PI and an exploration of PI practice across health service settings, with particular emphasis on community based PI care. Chapter three provides the context for an exploration of current practice, and includes descriptions of the characteristics of the Australian health system, such as, the organisation of health services and how this is likely to influence PI care. The key challenges facing the health system, and recent policy developments designed to address these issues, are also outlined. While the focus is on the Australian health system, literature from health systems that share similar characteristics, such as Canada and the United Kingdom, and literature from
other health systems such as the United States are also explored. Chapter three will also outline key concepts such as ‘need’ (or PI need within the broader context of health care need) and ‘access’ to health services. Additional areas of focus include workforce issues as they relate to PI practice, evaluation and improvement of health services, and the capacity of health services to meet PI needs, in the context of competing health system needs and limited health resources, and the diverse characteristics of health service settings.

Chapter four provides information about the approach to the research process and methodology. This includes details of the conceptualisation of the project and the selection of the various qualitative methods that were used. As is typical of applied research such as health services research, the range of methods used were informed by the type of data needed to address the research question, rather than adherence to one particular methodology.

The findings are described and discussed in chapters five, six and seven. All data collected was aggregated, synthesised and presented according to three key levels of operation concerned with PI management in health services: the system, client and clinician levels. These key levels were informed by the data and confirmed by reference to the quality improvement and implementation literature both prior to and during the data analysis. This enabled the discussion of the key issues occurring at each level, including the capacity for adoption of innovative PI management practices. The presentation of the data according to these levels enabled a consideration of the potential effects of interventions to enhance PI services on daily PI practice, and the delivery of PI services within the health system more broadly.

Chapter eight provides a summary of the project findings and presents a proposal of future PI practice incorporating the adoption of recommendations informed by the project. Suggestions regarding future practice and research to support the workforce in their management of PI are presented. Finally, a concluding section provides an overview of how the proposed recommendations will assist in supporting community based approaches to PI management,
particularly through improving access to and enhancing continuity of PI management.

Figure 1.1: Overview of the project
CHAPTER TWO

THE NATURE OF PRESSURE INJURY (PI)

2.0 INTRODUCTION

The first body of literature to be critically reviewed is the PI literature. The search terms related to PI included PI, pressure sore, bed sore, decubitus ulcer, and pressure care. Databases searched included AMED, EBSCO CINAHL, Cochrane Wounds Group Specialised Register; The Cochrane Library; Ovid MEDLINE; Ovid EMBASE; PubMed, Web of Science. Articles written in English language and published in peer-reviewed journals across the last 20 years were considered for inclusion. Some older seminal papers were included to enable an enhanced picture of PI care and how it has changed over time. As this body of literature is substantial, parameters were set to enable a comprehensive review of the most pertinent literature. These articles were limited further by key topic areas of relevance in addressing the research questions such as searching for health professional groups in the title, or health service settings such as community services settings or home care. In terms of client groups represented, the emphasis was placed on the literature examining PI in those with chronic complex care needs.

In examining the literature related to the delivery of health services, more generally and specifically in the prevention and management of PI, priority was given to articles focusing on health services within Australia, Canada and the United Kingdom, as these countries have much in common in terms of health system design, as well as the mix of public and private interest (Oliver-Baxter & Brown, 2013; Palmer & Short, 2010). Only articles from developed nations were included.
An emphasis was placed on the detection and utilisation of RCTs and systematic reviews where they were available. The inclusion of any literature with the search terms in title was necessary, as in some areas such as broader aspects of workforce, including allied health involvement, team based approaches and skill-mix in PI, there were relatively few RCT and systematic reviews currently available. This is clearly illustrated in the Cochrane review conducted by Moore, Webster and Samuriwo (2015) in which no conclusions related to wound-care teams for preventing and treating PI could be drawn, due to an absence of high-quality studies, which met the inclusion criteria.

2.1 TERMINOLOGY AND DEFINITIONS

PIs are known by a variety of terms including decubitus ulcer, bedsore, pressure wound, pressure sore and pressure ulcer. The number of terms and definitions reflect the changes in knowledge that have occurred over time as understanding of the aetiology of PI has developed. Whilst PI was not the most frequently referenced term in the literature, PI was selected as the term for use throughout this thesis. PI was chosen, as this was the terminology used at the recent Australian Wound Management Association National Conferences, and it is also the term used in the recently published Pan Pacific Guideline for the Prevention and Management of PI (Australian Wound Management Association, 2012). The Australian Wound Management Association (AWMA), which is a professional association for persons with an interest in wound healing and wound management, endorsed the use of the term PI, as it was thought to be more reflective of national and international recognition that PIs are largely preventable (Carville, Hasler & Rayner, 2012). The term PI also encompasses broader perspectives regarding the development of PI, including the role of iatrogenic injuries caused by the application of devices and equipment, and it also encapsulates the ongoing impact of the damage caused by PI, in other words, its injurious nature.

According to the NPUAP a PI is a 'localised injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in
combination with shear and/or friction’ (2012, p. 16). Furthermore “PIs occur when there are high interface pressures exerted on the skin, with both the duration and intensity of pressure being important” (Stevenson et al., 2013, p. 2). A more recent description of PI published in a combined international guideline, acknowledges both the complexity of PI development and the uncertainty regarding the way in which the many factors interact and result in PI development. According to the NPUAP/EWMA/PPPUP (2014) “A number of contributing or confounding factors are also associated with PIs; the significance of these factors is yet to be elucidated.” (p. 12). This highlights gaps in our knowledge related to identifying patients’ risk for PI development PI, and the difficulty inherent in identifying and recognising damage to the skin as PI (Coleman et al., 2014; Vowden & Vowden, 2015). It is necessary to understand how these complexities in PI development and recognition influence the task of PI management in daily practice, as this has implications for types of strategies that may be of benefit in addressing PI need within various health service contexts.

PI vary in size and severity, and they also share similar characteristics with other types of wounds, making their identification challenging at times, particularly for persons without training in PI identification and classification. While a number of classification systems have been developed, there are two distinct categories of tools that assist clinicians to classify wounds: i) those tools that identify and communicate the severity of a PI, and ii) those that assess and monitor wound healing. These systems assist in the early identification of PI, their differentiation from other types of wounds, determining the most appropriate interventions given the severity of the wound, as well as monitoring the status of the wound and therefore the suitability of interventions. These tools also help to facilitate communication between clinicians regarding wound care (AWMA, 2012).

PI classification involves an individual/s determining and communicating the severity of the PI through the use of an established classification system. Consistency in staging is important for a number of reasons including the conduct and interpretation of research and the accurate recording of
epidemiological data in audits. It also facilitates the accurate evaluation of prevention and treatment measures within practice and research. In an effort to promote consistency in PI staging, the AWMA recently adopted a new staging system, which aligns with the system endorsed by both NPUAP and EPUAP. It includes six categories which classify the wound according to the depth of tissue damage; *Category 1* involves areas of skin redness which do not blanch under light pressure (non-blanchable erythema); *Category 2* involves skin damage (Partial thickness skin loss); *Category 3* involves full thickness skin loss; *Category 4* involves full thickness tissue loss; *Unstageable PI*: full thickness tissue loss where actual depth of the damage is completely obscured by slough and/or eschar; *Suspected deep tissue injury*: The depth of these injuries are unknown and they tend to appear as a localised area of discoloured intact skin or a blood-filled blister. Damage of this nature is thought to be caused by pressure and/or shear forces acting on underlying soft tissue (Carville et al., 2012; Coleman et al., 2014). The classification system just described is the one that will be referenced throughout this thesis. An outline of the classification system, which includes corresponding images is provided in Appendix A.

This classification system grades the PI based on particular characteristics, such as wound depth and the associated damage of the PI. While the classification system is widely accepted, the challenges for clinicians in classifying PI are well documented (Beeckman, Schoonhoven & Fletcher, 2007; Defloor, Schoonhoven, Katrien, Weststrate & Myny, 2006). Although some studies have demonstrated improvement in classification with education, the results are often variable, and the majority of studies involved nursing professionals. There are also well documented methodological issues in these studies, which often use photographs rather than actual wounds or compare results against expert opinion rather than a gold standard measure (Ham, Shoonhoven, Schuurmans, Veugelers & Leenen, 2015). A gold standard measure refers to the best tool available at that particular time to compare different measures (Claassen, 2005).

The addition of two new categories *suspected deep tissue injury* and *unstageable PI*, further illustrates the evolving understanding of PI and the challenges for
clinicians in classifying PI based on the characteristics of the wound (Ankrom et al., 2005). For example, some crucial elements that enable a clinician to classify a PI may be obscured from view, as damage may be located closer to the bone or hidden beneath damaged or healing tissue (NPUAP/EPUAP, 2012). Additionally, differentiating PI from other types of wounds and skin conditions can also be difficult. Recently there has been a renewed emphasis on the shared characteristics and similarities in presentation between moisture lesions often related to incontinence associated dermatitis and Stage II PI (Beeckman, Schoonhoven & Fletcher, 2010b; Beeckman, Van Lancker, Ven Hecke & Verhaeghe, 2014; Benbow, 2010; Defloor et al., 2005). Additionally, the shared characteristics of PI and diabetic foot ulcers, in terms of their natural history, have received attention very recently (Vowden & Vowden, 2015).

Many authors have presented various conceptual frameworks and theories regarding PI development (Braden & Bergstrom, 1987; Clark et al., 2006; Coleman et al., 2014; DeFloor, 1999). The increasing attention directed toward understanding the role of psychosocial and behavioural factors, as well as issues of access to health care and health services in the development of PI, highlight growing recognition of the multifactorial nature of PI development (Clark et al., 2006; Guihan et al., 2014). Further recent developments include greater understanding of the individualised susceptibility and tolerance for PI risk including the role of what is called an individualised damage threshold. These developments are reflected in the most recent conceptual framework developed by Coleman et al. (2014), which was described in the introduction. A systematic review and meta-analysis of existing literature, alongside a consensus study, which involved experts in the field of practice and research were employed in the development of this framework. Conceptual frameworks are important resources as they provide a theoretical model, which can assist researchers and clinicians to understand and visualise the critical determinants of PI development (Coleman et al., 2014). The most frequently referenced conceptual frameworks will be discussed in more detail in section 2.3.
2.2 KEY HISTORICAL DEVELOPMENTS IN PI CARE.

An understanding of how PI knowledge and practice has developed over time is important in considering what current practice looks like today. For instance, it helps to understand how the roles of clinicians have evolved over time and why certain professional groups are more involved in this area of practice than others. Exploring the trends in research over time also provide insights into how knowledge related to PI development has influenced approaches to PI prevention and management. Such knowledge can be used to enhance the exploration of current practice presented in this thesis and therefore inform future approaches to meeting PI need within various health service settings.

Awareness of PIs and their potential impact on the health of an individual and the challenges they present to those who provide care has existed for centuries (Kuffler, 2010; Van Rijswijk, 2001). Over time, numerous theories regarding the development of PI have been proposed. These theories reflect the knowledge and medical technology available at the time they were proposed. For example, in the 16th century descriptions of PI causality included internal supernatural as well as external natural factors (Defloor, 1999).

Up until the 1890’s, medical opinion was divided into two differing perspectives regarding PI development. There were those who believed that PIs were caused by pressure and therefore preventable, while others believed that it was the inevitable result of nerve damage. Jean-Martin Charcot (1825-1893) an important figure amongst the medical community in France in the 19th century and one of the founders of clinical neurology, studied the “decubitus”. Charcot subscribed to the “neurotrophic theory”, which held that damage to the central nervous system led directly to PI occurrence. Charcot believed that the lesions he observed were an inevitable consequence of damage to the brain or spinal cord and that pressure and local irritation were not major causative factors (Levine, 2005). These theories resulted in what has been termed therapeutic nihilism in which treatment was thought to be futile, and this is evident in Charcot’s
reference to these lesions as “decubitus ominous” implying that their occurrence heralded impending death. Charcot based theory on his observations of the many patients who developed eschar of the sacrum and buttocks and died soon afterwards. According to Gebhardt (2004) the perception that prevention and treatment of PI was futile resulted in “the care of susceptible patients being entirely delegated to nurses and PI aetiology, prevention and management disappearing from medical curricula. PIs became a ‘nursing’ rather than a ‘medical’ problem and consequently now nurses lead this area of practice.” (p. 1) It was not until the world wars, when significant numbers of spinal injuries occurred, that medicine rekindled an interest in spinal cord injury (SCI) and the possibility of preventing PIs (Gebhart, 2004).

Today, it is accepted that whilst most PIs are largely preventable, and that early intervention delivered to those at risk can prevent occurrence and deterioration of PI, not all PIs are unavoidable nor reversible when they do occur (Levine, 2005). The current prevalence and incidence of PI are known to vary amongst populations and health care settings (AWMA, 2012). While many studies claim that incidence and prevalence is high across acute, rehabilitation and community settings (Prentice & Stacey, 2001a; VanGilder, MacFarlane, Lachenbruch & Meyer, 2010), in a recent publication it was suggested that PIs are rare and affect only about 0.5% of the total population (Thomas, 2013). Woodbury and Houghton (2004) reported that the overall mean PI prevalence within Canadian health care settings ranged from 15.1% (95% CI: 13.4-16.8%) in community care settings, to 29.9 % (95% CI: 29.3-31.4%) in non-acute care, and 25.1% (95% CI: 23.8-26.3%) in acute care. Their findings were based on published studies and non-published data from equipment supply companies, both of which employed various methods in data collection, thereby raising questions regarding the reliability of the picture they present.

A significant proportion of the literature, particularly over the last 10 years, has focused on guideline development, promotion of guidelines to increase awareness, processes around guideline implementation, and challenges with implementation and changing practice. Significant efforts by professional
associations and specialty PI groups, both nationally and internationally, have achieved comprehensive summaries of the existing evidence related to PI. In spite of this work, the limitations of the existing evidence base in relation to PI management have been clearly stated (NPUAP/EPUAP/PPPUAP, 2014). Recently, Dealey et al. (2015) concluded that “In spite of significant efforts to reduce PI, their numbers appear to remain fairly constant. It is not possible to prevent all PIs, and it would appear that despite provisions of education and considerable resources, time and effort, the numbers of patients with PIs have not really reduced as hoped” (p. 309). This statement reflects a recent shift toward greater acknowledgement of the challenges inherent in PI management.

The problems inherent in measuring the occurrence of PI are a well-documented challenge that has an impact on the conduct and interpretation of studies in relation to PI management. These problems are illustrated clearly in the substantial body of research documenting the conduct of these studies, and include issues related to the collection of data, and the way in which it is interpreted and presented. In more recent years work has been undertaken to improve the quality and consistency of approaches in the conduct of studies to ensure greater accuracy (Baharestani et al., 2009). Throughout the rest of this chapter the recent history of PI management and key areas of research will be described.

2.3 DEVELOPMENT OF PRESSURE INJURIES

It is well known that an understanding of all the factors and mechanisms that contribute to PI development is currently imperfect (AWMA, 2012; Coleman et al., 2014; Dealey et al., 2015). In order to understand why certain clients are more likely to be affected by PI it is necessary to know about the various theories that have been proposed regarding their causation. These theories also provide the background for understanding the potential impact of increased longevity and multi-morbidity in the ageing and chronically disabled populations, and the consequent increases in demand for PI prevention and management in health services that are be observed as a result. Existing theories regarding PI
development and subsequent care will be enhanced in the present thesis, through the presentation of a description of the natural history of PI, which has been informed by the data and its analysis with reference to the pertinent literature. Developing a picture of the natural history of PI is essential in determining the most efficient and effective use of resources toward their prevention, recognition and management.

It has been suggested that as the presence of risk factors for PI increase amongst the population, due to the factors described earlier, such as increases in longevity, multimorbidity and the presence of chronic disease, that the occurrence of PI may also increase (Stevenson et al., 2013). This increase is likely to be further compounded by the chronic nature of PIs, with a previous PI being a strong predictor of subsequent PIs (Coleman et al., 2013). According to Thomas (2013) “Acute wounds proceed through a well-researched sequential progression toward healing. PIs, like other chronic wounds (diabetic ulcers, venous stasis ulcers, and arterial ulcers), fail to proceed through an orderly and timely process to produce anatomic or functional integrity” (p. 397). The result is slow healing and skin with permanently altered integrity, which then renders the client at high risk for the subsequent development of further PI (Coleman et al., 2013; Guihan et al., 2008). In some cases wound healing is unlikely and controlling symptoms as part of ongoing management is necessary (Harding, 2007). Indeed, it is only very recently that PIs have been identified as chronic wounds alongside diabetic ulcers and leg ulcers (Graves & Zheng, 2014a, 2014b).

PIs are thought to be the visible evidence of pathological changes in the blood supply to dermal tissues, the chief cause of which is pressure, or force per unit area, applied to susceptible tissues (Thomas, 2006). The tissues involved in PI development include the skin, subcutaneous fat, deep fascia, muscle and bone. The skin has several layers the epidermis, dermis and subcutaneous layer and deep fascia, and these structures function in different yet interrelated ways to provide protection from mechanical disruption. Key factors thought to reduce the resilience of the skin include thinning of the skin due to aging, critical illness, malnutrition and dehydration, excessive moisture and skin conditions that cause
excessive dryness (Bluestein & Javaheri, 2008; Coleman et al., 2013; Coleman et al., 2014; Grey et al., 2006; Dealey, 2009; Nixon, 2001). There has been a recent reemphasis upon the importance of skin care in PI prevention, which includes attending to basic care and hygiene, and this raises the critical role of clients and their informal support care in PI management. What this also highlights is the very important role of clinicians whom are involved in the direct provision of personal care, as well as those clinicians that are involved in the training and support of others to undertake personal care tasks, whether that be a client or their support care. These roles and the knowledge and skills required to undertake such roles, will be explored further in the current thesis.

PIs develop when the soft tissues are no longer able to tolerate the sustained mechanical loads that develop between bony prominences and their surrounding tissues. The susceptibility of certain parts of the body to PI is known to vary and this is due to differences between sites of the body in terms of blood flow and tissue density, as well as differences between individuals. PIs often occur over prominent bony landmarks such as the occiput, elbows, ischial tuberosities, sacrum and heels, with the majority developing on the lower half of the body (Genfen, 2007; Nixon, 2001).

In people with normal sensitivity, mobility, and cognition, PIs usually do not occur. Any individual is susceptible to PI in the presence of restrictions on their mobility, as even though they may receive the conscious and unconscious feedback that typically lead people to alter their position before significant tissue damage occurs, they are restricted in their ability to respond to this feedback. Restrictions on mobility can occur for many reasons including acute illness and traumatic accident. When an individual is able to receive and respond to feedback regarding the need to reposition, the microvasculature of the skin is protected from ischemic damage during occlusion and pressure, and local tissue perfusion can be restored (Nixon, 2001).
Pls are thought to develop as a result of an interaction between the intensity and duration of pressure and the tolerance of the skin (Braden & Bergstrom, 2001). There is usually an interaction between the pressure assault and the capacity of the skin to maintain and effectively restore skin blood flow. A number of auto-regulatory mechanisms exist to protect the skin from pressure assault and these processes may break down at certain pressure levels which are highly variable both between and within individuals (Coleman et al., 2014; Gefen, 2008; Nixon, 2001).

There are a network of vascular and lymph vessels that ensures the supply of necessary nutrients and oxygen to support cell metabolism, skin renewal and repair, blood flow to facilitate temperature regulation, and the removal of waste from the skin (Nixon, 2001). An important characteristic of the vascular system is the ability of each tissue to control local blood flow in proportion to need. Blood flow in the skin varies from individual to individual, is site dependent and is affected by a combination of systemic, local and disease related factors (Coleman et al., 2014).

Pls mainly develop as a result of disruption to the vascular network of arteries, arterioles and capillaries. Nixon (2001, p.24) described three main pathological process involved in PI development:

i) Occlusion of skin blood flow and subsequent tissue reperfusion of the ischemic vascular bed, which causes ischemia, reduced supply of nutrients to cells, and elimination of metabolites that lead to tissue damage.

ii) Endothelial damage of the arterioles and the microcirculation due to the application of disruptive and shearing forces

iii) Direct occlusion of blood vessels by external pressure for a prolonged period, resulting in cell death.

More recent work involving laboratory and animal studies propose several aetiological mechanisms by which stress and internal strain interact with damage thresholds to result in PI (Coleman et al., 2014). These include localised
ischemia and reperfusion injury, which are similar to Nixon’s (2001, p. 24) process described earlier. Coleman et al., (2014) also emphasise impaired lymphatic drainage and sustained cell deformation in PI development. Impaired lymphatic drainage refers to the occlusion of lymph vessels which leads to an accumulation of waste products and an increase in interstitial fluid that contributes to PI development. The concept of deformation has emerged from bioengineering studies, which have developed understanding of the damage thresholds for muscle tissue. These studies have identified that strains of sufficient magnitude have the potential to cause cell death over very short periods of time (Gefen, van Nierop, Bader & Oomens, 2008). Events at the cellular scale are known to be involved in the onset and progression of PI and deep tissues injury in particular (Gefen, 2008; Gefen et al., 2008). It is important to acknowledge that localised pressure is complicated by shear and friction forces, the contact area, underlying bone, pressure distribution, perfusion status, contact surface conditions and associated tissue distortion (Nixon, 2001; Defloor, 1999). Consideration must also be given to the role of skin and fat in PI development as well.

A number of conceptual frameworks, examples of which are provided in Appendix B have been developed to assist in understanding PI development with each suggesting various relationships between numerous interrelated factors or critical determinants of PI development (Braden & Berstrom, 1987; Clark et al., 2006; Coleman et al., 2014; Defloor, 1999). The model proposed by Braden and Bergstrom (1987) is the most frequently cited schema and it forms the framework for description of PI development in the Pan Pacific Clinical Practice Guideline for the Prevention and Management of Pressure Injury (2012). Braden & Bergstrom’s (1987) model implicated intensity and duration of pressure and tissue tolerance in the development of PI. Tissue tolerance describes the ability of the tissue to tolerate pressure without damage (Braden & Bergstrom, 1987). In Braden and Bergstrom’s model a range of intrinsic and extrinsic factors, which are felt to influence tissue tolerance, are described. Defloor’s (1999) conceptual model differs in the way tissue tolerance contributes to the development of PI. For example, he considered tissue tolerance as an intermediate variable and not
a causal factor. Defloor (1999) also included shear and friction as intrinsic factors rather than as external causes of PI in combination with pressure.

In the most recent framework to have been developed by Coleman et al., (2014) pressure, shear and friction are confirmed as the causative factors. Coleman et al. (2014) also place far greater emphasis on understanding the importance of the ‘inherent variability in both individual susceptibility and local tolerance to loading parameters associated with factors including morphology and the mechanical properties of the intervening tissues. These, in turn, are affected by the patient’s characteristics, health status and exposure to specific risk factors’ (Coleman et al., 2014, p. 2226.). In other words the interplay of factors that contribute to PI are complex, and it is necessary to critically discuss risk factors in terms of the relationship between these factors and the actual exposure to shear, pressure and friction.

Many risk factors are thought to contribute to PI formation, and these form the basis of PI risk assessment processes, which will be outlined further in section 2.5.1. First, a range of factors thought to contribute to PI develop will be described.

2.4 RISK FACTORS FOR PI

Developing a greater understanding of risk factors for PI and how they interact with one another is important in determining who is genuinely at risk (Coleman et al., 2014; Defloor, 1999). To date numerous risk factors have been identified with up to 126 different factors documented within the literature (Romanelli, Clark, Cherry, Colin & Defloor, 2006). With this number of risk factors playing a potential role in PI development, there are problems in determining just who is at risk and therefore using this information to determine how resources should be allocated.

While there is variable evidence to confirm the precise risk factors, a recent systematic review by Coleman et al. (2013) determined that the risk factors
emerging most frequently as independent predictors of PI development included three primary domains of mobility/activity, perfusion (including diabetes) and skin/PI status. Skin moisture, age, haematological measures, nutrition and general health status were also found to be important, yet did not emerge as frequently as the other domains.

Coleman et al’s. (2013) systematic review confirmed what has already been widely understood within the literature, that there is no single factor which can explain PI risk, and that instead, a complex interplay of factors increases the probability of PI development. Following their systematic review (Coleman et al., 2013) undertook a consensus study involving an expert working group to identify the risk factors and assessment items important for summarising risk. The expert working group considered the evidence from the systematic review (Coleman et al., 2013), the wider scientific evidence drawn from their own expert knowledge and also potential importance to clinical practice. As a result of this process, four levels of risk factors were identified, and these are described below (Coleman et al., 2014, p. 2227):

- Factors with strong epidemiological/wider scientific evidence and clinical resonance that increase the probability of pressure ulcer development (immobility, skin/PU status and perfusion).

- Factors with good epidemiological/wider scientific evidence and/or good clinical resonance, but showing some inconsistency in their statistical association with pressure ulcer development (albumin, sensory perception, diabetes, nutrition and moisture).

- Factors with weak or limited epidemiological evidence and/or clinical resonance, which could be important at an individual patient level (age, medication, pitting oedema, chronic wound, infection, acute illness and body temperature).
• Factors with contradictory epidemiological evidence (race and gender) or those considered to be a surrogate measure of other key risk factors (mental health, haemoglobin).

The above described ‘levels of risk factors’ were then used to develop the pressure injury conceptual framework included in Appendix A (Coleman et al., 2014).

In the next section an outline of some key risk factors, which are particularly important in understanding why a fresh approach to PI management is necessary within the context of increasing demands for complex chronic care, are explored. These risk factors are also considered in terms of there relevance for understanding why greater attention to PI management within community service settings, is important in achieving to overall improvements in client and health system outcomes.

2.4.1. History of PI
A history of PI is thought to be a strong predictor of subsequent PI development. Anyone with a previous PI has to be considered at high risk for re-occurrence (Coleman et al., 2013; Guihan et al., 2008). As described earlier, Thomas (2013) suggests that as PI ‘fail to through a timely process to produce anatomic and functional integrity’ (p. 397), the skin affected by the PI has permanently altered integrity, and this therefore renders the client at high risk for further skin breakdown.

2.4.2. Reduced mobility and activity
Limited mobility or the inability to reposition without assistance is a major factor in PI development (Coleman et al., 2013). Physical illness, both acute and chronic in nature, leads to difficulty in changing position. Those recovering from orthopaedic surgery and those who have conditions such as arthritis, which lead to joint deformity and reduced strength, experience reductions in mobility (Firth et al., 2008; Firth, Nelson, Briggs & Gorecki, 2011; Firth et al., 2014). Obesity is
another health condition which can limit an individual's movement, and therefore place them at risk for PI (Miles, Fullbrook, Nowicki & Franks, 2013), and functional decline associated with psychosocial factors may also decrease participation in daily activity (Clark et al., 2006; DeFloor, 1999).

Paralysis, or the inability to move due to loss of motor nerve function, in conditions such as stroke and SCI, can present as hemiplegia, paraplegia or quadriplegia. Paralysis leads to a reduction in muscle bulk and subcutaneous tissue, which also exacerbates the risk for PI development (Middleton, Leong & Mann, 2008). Individuals who are unable to independently reposition themselves to prevent pressure areas occurring, commonly as a result of decreased mobility, impaired sensation and/or cognitive problems, are particularly at risk. Those who exhibit higher prevalence rates include people with SCI, the frail elderly with fractured neck of femur, and patients in intensive care units (VanGilder, Amlung, Harrison & Meyer, 2009). All of these patients have limited mobility.

Other pathological processes are also thought to contribute to PI including spasticity, contractures, and hypotensive episodes (Atiyeh & Hayek, 2005; Bansal, Scott, Stewart & Cockerell, 2005). Bansal et al. (2005) suggest that any agent that creates immobility, such as neuromuscular paralysing agents, braces, and splints may also potentially contribute to PI development.

In some cases where people use compensatory strategies in order to be more mobile, the skin may be placed at greater risk for damage and therefore weaken its ability to sustain mechanical load. For example, some transfer techniques associated with limited mobility may put the skin at greater risk. The way in which an individual is moved by others may also pose further risk for PI due to friction and shear forces. For high-risk populations including those with SCI, the relationship between participation in activities of daily living and their relationship to PI development has been explored in depth (Clark et al., 2006).
2.4.3. Spinal cord injury (SCI)
In the SCI population up to 95% of adults will experience at least one advanced PI (Stage 3 or 4) in their lifetime (Garber, Rintala, Hart & Fuhrer, 2000). Krause and Broderick (2004) found that amongst a sample of 633 non-ambulatory participants with SCI of 5 or more years 17% had at least one new PI every two years, 9% had at least one new PI every year, and 4% had PI almost constantly.

Cutajar and Roberts (2005) in their cross sectional survey of the relationship between engagement in activities and the development of PI found that those individuals with SCI who were employed were less likely to be hospitalised for PI treatment. Mathew, Samuelkamaleshkumar, Radhika and Elango (2013) in their retrospective cross sectional survey of South Indian individuals with SCI (n=108) explored details of employment status, descriptions of participation in leisure, levels of independence in self care, as well as details related to PI occurrence. They found no statistically significant correlation between independence in self-care and PU development and also did not identify any relationship between work status and PI development. They did find a correlation between the type of work undertaken by the person with SCI and the severity of PI, which showed that those engaged in manual work experienced less severe PIs than those engaged in more sedentary work such as tailoring. In this study poor pressure relief practices including prolonged sitting or lying in the same position was the more common cause. They concluded by highlighting the important role therapists can play in not only facilitating participation in employment but also in providing education and ongoing support, beyond hospital based rehabilitation settings, to ensure those with SCI lead a balanced lifestyle in the community.

As the survey for Matthew et als’. (2013) study used predominantly closed ended questions and participants were required to subjectively report on PI issues that had happened in the past, the findings of this study are limited in their ability to be generalised. Additionally, given the study was conducted in Southern India its application to PI management within an Australian context is limited. There may be issues related the type of work, levels of payment, socio-economic status and
access to health care which could potentially have been more influential upon PI management that where not explored. Issues of access have been found to be influential on PI development for instance, poor access to preventative equipment and health services have been found to influence the success educational program that aim to prevent PI (Ghaisas et al., 2015; Jackson et al., 2010). Several studies have also identified risks related to participation in everyday activity for those with SCI. These include balancing life satisfaction including the pursuit of social and professional activities to allow a more enjoyable life with the need to limit time spent sitting in a wheelchair. Assistance to incorporate adequate pressure relief into everyday life, and therefore reduce the risk of PI, has been recommended as an essential component in decreasing daily risk for PI (Fogelberg, Atkins, Blanche, Carlson, & Clark, 2009; Stinson et al., 2013b; Vaishampayan, Clark, Carlson & Blanch, 2011).

2.4.4. Acute illness

Tissue tolerance for pressure is known to be affected by being acutely unwell. Acutely ill people may experience periods of immobility as well as fever, which increases the metabolic rate and increases demand for oxygen by compromised tissues (Grey et al., 2006). For instance, in the case of people with traumatic brain injury and a low Glasgow Coma Scale score, delayed enteral feeding and falls in haemoglobin levels were significant prognostic factors for PI (Dhandapani, Dhandapani, Agarwal & Mahapatra, 2013). People who have had prolonged anaesthesia are also at risk of PI due to long periods of immobility (Basal et al., 2005). Community dwelling individuals that experience acute illness may also become immobile for periods of time, placing them at increased risk for PI (Berquist-Beringer & Gajewski, 2011).

2.4.5. Malnutrition and dehydration

Nutritional status is widely accepted as being linked to PI development (Hengstermann, Fischer, Steinhagan-Thiessen & Schultz, 2007). According to Colemen et al. (2014) a patient’s nutritional status was found to be an indirect causal factor and is presented as such in the latest conceptual framework. While
the role of nutrition in wound healing is well established, less research has been conducted to support the importance of nutrition in prevention (Doley, 2010).

2.4.6. Older age

Older adults are well known to be at increased risk for the development of PI. According to AWMA, all individuals over the age of 65 to be at increased risk (2012). PIs are a significant cause of morbidity and mortality in the aged care population with prevalence rates reported to be as high as 43% in some aged care facilities (Santamaria et al., 2009b). The frail elderly resident is at particular risk of developing a PI if immobile, incontinent or cognitively impaired.

Approximately 10% of older patients in an acute setting can be expected to develop a PI during hospitalisation (Margolis, Bilk, Knauss, Baumgarten & Strom, 2002). In their study of the incidence and prevalence of PIs among older patients in general medicine practice, Margolis et al. (2002) found that PIs were substantially more likely to occur with increasing age. Compared to those aged 65-70 years, those aged over 80 years were 4-20 times more likely to develop a PI.

Older people are believed to be particularly at risk of PIs because of a reduced amount of elastin in the skin, which predisposes them to the adverse effects of shear (Grey et al., 2006). Ageing skin is vulnerable to poor circulation, inadequate nutrition or moisture, and is particularly sensitive to tissue death and subsequent wound formation when subjected to pressure and shear forces (Bluestein & Javaheri, 2008). Wound repair also slows as the body ages. Therefore, PI incidence and demand for PI services is predicted to rise along with the rise in the ageing population (Grey et al., 2006).

2.4.7. Diabetes

Diabetes in particular has been linked to increased risk and complication in PI healing. Diabetes was also identified as one of three primary risk factors that increase the probability of PI development (Coleman et al., 2013; Coleman et al., 2014). In their meta-analysis, Lui, He and Chen (2012) found that patients with a
diagnosis of diabetes mellitus are slightly more than twice as likely to develop surgery-related PI (odd ratio=2.15; 95% CI:1.62-2.84). Diabetic sensory neuropathy also impairs the ability to sense and react to pain and pressure (Grey et al., 2006). Skin trauma is a significant risk for someone with diabetes as this may be the trigger, which leads to an amputation of a lower limb.

Foot ulcers are a common complication of diabetes. Foot ulceration affects 15-25% of people with diabetes at some point during their lifetime, and 70% of foot ulcer patients have recurrent lesions within five years after treatment (Apelqvist & Larsson, 2000). Risk factors for diabetic foot ulceration include peripheral neuropathy, peripheral vascular disease, foot deformity and ill-fitting footwear, as well as raised plantar pressures (Abbott et al., 2002; de Sonnaville et al, 1997; Lavery, Armstrong, Vela, Quebedeaux & Fleischli, 1998). Pathways leading to ulceration include neuropathy, ischemia or both (Dorresteijn, Kriegsman & Valk, 2010). Foot ulceration and PI share similar characteristics in the mechanism of injury (Bateman, 2013; Vowden & Vowden, 2015). Recently, Vowden and Vowden (2015) argued ‘that the breadth of the current definition of PI could be interpreted as including most diabetic neuropathic and neuroischaemic foot ulcers as the skin break, damage or ulceration is usually caused by pressure and or shear’ (p.65). Due to the breadth of the definition of PI and the shared mechanisms of injury between PI and diabetic foot ulceration, people with diabetes and an ulcer or wound on the foot should have the benefit of assessment by a specialist multidisciplinary team and treatment pathways, irrespective of the name given to the ulcer (Vowden & Vowden, 2015).

2.4.8 Chronic conditions and multi-morbidity
Those with chronic complex care needs often experience many of the potential risks for PI over the course of their care. Many conditions can be classified as chronic diseases. According to the Australian Institute of Health and Welfare [AIHW] (2014) chronic diseases are characterised by complex causality, multiple risk factors, long latency periods, a prolonged course of illness, and functional impairment or disability (Australian Institute of Health and Welfare [AIHW], 2014). To date, relatively few studies have explored the PI needs of those that
require complex chronic care. Multi-morbidity usually involves two or more chronic conditions and becomes progressively more common with age (Walker, 2007). The presence of disorders affecting various organs can increase the risk of PI. As Bansal et al. state: ‘As skin integrity is dependent upon the function of all other organ systems for nutrition and immune function, when those organs fail the skin is at a greatly increased risk for ulceration’ (2005, p. 809).

A range of conditions requiring chronic complex care have been linked to skin breakdown, such as rheumatoid arthritis and diabetes mellitus (Bergin et al., 2012; Firth et al., 2011). Respiratory disease such as chronic obstructive pulmonary disease (COPD) and cardio-vascular disease may lead to decreased tissue oxygenation making tissues more prone to pressure damage (Grey et al., 2006). Dysfunction of autonomic regulatory mechanisms of local blood flow may also increase susceptibility to PI (Coleman et al., 2013; Morison, 2001), and this may be related to diabetes mellitus, peripheral vascular disease, and hypotensive episodes (Bansal et al., 2005). According to Thomas (2013) the distribution of PI is clustered into two main groups: one group peaks in younger, mostly neurologically impaired persons and another peaks in persons older than 70 years, suggesting issues with chronic conditions.

2.4.9. External and environmental factors

There is growing recognition that sometimes skin injuries can be caused by equipment used as part of care process, these devices include nasal prongs, slings and positioning equipment that can potentially cause skin and tissue damage (Black et al., 2010). These types of injuries are sometimes referred to as iatrogenic injuries meaning that they are caused in the process of providing care. Another term used more recently in the literature is medical device related pressure ulcer (MDRPU) (Worsley, Clarkson, Bader, & Schoonhoven, 2016).

Perfusion may be affected by the patient’s condition, resulting in pressure damage occurring at lower levels of pressure. For example, a patient requiring oxygen is more predisposed to skin injuries and therefore more likely to develop
a PI due to pressure caused by nasal prongs. It has been reported that there is an increasing problem of device related PI, with one survey of 2079 hospitalised patients that had an overall PI prevalence of 5.4%, finding that approximately 35% of these skin injuries were device related (Black et al., 2010).

The exploration of risk factors specific to community care settings indicates that there is a growing recognition of the multifactorial nature of PI risk, and the complex relationship between the client, their environment and their PI need. Two studies identified risk factors among older adults receiving home health services in the United States using routine data collected as part of the admission process for home care services. They identified a number of risk factors that differed from those that predict development in other settings, including having an adult child as the primary care giver, oxygen use, skin damage, male sex, being wheelchair bound, needing assistance with dressing, bowel/bladder incontinence, an International Classification code of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) code of anemia, and an ICD-9-Cm code of recent fracture (Berquist & Frantz, 1999; Berquist, 2003).

A similar study conducted by Berquist and Gajewski (2011) involving electronic data extraction from medical records of a range of home health agencies providing care to older adults, found that daily bowel incontinence, physical aggressive behaviour, dependence in ADLs, and the presence of PI on admission were positively associated with new PI development. Berquist and Gajewski (2011) also suggested that their results indicated that those older adult home health care patients are at higher risk for PI development and that PI incidence studies may underreport their actual occurrence. Studies that have explored PI within community service settings, as just described, have begun to articulate how risk for PI is different within this health service setting.

Additional risk factors identified in general wound care epidemiological studies also highlight the importance of factors such as reduced physical activity and malnutrition in wound development and wound healing (Probst et al., 2014). For example, an individual with arthritis who has an existing wound such as a foot
ulcer would have significant limitations on their mobility, thereby placing them at risk for PI. Additionally, they may have existing difficulties with meal preparation and the task of eating itself, which would affect their nutritional status. These factors would combine to both slow the healing of their existing wound and also increase the probability of them developing a PI. Intervening to address these underlying issues affecting the client’s everyday functioning may help to reduce PI risk and assist in healing the existing wound.

The risk factors identified for PI development within community service settings to date, suggest that the provision of services that are known to promote and support functioning well within the home environment, may in fact help to reduce PI occurrence, and assist with healing when they do occur. Regardless, this approach requires clients to be able to access the services necessary to address their individual risk factors arising in their particular context. The existing barriers to this type of approach and the potential facilitators, which may enable its application within the AHCS, will be explored further within the current thesis.

2.5. AN OVERVIEW OF PI MANAGEMENT

Within the current thesis the term PI management is used to refer to both the prevention and treatment of PI. The literature base supporting PI management is extensive. Nevertheless, a criticism of research to date has been its tendency to focus on PI causes and risk factors rather than on strategies for managing the care of those with PI (Wellard, 2001).

The Institute for Health Care Improvement (2011) has made a substantial contribution to support best practice PI management through their ‘how-to guide for the prevention of Pressure Ulcers’. According to the Institute for Health Care Improvement (Institute for Health Care Improvement [IHI], 2015) there are two major steps in preventing PIs - i) identifying patients at risk and ii) reliably implementing prevention strategies for all patients who are identified as being at
risk. While this seems fairly straightforward, current research trends are demonstrating the complex nature of these two tasks. It is increasingly understood that interventions for PI prevention must be tailored to individual risk and monitored closely over time (Dealey et al., 2015; Samuriwo & Dowding, 2014).

Once a PI is identified and recognised as requiring treatment, additional interventions and strategies are put in place to assist with managing the wound (Thomas, 2006). The core mechanisms used to support clinicians to implement interventions in PI management will be described over the next few sections. Table 2.1 provides a summary of the main interventions for PI management as described within the NPUAP/EPUAP/PPPUAP (2014) guideline. Please refer to the NPUAP/EPUAP/PPPUAP (2014) guideline for a comprehensive summary of the evidence related to the use of these interventions. A number of textbooks specifically concerned with the prevention and treatment of PI, are also available, and these offer comprehensive detail related to both the prevention and treatment of PI (Bader, Bouten, Colin & Oomens, 2005; Morison, 2001; Romanelli et al., 2006). More general textbooks usually include limited information on PI prevention and treatment, reflecting the number of competing issues for which clinicians require skills and knowledge (Murtagh, 2011; Pendleton & Schultz-Krohn, 2006), and tend to direct clinicians to CPGs for further detail regarding PI management.

2.5.1 Mechanisms to support PI practice

A range of mechanisms to support clinician decision making around the prevention and treatment of PI are available. These include CPGs, risk assessment scales, protocols, algorithms and decision pathways to support both the identification of those at risk and the allocation of appropriate interventions.
2.5.1.1 Clinical practice guidelines

The most robust evidence available for PI management has been comprehensively summarised in the various CPGs that have been produced over the last 10 years (AWMA, 2012; NPUAP/EPUAP, 2009; NPUAP/EPUAP/PPPUAP, 2014). The limitations in the existing knowledge base to support decisions around PI management are well acknowledged (AWMA, 2012; NPUAP/EPUAP, 2009; NPUAP/EPUAP/PPPUAP, 2014). While the need for more scientific literature based on trials to support clinicians in their decision-making around PI management is widely recognised, the challenges in conducting these types of studies are well documented. These challenges include gaining informed consent from vulnerable client groups such as those that are frail aged and those with cognitive impairment. Additionally, there is often conflict between responsibility to patients and obligations to conduct high quality research studies. The limitations in generalising intervention studies, across the diverse range of client groups at risk for PI development, is also recognised (Choo, Blundell & McGinnis, 2012; Gebhardt, 2004; Halfens & Haalboom, 2001; NPUAP/EPUAP, 2009).

Clinical practice guidelines are systematically developed statements that help clinicians to make appropriate health care decisions in specific clinical environments (NPUAP/EPUAP, 2009). Guidelines provide access to evidence and recommendations for managing a particular problem and should be used in conjunction with the expressed values of both patients and clinicians (NPUAP/EPUAP, 2009). They are widely accepted as beneficial despite significant challenges in their implementation into everyday practice.

Many studies highlight variable compliance with best practice guideline recommendations, regardless of the practice setting (De Laat, Schoonhoven, Pickers, Verbeek & Van Achterberg, 2006; Kallman & Suserud, 2009; Lyder et al., 2001; Moore & Price, 2004; Moore, 2010; Pancorbo- Hidalgo, Garcia-Fernandez & Lopez-Medina & Lopez-Ortega, 2007; Sharp et al., 2000). In the case of PI, guidelines must be applied to individuals in variable clinical settings.
and with access to varying resources. The proliferation of guidelines combined with a rise in multi-morbidity amongst people at risk of PI presents a significant challenge to clinicians due to the multiple pathways that need to be followed and the consequent interactions of decisions and potential contraindications that may occur in everyday management.

The influence of personal interests and sponsorship on guideline development is also an important consideration in understanding their potential influence on practice (Scott, 2014; Clancy, 2013). The use of PI clinical practice guidelines is limited by their ability to be implemented into the clinical context, as no matter the quality of the evidence, a poor fit between the recommendation and the context, including the individuals within the context, will render the information useless. For instance, as will be demonstrated in the current thesis, PI management in community setting is very, and clinicians are usually required to work with the resources available within the client’s home environment. They do not have easy access to the recommended piece of equipment, and they must use the human and physical resources that are available. The identification and development of supports to help make recommendations work for clients and support care within their specific context may enable more effective use of clinical practice guidelines.

The need to support the translation of evidence into health care policy and practice more broadly has been widely documented (Harvey & Kitson, 2015; KT clearinghouse, 2015; Woods & Magyary, 2010). The latest version of guidelines co-produced by the NPUAP/EPUAP/PPPUA (2014) acknowledges the need for further support to assist clinicians to implement recommendations. The addition of information specifically tailored to special populations including but not limited to bariatric individuals, the critically ill, older adults, individuals in palliative care, and individuals with SCI within the latest version of the guidelines, is illustrative of the need to provide additional supports to assist clinicians to use the information contained within clinical practice guidelines. The guidelines also now include recommendations around supports to assist in the implementation of guidelines thereby further acknowledging the challenges
involved in guideline implementation, and the necessity of providing additional supports to assist health services and individual clinician in this task. These recommendations to support guideline implementation include: the identification of facilitators, barriers and implementation strategies, the provision of clinician education and the increased involvement of patient consumers and their caregivers (NPUAP/ EWMA/PPPUA, 2014). Significant work is needed to research guideline implementation and support the translation of knowledge into practice, this may go some way to reducing what Moore (2010) describes as a theory-practice gap that still exists in PI practice due to the poor uptake by clinicians and the lack of translation of many guideline recommendations in practice.

2.5.1.2 Risk Assessment
Based upon the PI risk factors described earlier, risk assessment scales have been developed as a means to assist clinicians to identify individuals at risk of developing a PI, in particular, the degree of risk present (Moore & Cowman, 2014; AWMA, 2001). Risk assessment scales attempt to stratify risk according to the number of known risk factors present and guide allocation and implementation of preventative measures (Grey et al., 2006). The risk assessment usually involves a checklist to alert clinicians to risk factors that may predispose individuals to PI development. Some risk assessment scale scores are also designed to indicate the intervention process to follow once a risk is established through the use of algorithms linked to clinical protocols. An example of a protocol is included in Appendix C.

There are many PI risk assessment scales available and there is little evidence to say that any one scale is superior to another. Some of the more commonly used PI risk assessment tools include the Waterlow, Braden and Norton scales and these scales are often used across health services settings and client groups (Moore & Cowman, 2014; Anthony, Parboteeh, Saleh & Papanikolaou, 2008). There are also scales that have been designed specifically for use with certain client groups, such as the Glamorgan scale, which is a paediatric risk assessment
tool, and the Salzberg scale that assess PI risk factors in the SCI population (Guihan & Bombarider, 2012).

Insufficient knowledge and inappropriate application and interpretation of risk assessments has important implications for both client and service outcomes as clinical decisions, such as the use, or not, of PI prevention strategies are often made on the basis of the results of risk assessment. Inappropriate allocation of resources as the result of a risk assessment can compound the increasing burden of PI, and add to health care costs (Moore & Cowman, 2014; DeFloor & Grypodonck, 2005; Gould, 2002).

There is a complex interplay of factors that combine to increase the probability that a PI may develop, as described earlier. Many of the existing tools do not account for the many other risk factors that have been identified as potentially impacting on PI development. It would be difficult to create a tool with the capacity to account for all of the risk factors and circumstances that could potentially contribute to an individual risk of developing PI. Therefore, the importance of clinician knowledge and clinical decision making skills are critical.

There has been much debate of about the clinical utility, validity and reliability of risk assessment tools in the literature, and numerous studies have attempted to examine the various qualities of risk assessment scales (Anthony, Papaikolaou, Parboteeah & Saleh, 2010; Pancorbo-Hidalgo, García-Fernandez, Lopez-Medina & Alvarez-Nieto, 2006). One systematic review explored the use of risk assessments in the clinical decision making of nurses related to risk. Moore and Cowman (2014) completed a Cochrane review in which they included randomised controlled trials (RCTs) comparing the use of structured, systematic risk assessment tools with no structured PI risk assessment, or with unaided clinical judgement, or RCTs comparing the use of different structured PI risk assessment tools. Two studies were found that met the inclusion criteria, one was conducted in a military hospital in Saudi Arabia (Saleh, Anthony & Parboteeah, 2009), the other was an Australian study conducted in a tertiary referral teaching hospital (Webster et al., 2011).
Moore and Cowman (2014) concluded that there is no reliable evidence to suggest that the use of structured, systematic PI risk assessment tools reduces the incidence of PI. Many clinicians and researchers have similarly recognised the limitations of risk assessment scales and have emphasised the importance of individual clinician knowledge and skills in detection of risk, and allocation of interventions to address prevent and manage PI (Samuriwo & Dowding, 2014; Anthony et al., 2010).

Scott (2014) expresses a similar sentiment suggesting that the use of time-consuming risk assessment tools over experienced nurse judgements in evaluating PI risk may not represent the best use of resources and that ‘the less cost-efficient options are often chosen under the influence of commercial interests or regulatory requirements’ (p.127). Cost effectiveness of PI prevention strategies is now being more carefully examined, as data is not demonstrating a reduction in incidence of PI expected as a result of efforts to implement evidence based care through clinical practice guidelines (Dealey et al., 2015; Clancy, 2013; Schuurman et al., 2009).

There are methodological issues that influence the utility of these findings for everyday practice. For example, it is not possible to know the diagnostic accuracy of any method of identifying PI when the use of effective measures to maintain skin integrity are implemented, as this should in theory reduce the occurrence of PI. As it is unethical to deny patients interventions that have been shown to prevent or delay PI development, it may never in fact be possible to obtain any certainty regarding the predictive accuracy of any method of identifying patients who will develop a PI (Samuriwo & Dowding, 2014; Choo et al., 2012; Defloor & Grypdonck, 2005).

Nevertheless, there are many documented benefits of risk assessment for PI, such as guiding clinicians toward a planned intervention which is appropriate and has been guided by the risk assessment. For example, Hagisawa & Barbenel (1999) conducted a study over 12 months in an internal medical ward and
reported that none of the 239 patients who had a Braden score of 17 or greater throughout the assessment period, and were therefore assessed as not at risk, developed a PI. They concluded that their study demonstrated the value of risk assessment for PI prevention, particularly in assisting staff with the allocation of resources to those most in need (those with the lowest scores on the Braden scale). A meta-analysis conducted by Garcia-Fernandez, Pancorbo-Hidalgo and Agreda (2014) similarly highlighted the benefits of risk assessment scales. Garcia-Fernandez et al., (2014) analysed 73 studies exploring the ability of risk assessment scales, along with the clinical judgement of nurses to predict PI development. They concluded that clinical judgement of nurses was not sufficient to determine PI development and that use of a validated risk assessment scale was an essential part of the process. For the reasons just outlined above, risk assessment is a well-integrated process across service settings nationally and internationally, and their use is recommended in guidelines as a component of the assessment process to identify individuals at risk of developing PI (NPUAP/ EPUAP/PPUAP, 2014).

Clinical practice guidelines recommend the use of a validated risk assessment scale in combination with a comprehensive assessment in order to develop a prevention plan (AWMA, 2012). Elements of a comprehensive assessment identified in the guidelines include clinical history, skin assessment, mobility and activity, nutritional assessment, continence assessment, cognitive assessment, and an assessment of extrinsic factors (NPUAP/EPUAP/PPUAP, 2014). The conduct of a psychosocial history to identify factors that impact on PI prevention and management is increasingly recommended (AWMA, 2012). The complexity of risk assessment issues has been illustrated in this section. It is evident that the multifactorial nature of PI development in combination with the numerous and competing demands placed on clinicians ensure that PI prevention is a challenging task (Dealey et al., 2015). There is a need to examine more closely how clinicians make decisions, particularly when some professional group are emerging in this area of practice, as this will help to articulate how their contribution to PI management can be best used to enhance current approaches
to PI management. Additionally, this knowledge will inform the development of appropriate supports such as decision-making tools, pathways and education and training, that will enable clinicians to work effectively as part of team based approaches to PI management.

2.5.2. Techniques and products used in PI management

There are many interventions that may be used to manage PI. Hundreds of articles are published every year which describe the many products, devices and materials that may be used across various settings in the prevention and management of PI. Wound care stimulates a large industry of interventions and products used in PI management, along with a range of techniques and products to promote movement and appropriate positioning (Clancy, 2013; Dealey, 2013). Decisions related to the use of particular interventions are complex given the multifactorial nature of PI, and the range of products available (Macens et al., 2011; Rose & Mackenzie, 2010). As described earlier, mechanisms such as protocols and pathways are often used to support clinicians in their decision-making around the allocation of interventions for PI management. These often take the form of locally developed tools, which reflect the resources (workforce and equipment available within a particular service (Asimus et al., 2011). An example of such as tool is included in Appendix C.

The available clinical practice guidelines provide comprehensive summaries of the evidence supporting the various process and interventions for PI prevention. The NPUAP/EWMA/PPPUA (2014) supports each recommendation in two ways, the first involves a rating of the strength of the body of evidence and the second involves determining the strength of each recommendation statement as determined by a web-based consensus voting system, in which all those involved in the guideline development process were invited to contribute.

Table 2.1 presented below provides an overview of the main interventions recommended for PI prevention and treatment as outlined in the NPUAP/EPUAP/PPPUA guideline (2014). A comprehensive summary of all
recommendations and the available evidence can be found in the published guidelines (NPUAP/EPUAP/PPPUA, 2014).
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<th>Recommendation</th>
<th>Prevention of PI</th>
<th>Treatment of PI</th>
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<td>Risk factor and risk factors assessment</td>
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<td>Skin and tissue assessment</td>
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<td>- High protein oral nutritional supplements</td>
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<td>Repositioning and early mobilization</td>
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<td>- High specification reactive (constant low pressure) support foam mattress</td>
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<td>- Sheepskin (only if above is not available)</td>
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<td>- Support cushions</td>
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<td>Assessment of PI and monitoring of healing</td>
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<td>Pain assessment and treatment</td>
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<td>Assessment and treatment of Infection and Biofilms</td>
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<td>Wound Dressings for treatment of PI</td>
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<td>Surgery for PI</td>
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2.5.2.1 Education for clients and carers

Education of clients and carers is widely advocated for PI prevention and management (NPUAP/EPUAP/PPPUA, 2014; NSW Health CEC 2012b; Shubart, Hilgart & Lyder, 2008). There are many examples of brochures developed by wound care associations, professional groups and individual service providers that can provide some education and information (Pantuschky, 2014; Silver Chain, 2001). Pieper (2001) provides a comprehensive chapter on patient education related to PI, although little reference is made to studies comparing different educational strategies or evaluating educational programs or materials such as brochures (Akkuzu, Arlantas, Kosker & Sen, 2009; Hartigan, Murphy & Hickey, 2011). This remains a problem in the boarder PI literature, with the exception being the area of education of those with SCI in which several randomised controlled trials have been conducted (Ghaisas et al., 2015; Guihan et al., 2014). Numerous articles presenting various models and investigating the effectiveness of a range of educational strategies and programs for the population with SCI have been published (Garber, Rintala, Holmes, Rodriguez & Friedman, 2002; Ghaisas et al., 2015; Guihan et al., 2014; Pellerito, 2003; Rintala, Garber, Friedman & Holmes, 2008; Schubart, 2012).

Hartigan et al. (2011) undertook a prospective quasi-experimental study of older adult knowledge of PI prevention in Ireland. Their study involved an uncontrolled pre-test, post-test design in which PI knowledge was measured before and then after the provision of a PI education brochure. A total of 75 community dwelling older adults with one or more chronic diseases were recruited into the study from a community based assessment and treatment centre to which patients who live in their own home are referred following discharge from acute or rehabilitation hospital. A patient knowledge of PI prevention measurement instrument consisting of 11 items was developed specifically for the study and administered prior to the patients being given a PI prevention education brochure. The brochure was developed specifically by the service based on their review of the PI literature and the pertinent health literacy literature. A panel of consultant geriatricians and nurses were used to critique and therefore enhance the brochure prior to its use with patients. A
Many relevant instance, dwelling participants sessions, delivered single A information brochure study, might demonstrated what in week test, might demonstrated what a PI was or what it might look like. The post-test survey identified that only 9% of patients did not know what a PI was or what it might look like. Participants also demonstrated improvements in knowledge regarding the common locations in which PI develop as well as a much improved understanding of factors that might contribute toward PI development. In spite of the positive findings of the study, a limitation is that knowledge was tested once and only a week after the brochure was received. As such, it is unclear whether these patients retained this information over the longer term.

A recent Australian pilot study by Ogrin, Brasher and Occleston (2015) using a single group, multi methods design incorporating objective skin measures and qualitative focus groups and interviews reported improvement in knowledge and behaviours in relation to skin self care. In this study trained peer educators delivered a skin health program to 100 older community members in Metropolitan Melbourne. The authors reported improved client outcomes, amongst the 49 participants that participated in the baseline and follow-up sessions, in terms of both knowledge of skin care and skin-hydration at six weeks follow-up amongst English speaking participants. Given that less than 50% of participants attended the 6 week follow-up session this raises important questions regarding both the relevance of a skin health program to community-dwelling older adults and the way in which this education was delivered. For instance, did the peer educators receive adequate training to support them in the delivery of the skin health program, and was the program designed using relevant educational theory.

Many authors have noted the challenges in educating clients about PI including strategies for prevention and management. For instance, those at high risk often have a number of conditions, which may impact their ability to comprehend and process information such as those with cognitive deficit. Additionally, those at
risk of PI are often acutely unwell, particularly within hospital based services and this has been reported to influence their ability to comprehend information. Another challenge reported in the literature is that clients are known to have difficulty understanding their risk and the implication of PI unless they have had some prior experience of PI (Gillespie, Chaboyer, Sykes, O’Briens & Brandis, 2013; Guihan et al., 2008; Lewin et al., 2007; Pieper, 2001).

Morison, Harris and Corlett (2001) believe that ‘a task that is often neglected is the education and support of lay carers’ (p. 125). In line with this statement there are very few studies that have explored the provision or education regarding PI management to carers, in spite of the fact that it is frequently discussed and recommended (Tsai, Lin, Liu & Wang, 2012). Most studies to date have tended to explore the impact of PI on carers, as will be described further in section 2.8.2. One recent study conducted by Tasi et al. (2012) in a Taiwanese home care provider found that primary caregivers being educated about PI prevention care, when home care recipients were still in hospital seemed to play an important role in reducing the chance of developing PI amongst this group of home care recipients. In this study 220 pairs of primary care givers and home care recipients completed a study questionnaire, of whom 52 had a PI on transfer to home care and so were excluded from the study. Amongst the 168 home care recipients that were included in the data analysis 24 developed a PI after entry into the home care service. This was a reported incidence of 14.3% after 4-6 weeks of care. The authors contend that amongst the home care patients who developed PI, their primary care givers were less likely to have received education about PI prevention during the home care clients hospitalization. These primary care givers were also reported to provide worse PI preventative care based on self-report of preventative strategies implemented, and have lower levels of self-efficacy for PI prevention than those of home care recipients who did not develop PI.

While these findings are important, it is difficult to make any extensions from them regarding approaches to the education of carers, as the actual content of this education was not captured in this study. It is also important to note that
those receiving home care in Taiwan under their national insurance scheme must be bed-bound or wheel-chair bound for at least 50% of the time, and therefore the patients in this study were already a high risk group and PI prevention education is likely to be seen to be relevant to these carers and clients. Those carers who are looking after someone potentially less at risk and more mobile may be less inclined to see the relevance of such education during the busy discharge phase from acute services. Additionally, as described earlier in this chapter, it can be difficult to attribute the development of PI solely to the home care received by these clients as some damage to the skin and tissues may have occurred during the hospital admission.

2.6 MULTIDISCIPLINARY INVOLVEMENT IN PI CARE

While the AWMA guidelines state that ‘the management of PI requires a multidisciplinary approach’ (p.3) they provide limited information to assist clinicians to implement this type of practice. More recently there has been a recognition by guideline committees and the peak professional associations for those involved in wound care, that there was a need for additional supports to assist clinicians to initiate ‘team care in wound care’ (Moore et al., 2014). While this document provides a framework to assist clinicians in wound care more generally, it is limited in its application to PI due to the complex specific health needs which PI development creates for individuals. Additional supports are necessary to assist clinicians to successfully create team based approaches, which meet both individual client PI need and health system need.

The Pan Pacific guideline also explicitly states that it is for application by “all clinicians who are involved in the care of individuals who are at risk of developing PIs, or those with an existing PI” (AWMA, 2012), and multidisciplinary practice is considered to be important in both PI prevention and successful wound healing (Browning, 1997; Hurd et al., 2008). The potential range of clinicians involved include medical and surgical specialists, general practitioners, allied health professionals, nurse practitioners, nurses,
pharmacists, rural health workers and indigenous health workers (AWMA, 2012), indicating that there are roles for clinicians beyond wound care alone.

### 2.6.1 Nursing

The body of knowledge exploring nursing roles in PI care is extensive reflecting the nursing professions’ historical involvement in PI practice and research (Asimus et al., 2011a; Dealey et al., 2015; Morison, 2001). The discipline of nursing has made the most substantial contribution to the body of literature related to PI prevention and management. Interventions typically carried out by nurses include risk assessment, aspects of hygiene and personal care and patient repositioning (Athlin et al., 2009; Samuriwo & Dowding, 2014). Nurses have also been very involved in quality improvement related to PI (Soban et al., 2011). This includes extensive work conducting studies monitoring the occurrence of PI (Baharestani et al., 2009; Meehan, 1999; Prentice & Stacey, 2001a). Nursing has also made a substantial contribution to educating the workforce about PI management (Meehan & Beinlich, 2014; Kennerly, Yap & Miller, 2012).

Nurses have also made a very substantial contribution to the field of wound care more generally (Romero-Collado, Homs-Romero & Zabaleta-del-olmo, 2013). Remero-Collardo et al. (2013) in their exploration of Spanish nurses’ and GPs’ roles in PI prevention and management using a cross sectional survey reported that nurses more frequently received education, expressed greater interest in receiving training specific to PI care and demonstrated better knowledge of existing CPG. Both nurses and GPs agreed that the profession responsible for PI wound care was nurses and that patients would benefit if nurses prescribed PI wound products. Remero-Collardo et al. (2013) also found that nurses demonstrated better knowledge of the various PI wound care products.

Due to the traditional role of nursing within acute settings, delivering the bulk of care to patients at their bedside, it is not surprising that most studies exploring PI practice behaviour have tended to focus on nurses. Many studies have explored the way in which nurses deliver care, particularly in relation to whether it is in accordance with clinical practice guidelines (Moore & Price,
Further extensions from this work have been the investigation of knowledge of PI prevention and management strategies, attitudes and values in relation to PI (Beeckman, Defloor, Schoonhoven & Vanderwee 2011; Samuriwo, 2010b), and the impact of environmental factors such as team culture, and organisational factors such as workloads on the implementation of best practice (Bosch et al., 2011).

### 2.6.2. Physiotherapy

A textbook on the management of geriatric clients across health care settings in the United States includes extensive information on the role of PT in wound care (Guccione, Wong & Avers, 2012). In this text PI is one type of wound considered alongside four other categories of wounds: skin tears, venous insufficiency ulcers, arterial insufficiency ulcers, and diabetic ulcers. Each of these wounds has a distinct aetiology and management approach. Interventions listed for use by physical therapists in wound management included: mattresses, cushions and footwear for pressure reduction, compression therapy, wound dressings and debridement. They also suggest that when a wound fails to heal in a predictable timeline that the physical therapist should consider the use of a modality to assist wound healing such as ultrasound, electrical stimulation and Negative-Pressure Wound Therapy NPWT (Guccione et al., 2012).

PTs appear to have a more established and active role in wound care in the United States (Guccione et al., 2012; Guihan, Hastings & Garber, 2009; Harrison & Lemke, 2004). Evidence of physiotherapy involvement to this extent could not be found in relation to practice in Australia and the United Kingdom. In Australia, the involvement of allied health in direct wound care tends to be restricted to podiatry (Butters, 2011), and some OT and PT that have specialised in areas such as hand therapy and burns management may be involved in wound and scar management (Occupational Therapy Australia, 2015).

According to Guccione et al. (2012) PTs may also be involved in the prescription of targeted exercise to promote wellness and prevent impairment to the
integumentary system (p. 361). The Integumentary system is the organ system consisting of the hair, skin, glands, and nails that helps to protect the body from damage caused by internal or external sources for example, pressure, water loss or infection (Nixon, 2001). There are many documented overlaps in the role of PTs and OTs in PI management. These include training caregivers in proper transfer and repositioning techniques, making recommendations for adaptive equipment and the fabrication of splints to assist with wound prevention and healing (Guccione et al., 2012).

2.6.3. Occupational Therapy
Recent literature demonstrates that the role of OT in PI is extending beyond the traditional area of equipment prescription for seating (Crawford, Strain, Gregg, Walsh, & Porter-Armstrong, 2005; Stinson et al., 2013a). A recent study found that within Australia OTs provided pressure care on a regular basis and were actively involved in both PI prevention and management (Macens et al., 2011). The results of this national cross sectional survey also indicated that pressure care was predominantly provided in community service settings.

There is a growing body of literature supporting the role of OT in PI prevention and management (Ghaisas et al., 2015; Stinson, Gillian & Porter- Armstrong, 2013b; Rose & Mackenzie, 2010; Giesbrecht, 2006; Ryan, 2006; Ryan 2008). Several studies have been undertaken which identify and describe OT in pressure care such as the OT role in PI care, how occupational therapists work with others to deliver care, what decision making techniques guide interventions and how interventions are implemented and evaluated (Giesbrecht, 2006; Macens et al., 2011; Rose & Mackenzie, 2010).

OT involvement in pressure care related interventions, namely equipment and wheelchair prescription and pressure mapping is addressed in many other published articles (Crawford et al., 2005). However, these studies do not specifically discuss or identify the role of OT, but rather focus on the technology and use of equipment behind the interventions (Crawford et al., 2005; Hansen, Tresse, & Gunnarsson, 2004). Research to date has primarily focused on specific
settings and areas of practice such as acute care and SCI, which essentially only make up a small proportion of the population that may require the provision of pressure care, such as older people in the community (Macens et al., 2011).

Giesbrecht (2006) administered a cross-sectional survey to a convenience sample of OTs in 75 hospitals across Canada in order explore the directions and trends of OT interventions in PI management. A total of 37 OTs responded. The results of the study concluded that OTs believed that effective service delivery relied upon early access to clients, consistent intervention strategies and protocols, provision of appropriate equipment and an individualised treatment plan. Results also indicated that collaboration and team decision-making were valued very highly and were necessary for effective service delivery. These team values were consistent with the views of other clinicians involved in the interdisciplinary pressure care team (Browning, 1997). Macens et al. (2011) conducted a larger survey of Australian OTs with varying degrees of experience, access to equipment and support from other disciplines. The most frequently used interventions were the prescription of seating surfaces and pressure relief mattresses, education of the client (weight shifting and skin care), transfer training and increasing physical activity to relieve pressure, all identified by over 80% of the sample. Results also illustrated that OTs were comfortable with certain areas of practice, in particular seating and positioning, and not as comfortable with client education.

The knowledge base supporting OT’s contribution to PI highlights specific skills related to their understanding of the relationship between function and the development of PI which provides the foundation for comprehensive assessment of function within the client’s environment (Rose & Mackenzie, 2010). There is also evidence that improving an individual’s occupational independence can have a positive impact on the development of PI risk for people with SCI by improving their general health, employment status and their understanding of PI risk factors and strategies to address them (Cutajar & Roberts, 2005; Ghaisas et al., 2015).
2.6.4. Dietetics

Dieticians have well-established and researched role within Australia (Banks, Graves, Bauer & Ash 2010; Green & McLaren, 1998). Dieticians are noted to be involved in nutritional risk assessment and the recommendations of nutrition and hydration interventions to help prevent PI or assist with healing of PI. Key aspects of this include the supplementation of specific nutrients and also glycemic control (Doley, 2010). Malnutrition has been shown to be associated with an increased risk of developing PI. Banks et al., (2010) conducted a study that determined the effect of malnutrition on the prevalence of PI in Queensland public hospitals. Banks et al. (2010) found that the odds ratio of having a PI when malnourished, when controlling for demographic variables including age, medical facility and type of facility, was 2.6 (95% CI 1.8-3.5 p<0.001).

Banks, Graves, Bauer and Ash (2012) undertook further economic modeling which investigated the provision of intensive nutritional support to the Queensland public hospital population and found that nutritional intervention ‘is predicted to be a cost effective approach in the prevention of pressure ulcer in at risk patients’ (p.42). Banks et al. (2012) suggested that this will realise substantial opportunity cost savings for the health system.

In spite of the fact that the impact of dietetics interventions for PI within community services settings has received less attention, their involvement in PI management within community service settings is recommended (Probst et al., 2014). There are many practical issues for dieticians in community settings, such as access to scales for weighing patients and their reliance on self-report of eating habits due to their inability to observe clients eating all meals (Probst et al., 2014). Nurses and other clinicians are known to provide some recommendations around nutrition, particularly in community services settings (Ryan, 2006). The role of dieticians in community based PI prevention and management is worthy of further investigation in order to support them in this area of practice, and also to ensure that their skills are used in the most appropriate situations by other health professionals.
2.6.5. Podiatry
Skills offered by podiatrists include general wound management and treatment, sharp debridement, neurovascular assessment, ankle brachial pressure indices, as well as knowledge of biomechanics, footwear modification and education (Butters, 2011). These skills are all focused around the maintenance of skin integrity of the foot, prevention of skin injury and management of wounds located around the foot and ankle.

Often podiatry services may be sought by nurse-led wound clinics on an “as needed” basis, or in some cases podiatrists are active members of an interdisciplinary chronic wound service. The literature suggests that podiatrists are becoming more involved with the care and treatment of people who have “high-risk” chronic foot wounds, indicating there is already significant understanding and recognition of the role podiatry can play in the prevention and management of wounds around the foot (Apelqvist & Larsson, 2000; Butters, 2011). Podiatrists represent a group of allied health professionals for whom extended roles in wound care is already underway with some podiatrists undertaking podiatric foot surgery, an area of practice traditionally the domain of surgeons (Kilmartin, 2002; Nancarrow, 2015).

2.6.6 Rehabilitation engineers
Rehabilitation engineers have made a substantial contribution to PI management through their research into and development of products to both manage risk and assist in the treatment of PI. These products include equipment such as mattresses, specialised/custom design beds, and customised wheelchairs. Through their exploration of the science of PI development in animal models bioengineering research has also assisted in the development of technology which can assist rehabilitation engineers and clinicians to better detect potential risk for PI development. For example, pressure-mapping technology can help to create a picture of surface pressures when a client is seated on a pressure relieving cushion and can therefore assist clinicians with their decisions around equipment prescription. Additionally, some therapists have described using pressure mapping as an adjunct to education encouraging clients to perform
pressure-relieving, as clients are able to receive immediate feedback by observing the redistribution of pressure as they perform a pressure relieving behaviours. Pressure mapping technology has also been used very recently in studies exploring the benefits of incorporating pressure relieving into a clients everyday functional activity, such as computer use, in order to improve client concordance with pressure relieving recommendations (Stinson et al., 2013).

Another contribution from the bioengineering field is the use of ultrasound technology to investigate some of the more recently discovered risks, which predispose individuals to PI, particularly those risk factors associated with Deep Tissue Injury (Gefen, 2007). These risk factors include the characteristics of muscle located much closer to the bone, and also the shape of the ischial tuberosities (Gefen, 2007; Gefen et al., 2008).

2.6.7. Social care

For the purpose of this thesis social care is the term used to refer to allied health professionals such as psychologists and social workers. These professions are rarely referred to in the PI literature in spite of the frequent description of barriers to PI prevention and management, involving social or psychological barriers. The complex nature of the management of chronic care needs, the importance of addressing psychosocial issues impacting on compliance with PI prevention and management strategies, and the influences of socio economic factors on PI prevention and management is suggestive of potential involvement of social care professionals (Clark et al., 2006; Jackson et al., 2010;). A few accounts note involvement in areas such as counseling, education around changing a client’s behavior, and working with carers to address their needs and assisting with access to services (Hudgell, Dalphinis, Blunt, Zonouzi & Procter, 2015). The contribution of these professionals is worthy of further consideration in future approaches to PI management.


Medicine appears to have an essential role in PI care due to the power granted to medical professionals by health systems both nationally and internationally.
However, many have suggested that medical professionals’ involvement in PI to date has been constrained by their perception of PI as being more of a nursing issue due to their history of involvement and knowledge of this area of practice (Romero-Collado et al., 2013; Odierna & Zelenik, 2003). Medical professionals have been described as both a barrier and facilitator of PI care including access to particular interventions. For example, medical professionals are required to approve some treatments such as particular dressings and medications, and seeking medical approval has reportedly contributed to delays in patients receiving care. This process is now changing in some countries where credentialed nurses are allowed to prescribe dressings, antibiotics and incontinence pads (Romero-Collado et al., 2013).

A number of studies have explored medical professionals’ knowledge of PI including wound characteristics, and prevention and treatment strategies and compared this to medical professionals’ perceptions of the importance of the issue of PI, their previous education and training experiences and perceived confidence to practice in this area. While there are differences in terms of the sample sizes, tools used to collect data, and participant characteristics in terms of levels of experience, type of specialty and country of origin, most studies have reached similar conclusions regarding medical professionals’ roles in PI care. In general, studies have found that medical professionals feel their knowledge of PI could be improved, they have often had limited exposure to formal education at both undergraduate and postgraduate levels and that they tended to learn ‘on the job’ and often from their nursing colleagues. Despite generally perceiving PI to be an important issue they tend to work closely with nursing staff and often deferred leadership of PI care to nurses due to their perceived better knowledge and also the competing demands on medical professional time (Cox, Roche & Gandhi, 2012; Gupta, Loong, & Leong, 2012; Levine, Ayello, Zulkowski & Fogel, 2012; Odierna & Zelenik, 2003)

Medical professionals have a critical role in hospital settings, particularly critical care, as medication or treatments they prescribe can increase risk and contribute toward the development of PI. These include vasopressor agents that aim to
raise arterial pressure, and immobilisation for the management of haemodynamic instability (Cox et al., 2012). Medical professionals also have expert skills in surgical closure of PI often referred to as a flap procedures, and also in vascular surgery conducted in high risk PI populations such as those with Diabetes (Apelqvist & Larsson, 2000; Thomas, 2006). There is clearly a need for medical professionals and nurses to work together on PI issues across health service settings due to the nature of PI, traditional hierarchical relationships and legislation which determines the tasks certain clinicians can undertake. Cox et al. (2012) also suggest that it is becoming increasingly more difficult for physicians to ‘turn a blind eye’ to PI as regulatory agencies hold them accountable for accurate PI documentation.

2.6.9. Summary
The PI guidelines endorse multidisciplinary care suggesting that there is a broad range of potential members of a PI team (Moore et al., 2014). However, limited guidance is provided about the best configuration of teams and the circumstances where a multidisciplinary approach would be of most benefit. There is very limited information on the various disciplines that contribute to PI care or what their roles are. This may reflect significant overlap in contributions, the dominance of the nursing profession in this area of practice and research, or it may occur as a result of the limited exploration of how practice actually occurs in PI care across health services settings (Clark, 2005). Therefore, the onus is on individual clinicians to determine who should be involved in PI care and to source the necessary additional supports that other clinicians, from various professional groups can offer. In the ideal multidisciplinary care setting, the contributions of various disciplines should enhance PI care, not simply replicate or duplicate what others do.
2.7. IMPLICATIONS AND OUTCOMES OF PI OCCURRENCE

The implications of PI occurrence can be divided into two main groups: i) those implications specific to individuals including patients and the people directly surrounding them that provide their care, and ii) those impacting upon health services and the health system more broadly.

2.7.1 Impact on individuals with a PI

Understanding client experiences of care is important for informing practice. A number of studies have investigated patient experiences of PI and their experiences of care (Hopkins, Dealey, Bale, Defloor & Worboys, 2006; Spilsbury et al., 2007). Documented social costs include loss of function, loss of independence, increased length of hospital stays (Clark et al., 2006; Graves et al., 2005; Pellerito, 2003) and psychosocial issues such as depression (Gorecki et al., 2009; Browning, 1997). Financial burdens are also known to be incurred by individuals or families when a PI develops (Goreck et al., 2009; Prentice & Stacey, 2001b). PI can also have profound effects on a patient’s physical health and associated care. For instance, medical complications associated with secondary bacteraemia or septicaemia are serious, and the presence of infection is associated with increased mortality (Grey et al., 2006). However, while PI are associated with mortality, they are rarely the direct cause of death, and tend to be seen as a consequence of ill health (Moore & Cowman, 2014).

Gorecki et al. (2009) undertook a systematic review and meta analysis of research papers reporting the impact of PI and PI interventions on Health Related Quality of Life (HRQL). A total of 31 studies were included in this review: 10 qualitative and 21 quantitative. These studies included 2,463 participants with PI and the results confirmed that PI had a significant effect on the individuals. Key domains of quality of life found to be affected included: physical, social, psychological, and financial aspects. Pain was reported to be a particularly prominent issue which influenced client experience of care and also impacted on their desire and ability to participate in activities of daily living (ADL). A number
of different aspects of pain were articulated in this study. For instance, patients experienced general wound pain, pain associated treatments such as dressing changes and the use of some equipment such as mattresses and slings used for transfer with a hoist. PI was also found to result in changes to lifestyles such as the need for hospitalisation, adapting home environments to incorporate equipment, alterations to usual patterns of activity such as incorporating pressure relieving into daily life, inability to participate in some ADL due to the need for bed rest to help heal the wound, and having to work around a schedule of appointments for wound care. Impacts upon family were also noted and these included patient concern regarding the increased work and stress for caregivers associated with skin inspections, assistance with ADL and PI treatment.

PI were also reported to have psychosocial implications such as impact on mood. It is also interesting to note that some participants reported experiencing blame related to the development of their PI. This was described as being related to self-blaming in some cases but also experiences of being blamed for the development of the PI by clinicians involved in their care. A key factor implicated in these feelings of blame was poor understanding of PI, how they develop and why particular interventions are used in their prevention and treatment. Gorecki et al. (2009) concluded by making some recommendations regarding the need for more client education, suggesting that clients should have the opportunity to develop knowledge in relation to causes, risks factors, physiological processes and interventions for prevention and treatment. This recommendation was made as those in the study who did have knowledge of the above factors tended to be SCI patients who had been previously exposed to PI education or those who had had a previous PI.

Subsequent to this initial study by Gorecki et al. (2009) further investigation of factors impacting on quality of life more generally and also amongst specific populations have led to the development of several tools and models to better measure client outcomes in relation to these aspects of PI and their associated care. These include a biopsychosocial model of pain experienced from PI developed following a mixed-methods systematic review of articles reporting
upon patient’s direct experiences of pain associated with PI (Gorecki, Closs, Nixon & Briggs, 2010). Recently attention has focused on the development of tools to measure the impact of PI development and management on health-related quality of life (HRQol) (Gorecki et al., 2012).

2.7.2. Impact of PI on informal support care
Several studies have documented the impact of PI on informal support care 2. A key finding from a qualitative study conducted by Bahrhestani (1994) was that carers often received the blame for the development of PI due to their poor understanding of PI development, and it was health care providers that tended to receive and confer blame. Interestingly, informal carers have been found to experience higher levels of burden associated with preventing PI compared to assisting with treatment once PI have developed (Yamamoto, Hayahion, Higashi, Matsui, Yamazaki, Takegami, Miyachi & Fukuhara, 2010). Yamamoto et al. (2010) conducted their exploration of caregiver burden with cross sectional study in which 137 clients and their informal caregivers participated. Data was collected using medical record data related to demographic and PI status. Additionally two measures of care giver burden were taken using the burden index of carers (BIC) and the Japanese short version of the Zart burden scale (ZBI). Multivariable analysis indicated that informal caregivers whose patients were free from PI had significantly higher caregiver burden as assessed by both the BIC (3.18, 95% confidence interval (CI): 1.42-4.95, p=0.003) and the ZBI (1.94, 95%CI: 0.30-3.58, p=0.03). The authors suggested that higher levels of burden associated with prevention found in their study are indicative of the significant impact that caring for those at risk of PI, including tasks such as manual handling, and assistance with participation in activities of daily living, and the set-up of pressure relieving equipment has on these individuals.

Careful assessment of the needs and abilities of informal carers is important in determining appropriate tasks for carers to assist with, as well as providing sufficient support for their safe and successful participation in the care process.

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2 Informal support care are unpaid carers, and usually lay persons without any formal training in the provision of health care. Informal carers are usually family, friends and neighbours. Formal support care are paid and have generally undergone some training in the provision of health care.
Additionally, psychosocial support for carers has been suggested as necessary, specifically in relation to PI and also wound care more generally (Pieper, 2001; Upton, Upton & Alexander, 2015; Yamamoto et al., 2010). As the ongoing burden of care falls increasingly outside the remit of formal health services and on to patients and their families, it is important that the causes of PI development are understood and that carers are adequately supported in their role.

2.7.3 Impact of PI on health services

The significance of both PI management, presents care challenges for health professionals, services and systems. The development and subsequent management of a PI may increase length of hospital stay if it develops in a hospital setting, and may lead to hospitalisation if it develops in the community or residential aged care facility. Regardless of whether an admission to hospital is required, additional care services will be demanded once a PI develops and it is identified to community service providers (e.g. supported accommodation or people living in their own home).

Management of PI may also require expensive equipment including offloading and repositioning equipment, wound dressings as well as other devices to assist with wound healing. The costs of PI intervention for both healthcare systems and individuals with a PI are thought to far outweigh the costs associated with PI prevention (VanGilder et al., 2009). With the cost of healing a grade IV PI found to be 10 times that of healing a grade I PI, the cost benefits of intervening early in the natural history of PI are conclusive. Bennett, Dealey & Posnett (2004) estimated that a grade 1 PI cost £1,064, while treatment of a grade 4 PI cost £10,551. The cost of chronic wounds (PI, diabetic foot ulcer, venous ulcer and arteriol insufficiency ulcer) to the National Health Service (NHS) were conservatively estimated at between 2.3 - 3.1 billion pounds per year (Posnett & Franks, 2007). In the United States the annual treatment cost was estimated at US$25 billion, with more than 6.5 million patients reportedly experiencing chronic wounds (Sen et al., 2009).
It is well known that PIs consume a large amount of resources including staff time, equipment and disposables. There have been a number of attempts to objectively evaluate the economic burden of PI care on health services (Bennett, Dealey & Posnett, 2004; Posnett & Franks, 2007; Severens, Habraken, Duivenvoorden, & Fredericks, 2002). The estimate that 2.6-4% of the total United Kingdom National Health Service budget is spent on PI is clearly illustrative of this point (Bennett et al., 2004; Posnett & Franks, 2007;). In Australia, PIs are also a serious problem for the Australian public hospital system with 95, 695 cases of clients with pressure injuries leading to 398, 432 bed days lost as a result, with an economic value of AU$285M (Graves et al., 2005). While the implications of PI in terms of protracting the length of a patients stay in hospital are known, Jackson, Nghiem, Rowell, Jorm and Wakefield (2011) suggest that true financial cost of PI to the AHCS may not be fully appreciated. As studies do not usually include the additional expense of community care once a patient is transferred home, and those cared for solely in the community tend to be omitted from these estimates it is likely that cost of PIs to health systems are underestimated (Asimus et al., 2011a; Samuriwo & Dowding, 2014). The varied data on PI occurrence further compound the difficulties faced in obtaining figures on which to base economic analyses of the financial cost of resources utilised for PI care (Papanikolaou, Lyne & Ratcliffe, 2007).

There is growing awareness that the majority of chronic PI wounds are actually managed in residential aged care or community based settings where resources are fewest. Within community settings the true financial cost of PI to individuals is even more complex with some dressings and equipment being subsidised or free of charge within some jurisdictions and services, while in other contexts the costs may be covered entirely by the client, or a private entity such as a primary health care service (Whitlock, Morcom, Spurling, Janamian & Ryan, 2014; Australian Medicare Local Alliance, 2013).

A recent study by Graves and Zheng (2014b) estimated the total cost of chronic wounds in Australia to be around $2.85 billion annually, with the most expensive
type of wound being PI. The total number of cases in public and private hospitals in Australia for 2010-2011 were estimated to be 345,768 with a standard deviation of 190,071. The total number of PI in all hospitals in New South Wales and Victoria were reported to be 79,627 and 58,810 respectively. As part of the same study, Graves and Zheng (2014a) also gathered and analysed data pertaining to PI incidence in residential aged care. They estimated that the total number of cases in Australia for residential aged care for 2010-11 was 10,397 with a standard deviation of 1,638. PI is now well recognised as an important patient safety issue, with individuals and services increasingly being held to account for the services that they deliver (Bosch et al., 2011). In some jurisdictions of the United States and certain states within Australia, financial penalties for the development of hospital acquired PI are now utilised as a mechanism to drive improvements in care (Lundgren, 2013; Miles et al., 2013). For example, in the United States the centers for Medicare and Medicaid Services stopped financial reimbursement for hospitals for care related to patients who acquired a stage 3 or 4 PI during admission to an acute facility and also introduced financial penalties if a pre-existing PI worsened (Lundgren, 2013; Zaratkiewicz et al., 2010). In 2012 the state of Queensland began classifying PI as ‘adverse events’ and introduced financial penalties of $30 000 to $50 000 for hospital acquired PI stage 3 and 4 PI. (Queensland Health, 2012. as cited in Miles et al., 2013). Additional costs are also sometimes accrued as the result of legal action following the development of PI (Dealey, 2009; Miles et al., 2013; Romero-Collado et al., 2013; Sharp et al., 2000).

2.7.4. Impact of PI on health provider behaviour
The occurrence of PI is increasingly being used as a performance indicator of care (ACQSHC, 2012; Miles et al., 2013; Prentice & Stacey, 2001b; Soban et al., 2011). The development of a PI within a health care facility is often associated with blame and anger, and is thought to reflect negatively on the health service (Gorecki et al., 2009). Inadequate nursing care, in particular, is still seen as one of the primary causes for PI development (Prentice & Stacey, 2001b).
Given the large number of factors potentially at play in the development of PIs several authors have also questioned the extent to which all PI may be prevented (Black et al., 2011). Hagisawa and Barbenel (1999) conducted a study over 12 months in an internal medical ward and found that even with what they determined to be best quality care that 4.4% (95% CI 1.9-6.9%) of the patients developed a PI and 33.3% (17.6%-49.0%) of the patients at risk did so. Hagisawa and Barbenel (1999) felt that this indicated that not all PIs can be prevented in very ill patients, even with good preventative practice. Patients in this study were seriously ill with neurological and/or pulmonary disease and were at risk of developing PI due to factors such as impaired sensation, limited mobility and multi-organ failure. The authors suggest that the incidence of PI in this study may approach the lowest achievable in such patients and that it is important that this type of information be taken into account by those involved in setting targets for PI prevention. More recently there has been a move to use the terms avoidable and unavoidable PI, reflecting a change in the tone of language used to describe the standard for PI prevention (Parnham, Pankhurst, & Dabell, 2015). This change in language has stemmed from a number of articles and also consensus conferences on avoidable and unavoidable PI at which 100% of the panel, consisting of experts in PI, agreed that not all PI were avoidable (Black et al., 2011).

2.9. Summary

It is well known that PI are complex issues and that the factors which interplay and lead to PI development are varied and numerous. As identified in this chapter, PIs remain a persistent problem despite extensive examination of the risk factors believed to contribute to their development. An area, which had not received a great deal of attention in the literature, was the development and management of PIs in community settings. The context of PI development, and in particular the physical environment, is an area that has received limited attention. Most studies have focused on risk factors in populations within hospital settings and long term care, and studies have tended to use clinical case descriptions from clinicians and experts, as well as predominantly quantitative
methods. A more detailed picture of PI care within the AHCS is needed using qualitative methods to investigate the implementation of available evidence into clinician practice.

Whilst current literature has predominantly been concerned with high-risk groups for PI and identifying these high-risk groups in order to allocate resources to those most in need, the changing needs of the ageing and community populations must be considered. Effective resource use is increasingly important as health needs change, and the known aetiology of PIs suggests that an increasing demand for PI management is likely in the future with increasing levels of co-morbidities and chronic conditions, especially in community settings.
CHAPTER THREE

THE CONTEXT OF PI

3.0 INTRODUCTION

A detailed exploration of current knowledge regarding PI management based on the pertinent literature was provided in the previous chapter. In this chapter consideration of PI within the context of the AHCS will further develop a picture of this area of practice. In order to enhance understanding of the AHCS a number of areas of knowledge will be covered in this chapter. Initially, an overview of the AHCS will be provided, which includes a description of the organisation of services that comprise the AHCS alongside an outline of current knowledge of PI management within each of the main service contexts; hospital based services, residential aged care and community based services. A summary of the key reforms and policy initiatives which have shaped the AHCS over time and more recently, and their potential implications for future practice in the area of PI management, will then be outlined. The framework described in the introduction, which enables consideration of the relationships between the different levels of the AHCS (System, Clinician and Client levels) will be used to explore how these different levels interact to provide health care, and how this knowledge can be used to understand and inform improvements to the quality of health care.

Following this, issues pertinent to a consideration of the use of the workforce toward PI management will be described. These include: workforce composition, education and training systems, oversight and regulation of the workforce, and key aspects of workforce development literature. An exploration of what is currently known about skill-mix changes more broadly and in relation to PI practice will also be provided. Some key concepts used in the evaluation and improvement of health services will then be introduced: equity, quality, acceptability and efficiency. This will be followed by an exploration of needs assessment and how health systems go about meeting various competing health
needs. This knowledge is required for the careful consideration of how changing needs for PI management, that result from the well documented growth in demand for complex chronic care may be met within the context of competing health system needs.

3.1 THE AUSTRALIAN HEALTH CARE SYSTEM

This research project has taken place during a period of significant policy reform and implementation within the AHCS. Understanding these reforms, along with the complexities of the AHCS, is necessary in order to set the scene for the exploration of current practice in the prevention and management of PI.

While there are a number of different ways of examining the health care system, the approach taken in this thesis reflects that adopted by Duckett and Willcox (2011), who describe the AHCS as a complex system involving inputs (finance, workforce, supplies), processes (professional and patient interaction), outputs (health services and patients treated) and outcomes (participation, improved quality of life). The application of systems thinking, allows a full understanding of health care as a complex system, which is comprised of multiple sub-systems involving interactions between the various components (e.g. human resources/workforce, finance, and service delivery).

Systems thinking is also needed to inform innovations that are intended to improve the overall performance of the health system. According to the World Health Organisation (WHO, 2009) systems thinking is ‘an approach to problem-solving that views “problems” as part of a whole dynamic system’ (p.33). Systems thinking demands greater understanding of the relationships, interactions and behaviours among the elements that characterise the entire system, and will enable a more realistic evaluation of what works, or for whom and under what circumstances (WHO, 2009).

One approach to systems thinking, the clinical Microsystems approach, has been widely adopted in recent years as a way to improve the quality of health systems
(Institute for Health Care Improvement (IHI), 2015; Nelson et al., 2008; Wasson et al., 2008; WHO, 2009). This approach encourages thinking about how the different levels of the system interact to produce a client’s health care journey. A clinical microsystem is formed whenever an individual with a health need interacts with a care provider. Clinical microsystems comprise of the client, their support care, and any clinicians involved in exchanges between these individuals. Over the course of their care a client may move through a range of clinical microsystems. For example, a clinical microsystem may consist of an interaction between the client and their GP or specialist in their consulting rooms, or with a nurse during a home visit. Each clinical microsystem is supported by its own infrastructure for example, the administrative staff within a general practice. As various clinical microsystems interact they form larger mesosystems. Clinical microsystems should be able to interact seamlessly with other microsystems within the mesosystem, although there are well-documented challenges with this such as sharing clients’ health information between various providers (Mueke et al., 2010).

Nelson et al. (2008) describe mesosystems as providing care to a specific group of patients such as those receiving services for the treatment of cancer. The challenge posed by multimorbidity, which involves the management of secondary conditions, are evident here. For instance, the mesosystem from which a client with a PI issue tends to receive care would be based around their primary diagnosis. In the context of the current study it will be important to consider how this affects the PI management of the client. For example, are they able to access the clinicians and skills that are necessary in the effective and efficient management of their PI issue?

Mesosystems are either empowered or held accountable by the overarching macrosystem such as a hospital or a primary health care network. The ideal is for a health macrosystem to operate with microsystems and mesosystems to create a seamless and high quality client journey. All of these systems are influenced by and operate within broader policy contexts (Australian Primary Health Care Research Institute [APHCRI] Centre of Research Excellence [CRE], 2011; Nelson
et al., 2008). The clinical microsystems approach can be used to improve the client journey related to PI management through developing greater understanding of the factors, which influence PI management across all levels within the AHCS.

Clinical microsystems are understood as the ‘building blocks’ of all health systems and have been identified as the place where workplace changes can occur, which will result in better improvement outcomes (APHCRI, 2011; The trustees of the Dartmouth Institute, 2004). Having commenced a consideration of current knowledge of and approaches to addressing PI management in chapter two, this chapter will further develop an understanding of PI need by examining the key organisational characteristics of the AHCS, including the core components of the system and their interactions, especially the ‘building blocks’, that is the clinical microsystems, where clients come into contact with clinicians.

According to Dubois and Singh (2009) one of the greatest challenges facing health care organisations in recent years has been determining how to adjust to a range of internal and external changes. These challenges include; changes in client expectations and demands, socio-demographic and epidemiologic changes, technological developments and economic fluctuations.

Recent initiatives to improve the delivery of health care in the context of the challenges just identified, within the AHCS, have stemmed from the 2008 National Health and Hospital Reform Commission (NHHRC) established by the Rudd government (Commonwealth of Australia, 2009a). The commission was established to meet a recognised need for health system reform to tackle long term challenges such as duplication, overlap, the increase in chronic diseases and the barriers to achieving reforms that would enable more effective use of the health workforce (Bennett, 2013). The NHHRC confirmed underlying structural issues in governance, funding and organisation and the report included 123 recommendations organised under four themes (Commonwealth of Australia, 2009a). These themes included:
- Taking responsibility: individual and collective action to build good health and wellbeing by people, families, communities, health professionals, employers, health funders and government,
- Connecting care: comprehensive care for people over their lifetime,
- Facing inequalities: recognise and tackle causes and impacts of health inequalities,
- Driving quality performance: leadership and systems to achieve best use of people, resources and evolving knowledge.

The Australian Government in partnership with the states and territories took action to address the above recommendations through the establishment of the National Health Reform Agreement in 2011, which has since ended. Key components of this agreement that directed the changes to Australia's health system included the following:

- The development of a stronger primary care system supported by joint planning with states and territories and the establishment of Medicare Locals.
- Funding changes to public hospital and changes within aged care such as the Australian Government taking full policy and funding responsibility for aged care services, including the Home and Community Care (HACC) program, in most states and territories.
- The establishment of mechanisms to monitor and address quality and safety issues within hospitals (ACSQHC, 2011)

The recognition of PI as an important quality and safety issue is evident in its recent inclusion within the National Safety and Quality Health Service Standards (NSQHSS) developed by the Australian Commission on Safety and Quality in Health Care (ACSQHC) (Australian Commission on Safety and Quality in Health Care [ACSQHC], 2011). The National Standard on Preventing and Managing Pressure Injuries describes evidence-based systems to prevent and manage PI, and includes recommendations relating to governance and leadership for the prevention and management of PI, preventing PI, managing PIs, and
communication with patients and carers (ACSQHC, 2012a; 2012b). The standards state that “in the majority of cases pressure injuries are preventable” (ACSQHC, 2012b, p. 55), however, as illustrated in the previous chapter, there remains some debate in the literature as to whether or not PIs are all preventable (Thomas, 2006).

Given the complexity of the availability of health services, the effectiveness of PI interventions, as well as ongoing uncertainties arising from the complexity of PI development, PI are likely to remain a persistent issue for health services. The conflicting viewpoints with regards to the degree to which all PI can be prevented highlights the challenging situation the clinicians charged with implementing PI policy such as standard 8 find themselves in (ACQSHC, 2012b). The potential impact such aspirational goals may have on clinician behaviour in relation to PI requires further investigation. Such investigations, in which the fit between the task (PI management) the individual (clinician) and the practice environment (health service setting) is explored in detail, are necessary in order to inform the development of contextually appropriate supports to assist clinicians to achieve the goals laid down in policy documents.

To clearly examine the health context in which PI occur and are managed, it is imperative to identify the system-level effects that give rise to PIs as well as determine how effectively PIs are addressed by the health system. A systems thinking approach allows illumination of the full range of effects and potential synergies of interventions to prevent and manage PIs such as the skills of the health workforce, and access to services by people with PI or at risk of PI. The next few sections will explore the key building blocks within the AHCS that will affect PI management.

3.2 ORGANISATION OF AUSTRALIAN HEALTH SERVICES

The AHCS is multi-tiered in nature, incorporating commonwealth, state and local levels of government. There is a mix in the various powers and funding responsibilities between these different levels of government, and these powers
are shaped and constrained by the Australian Constitution, as well as political processes and policies. The system has been influenced by a mix of taxation-funded public health services following the British and Canadian models, and voluntary private health insurance arrangements similar to the system in the United States. Compared to other countries Australia is unique in terms of the extent of public-private and State-Commonwealth interaction (Palmer & Short, 2010). The typical characteristics of the main health service settings that comprise Australian Health Care are described below.

The organisational elements of health services will have an impact on clinician practice such as workloads and staffing ratios, and these will directly affect PI prevention and management. While the influence of context on the delivery of PI prevention and management has received some attention, particularly in relation to the implementation of guidelines, fewer publications have explored practice across health service settings. Given the well-documented challenges created by fragmentation of care, both within the AHCS and worldwide, this highlights a significant gap in the broad understanding of PI care (Bird et al., 2007; Bywood, Jackson Bowers & Muecke, 2011; Commonwealth of Australia, 2009a; Haggerty et al., 2003).

3.2.1. Hospital based services
Hospitals are diverse in terms of their size, the services they offer, and their ownership (Duckett & Willcox, 2011). They are the dominant institutions within the health sector accounting for 39% of total health expenditure (AIHW, 2011; Palmer & Short, 2010). Health care in hospital based services is usually provided for short, intense periods of time to address acute episodes of injury and/or illness where the primary goal is timely and safe discharge home (Palmer & Short, 2010). Hospital based services include acute and sub-acute services as well as outpatient services. Service provision is typically guided by diagnosis, required medical and surgical procedures and is often defined by the primary organs affected, reflecting the biomedical model of care, for example, cardiology, vascular, and orthopaedics.
In sub-acute settings, the emphasis shifts from acute illness to rehabilitation, and patients experience longer stays in hospital. A team approach to patient care, involving allied health, medical and nursing staff, is well established and expected as part of the rehabilitation process. Several comprehensive multidisciplinary assessments are usually undertaken in order to set goals for intervention. Clients that are accepted for rehabilitation services are generally assessed to have the ability to improve and become more functionally independent over time given appropriate care (Laver, Ratcliffe, George, Lester & Crotty, 2013).

The occurrence of PI across settings is variable, although a high number of PIs occur in the acute hospital setting (Baharestani et al., 2009; Stevenson et al., 2013; Thomas, 2013). Studies of PI prevalence in hospitals are also variable. European hospitals suggest that 20-25% of in-patients have a PI at any one time (Vanderwee, Clark, & Dealey, 2007). Wittington, Patrick and Roberts (2000) surveyed 17,560 acute patients in the United States and found an incidence rate of 7%; of these 73% were over 65 years of age. In Australia, estimates of PI prevalence range from 5.6%-48.4% (VanGilder et al 2009; Victorian Quality Council, 2003; Prentice & Stacey, 2001b). Recent estimates of the prevalence of PI stage 2 or greater internationally range from 8.7.5-14.1% in acute care settings (Tannen, Dassen, Bours, & Halfens, 2004; VanGilder et al., 2009). On a state level, large-scale PI prevalence studies found a PI prevalence of 26.5% in Victorian acute and sub acute health services in 2003 (Strachan & May, 2005). When another statewide prevalence study was conducted in 2006 the mean prevalence was reported to be 17.6% (Victorian Quality Council, 2006). In one area health service (Illawarra) incidence of PIs ranged from 17% in 1993, to 7.5% in 2003, and 5.4% in 2004 following the implementation of a Clinical Practice Improvement Program. This program was initiated following a 2002 audit which found that 13% of patients transferred to Rehabilitation Aged and Extended Care, had an existing PI (Sykes & Blanchfield, 2005). A prevalence study of wounds amongst inpatients in Western Australian public hospitals in 2008, which surveyed 5,800 patients, found a prevalence rate of 9% (Santamaria, Carville & Prentice, 2009a).
Hospital based services also offer essential support for community services, including access to specialist skills through outpatient clinics. Outpatient services include transitional care programs such as Hospital at Home and transitional aged care packages. While these services are usually delivered to the client within the community and the staff providing the services may also be largely based within the community, they are funded by acute services and are therefore considered here. Hospital based clinics are another type of service provided within the hospital settings. The outpatient clinics offered by each facility vary and may include wound clinics and specialist peadiatric cerebral palsy clinics in addition to services for other conditions such as dialysis and oncology clinics. These outpatient clinics have the potential to provide a link between hospital based expertise and community health services via communication mainly with the general practitioner. Clients may attend a clinic weekly for treatment as in the case of those requiring dialysis, or less frequently as in the case of those being prepared for surgery or those requiring long term monitoring of a particular condition such as cerebral palsy. Most clients that attend outpatient clinics are medically stable and mobile (either independently or with some assistance). Clients may be required to wait significant periods of time to receive services, and when waiting to be seen may have to wait in unfamiliar and variable environments for services (Mcgraw & Drennan, 2014).

Research studies about the management of PI in hospital settings often do not differentiate between acute and sub-acute services, and there is very limited data on outpatient services. Having said this, Margolis, Knauss, Bilker and Baumgarten (2003) accessed a large outpatient record database from the United Kingdom called the General Practice Research Database to investigate PI occurrence amongst the outpatient population and found that of the 75,168 older individuals studied, PI occurred in 1,211 individuals. A range of medical conditions were found to be significantly associated with PI after adjustment and these included Alzheimer’s disease, congestive heart failure, chronic obstructive pulmonary disease, cerebral vascular accident, diabetes mellitus, hip fracture, lower limb oedema, Parkinson’s disease and rheumatoid arthritis amongst
others. Margolis et al. (2003) argue that ‘it is important that physicians recognise that patients with many medical conditions may be at higher risk for PI so that even in the ambulatory care environment, appropriate prevention and detection strategies can be directed towards the patients who are most likely to benefit’ (p. 259).

There are a number of studies that document specialist wound care services based at hospitals, although these are rarely specific to the management of PI (Butters, 2011). There are also some examples of wound care teams involved in the management of PI working within hospital based services (Lancellot, 1996). This demonstrates the considerable resources devoted to PI management within acute settings, and also the wealth of skill and knowledge present within hospital based services.

3.2.2. Community based services
The majority of on-going health care has always been delivered in the primary care setting and in the community (Pearson & McKinley, 2010). Provision of health care in community settings is known to pose unique challenges. Some of these challenges include; geographically disparate and poorly integrated services, diverse client needs and under-resourcing including both workforce and physical resources such as equipment (Commonwealth of Australia, 2009a, 2009b). Unlike hospital settings where all health professions are co-located within one facility, in community settings, the health workforce usually has to be coordinated and brought to the client. The diversity of health care services in community settings creates unique problems for service providers and planners (Duckett & Willcox, 2011). One of the key reasons for this diversity is the long-standing absence of a coordinated national approach to community health (Duckett, 2008; Palmer & Short, 2010).

People living in the community requiring support to address a health need may receive care from a number of different types of health services. Community based services include those health services which are not located at hospitals. They are a diverse group of health services that may require clients to travel to
facilities for care, such as community health centres and multipurpose services or alternatively the services may be brought to the client’s own home, school or workplace. Community based services are provided by both the government sector such as Home and Community Care services, and the non-government sectors, which includes non-government organisations and charitable groups, that provide home care and disability services (AIHW, 2011). Governments fund access to these services for target populations including the frail aged and those with intellectual and physical disabilities. Access to most but not all of these services require clients to undergo assessment and meet eligibility criteria (Duckett & Willcox, 2011). An outcome of recent health reform is an increasing emphasis on providing care close to a patient’s home in order to meet future healthcare needs in sustainable ways. For example, the major policy changes in the area of aged care and disability services have emphasised the importance of supporting people in their own homes through programs such as Home and Community Care (Duckett & Willcox, 2011; Palmer & Short, 2010).

Research on the provision of pressure care to those in community settings is under-represented within both the Australian and overseas literature. Most of the existing Australian literature has focused on pressure care in nursing homes and in-patient settings. Community settings have been identified as an area that requires further investigation, and given the gradual increase in publications related to PI practice in community settings, PI care within community settings may be considered very different to hospital based care, and presents unique challenges to those that deliver care in this setting (Probst & Gethin, 2014).

The majority of PI studies have been undertaken within acute and long-term residential care settings reflecting the high-risk nature of the client groups that are present within these settings. The smaller number of studies exploring PI within community service settings reflects the generally lower levels of risk for PI amongst community-dwelling individuals and the challenging nature of conducting studies within community settings (Stevenson et al., 2013). Conducting PI prevalence studies within community service settings are known to be problematic due to their time-consuming nature which makes them very
costly, as well as the difficulty in determining what types of community services should be included in these studies. For example, amongst the few community prevalence studies that exist there are important differences in terms of the inclusion of nursing homes and GP practices (Stevenson et al., 2013; Vowden & Vowden, 2009). For instance, Vowden and Vowden (2009) included General Practices, hospitals, nursing homes and private residences in their study of the prevalence of PI within the population receiving health care within one district in England. In their study population based study they found 0.74 people with a PI per 1000 population (95% CI 0.6-0.8). Vowden and Vowden (2009) also made some additional discoveries about PI management within community service settings, for instance, severe PIs were found to take much longer to heal than other less severe wounds, that severe PIs were most commonly located on the foot, and that the most common site for all PIs was the sacrum. Additionally, they found that only 11% of the clients whose most severe wound was a PI were located in acute hospital at the time the survey was conducted.

In Stevenson et al’s. (2013) study data was collected in two different sites with differing approaches to data collection at each site. At site one, 1680 patients were assessed and of these 185 were assessed to have a PI, a prevalence rate of 0.77 per 1000. In site two, 102 patients were assessed as having a PI, a prevalence of 0.40 per 1000. It is important to note that when data was collected at site two, nursing homes and patients with an exiting PI were excluded. Given the low prevalence rates detected amongst community dwelling clients and the significant cost associated with these studies, many studies are now looking to identify the prevalence of wounds more generally. This trend may also reflect the difficulties in differentiating some wound types as articulated by Vowden and Vowden (2015). Hopkins and Worboys (2015) conducted a wound prevalence study across all community health services within an inner London Borough and found that amongst the 254, 000 clients included in the study there were 272 community dwelling individuals that had a total of 325 wounds, giving a community wound prevalence of 1.07 per 1000, and residents with PIs accounting for 13% of all wounds. In an Australian community service setting,
Asimus and Li (2011) reported a prevalence rate of 8.9% in one regional community health service in NSW.

Many studies have recognised that clients receiving health services within their own home require PI prevention and management to varying degrees (Lewin et al., 2003; Lewin et al., 2007). This appears to reflect perceptions that risk for PI development amongst those not receiving care within acute services or long-term residential aged care is different (Takahasi, Chandra & Cha, 2010). Despite this, many of the studies conducted within community settings have remained focused on the implementation of existing PI prevention and management guidelines, which unfortunately offer limited support for managing the unique demands of PI practice within community service settings. The nature of PI practice within community service settings requires further articulation as there has been limited investigation of specific strategies known to be successful in PI care in the community to date (Asimus et al., 2011b; Berquist-Beringer & Daley, 2011).

Two Australian studies were found which combined community prevalence studies with the implementation of clinical practice guidelines within home nursing providers. The studies conducted by Lewin et al., (2003, 2007) involved several stages of research, incorporating repeated prevalence surveys, and the introduction of guideline implementation strategies. Initially, the base line prevalence of PI was reported as 42%. However, it is important to note that in order to use limited community health resources sustainably only clients determined as having severe mobility impairments were included in the study. In the baseline prevalence survey, 175 of the 344 invited to participate in the study took part. Following the completion of this survey, the AWMA guidelines were implemented through i) the development of work practice and protocols for each staff group within the services, ii) documentation of these processes within the quality management system, and iii) development of resource manuals and training programs for staff. A repeat survey was conducted after the first survey and found a non-significant reduction of only 4% of PIs, with an overall prevalence rate of 38%. An additional phase of implementation was
added including case study examples of procedures, feedback sessions for all staff on the project progress and outcomes, and the facilitation of greater involvement of management in reinforcing guideline adoption through the provision of reports on the performance of their staff in relation to the new work practices. This led to better results in a subsequent prevalence study, where a PI prevalence rate of 19% was recorded.

Bergquist-Beringer and Daley (2011) in describing some of the processes involved in PI care in the community articulated a similar argument to the one put forward in the current thesis, that there has been limited consideration of actual client, system and clinician need in the development of strategies to address PI within community service settings. Bergquist-Beringer and Daley (2011) conducted a focus group with nine certified wound care nurses who practiced in home health care in the United States. These participants who were recruited at a Wound and Continence Nurses Society conference described a number of different care processes unique to home health care. These included assessment of a client’s economic and insurance status to determine implementation options, assessment of carers’ resources and caregivers’ ability to manage PI prevention, and collaboration with community resources and home health suppliers to obtain the necessary prevention materials. Bergquist-Beringer and Daley (2011) concluded that ‘PI prevention in the home care setting is more complex than in hospitals and nursing homes and requires significant skills in communication and collaboration’ (p. 145).

Many of the studies that have explored PI needs in the community have tended to be conducted within home care services, with many studies exploring ways to determine risk more accurately within this population. The limitation being that these studies have tended to examine assessment processes for detection of PI needs and related allocation of resources using agency specific intake assessments for home care services (Bergquist-Beringer & Gadjewski, 2011). Based on the description of community based care within the AHCS presented earlier and included in the glossary, the range of services that constitute this service setting is far broader than home care services, and therefore the studies
conducted to date within home care services provide us with only part of the picture.

Issues of access have also been described in the literature related to PI, particularly amongst community dwelling clients. For instance early work by Oot-Giromini (1993) described the dilemma faced in trying to provide PI prevention within the home setting when pressure relieving products are reserved for those that have PI or those who can be demonstrated to be at high-risk for PI development. The recent studies by the PUPPs study group out of the University of Southern California (Ghuisas et al., 2015) also very clearly illustrate the challenges those with SCI face in the United States in accessing services. These challenges include access to reliable transport, and timely access to appropriate assistance with personal care. Additionally, they described poor access to other resources that can assist with PI management such as products to manage incontinence, wheelchairs, and equipment to assist with transfers, as well as equipment specifically related to the management of PI such as cushions and mattresses. Similar challenges with timely access to equipment, although to a lesser extent, have been noted amongst the relevant Australian literature (KPMG, 2007; Lewin et al., 2003).

A common finding across studies that have explored PI prevention within community settings has been the allocation of resources toward PI, particularly preventative strategies, in the context of competing health needs and limited resources (Ghuisas et al., 2015; Lewin et al., 2007; Oot-Giromini, 1993). The careful allocation of limited resources is an important issue within all health service settings, especially those that have very limited resources and diverse needs such as community service settings (Duckett & Willcox, 2011; Rosen & Gurr, 2010; Roussy & Livingstone, 2015). This is further complicated by the well-documented challenges in detecting those most in need of preventative measures more broadly, and in particular amongst the diverse population in receipt of community based PI services (Berquist-Beringer & Daley, 2011; Lewin et al., 2007; Roussy & Livingstone, 2015).
3.2.3. Primary health care

‘Primary health care’ was the term introduced to describe general practice and community based care. Primary health care services are often the first point of contact for people experiencing health problems when they present initially to their general practitioner, although, this may also include a physiotherapist, occupational therapist or podiatrist. (HWA, 2011a). Internationally, 90% of patient encounters are in primary health care (Green, Fryer, Yawn, Lanier & Dovey, 2001). Although likely to be encountered less frequently, PI are known to be seen and managed in general practice (Charles, Harrison, & Britt, 2014; Margolis et al., 2002; Margolis et al., 2003; Middleton et al., 2008). Primary health care was defined in the National Primary Health Care Strategy by the Australian Primary Health Care Research Institute as:

“Primary health care is socially appropriate, universally accessible, scientifically sound first-level care provided by health services and systems with a suitable trained workforce comprised of multi-disciplinary teams supported by integrated referral systems in a way that: gives priority to those most in need and addresses health inequalities; maximises community and individual self-reliance, participation and control, and involves collaboration and partnership with other sectors to promote public health. Comprehensive primary health care includes health promotion, illness prevention, treatment and care of the sick, community development, and advocacy and rehabilitation. (Commonwealth of Australia. Department of Health and Ageing, 2009b).

The above definition conveys many aspirational goals for primary health care, and provides a very broad scope for potential services offered within these service settings. Primary health care services currently perform tasks such as disease screening, management of chronic illness and health promotion, as well as management of acute health problems not requiring hospitalisation (Duckett & Willcox, 2011). Increased emphasis has been directed toward the role of primary health care and related community services, and their role in maintaining the viability of health systems. The role of primary health care in meeting the care needs of those requiring chronic complex care, and developing
appropriate strategies to assist this sector to meet these needs, is receiving more attention (Commonwealth of Australia, 2015b). For instance, it is argued that a strengthened primary care sector can be effective in preventing hospital admissions and thereby reducing health expenditure (Commonwealth of Australia, 2009b, 2009b). The importance of coordination of care, the need to strengthen preventative capacity, and recognition of the important role primary health care can play in achieving these goals is not new (Commonwealth of Australia, 2015b; Cochrane, 1972. as cited in Palmer & Short, 2010, p.56). The shift away from acute and highly specialised services characteristic of episodic care, recommended as a necessary step in enhancing care within community service settings such as primary health care, has been argued for a long time (Trumble, Naccarella & Brooks, 2011). Health reform within the primary health care sector, however, has only recently received significant attention, and it requires a great deal more attention if a strengthened role for primary health care is to be achieved (Commonwealth of Australia, 2015b; Palmer & Short, 2010).

Australia’s first comprehensive national platform for structuring community health services is being implemented (Commonwealth of Australia, 2010). Within the National Primary Health Care strategy four priority directions for change were identified as necessary to establish the system for the future. These included i) improving access and reducing inequity; ii) better management of chronic conditions; iii) increasing the focus on prevention; and iv) improving quality, safety, performance and accountability (Commonwealth of Australia, 2010).

The delivery of primary health care services may involve a range of clinicians including practice nurses and general practitioners who link closely with specialists, as well as some allied health professionals. General practices within Australia are usually small-scale, geographically dispersed private businesses demonstrating considerable diversity in their structure and the way in which they interact with other local health services (Phillips, Pearce & Hall, 2009). A number of mechanisms have been introduced to support general practice and
encourage greater coordination between primary health care and community health and social care services (Commonwealth of Australia, 2010). These mechanisms have undergone several iterations reflecting changes in government over time. The original Divisions of General Practice were absorbed into Medicare Locals as part of the National Health Reform Agreement (Booth et al. 2016). Medicare Locals were designed to improve the integration of primary care in local communities, address service gaps, and make it easier for clients to navigate their local health system (Commonwealth of Australia, 2010). Following the recent change in government Medicare Locals are currently being re-organised into larger Primary Health Networks (Commonwealth of Australia, 2015a; Horvarth, 2014).

Evidence indicates that health systems with a strong primary health care approach improve health equity and produce better health outcomes at lower cost (Rosen, Gurr, Fanning & Owen, 2012; Swerissen, 2008; WHO, 2008). Some of the known benefits of primary health care to health systems and individuals’ include greater access to services, and a greater focus on prevention and early management of health problems (Starfield, Shi & Macinko, 2005). In the case of PI, it is important to understand how current policy reform could potentially influence the demand for PI services, or how a reform initiative such as primary health care networks might provide a platform to enhance current approaches to address PI needs amongst the Australian population. The potential for greater involvement of primary health care in the prevention and management of PI is worthy of consideration particularly as more comprehensive models for complex chronic care are being developed, as this could provide a platform to target those most in need within community settings (Commonwealth of Australia, 2015b).

The role of lay persons\(^3\) (including the client and informal carers) in community based care and policy is under explored, despite being essential to the quality and safety of community services for PI (ACSQHC, 2012; HWA, 2011a; Henriksen, Joseph & Zayas-Caban, 2009). In order to understand the demands placed on those providing and receiving care within community based settings, and

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\(^3\) Layperson – someone who is not qualified in a profession and does not have specific knowledge.
therefore the supports that they require to participate safely and effectively in care, it is necessary to explore how PI services are delivered in the community.

3.2.4. Long-term residential care
Long-term residential care settings include hostels and nursing homes, which provide care to those who have chronic long-term problems often related to aging. While the majority of residents are aged, a small minority represent younger age groups. The care needs of residents and the organisation of care within nursing homes and hostels, including workforce and resources, is markedly different from other health services (Palmer & Short, 2010).

PIs are a major contributor to morbidity, mortality and decreased quality of life in the residential aged care sector (Ellis et al., 2006; Santamaria et al., 2009b). Research within the Australian residential aged care sector has reported PI prevalence of between 13% and 42% (Ellis et al., 2006; Santamaria et al., 2009b). Graves and Zheng (2014a) suggest a similar range amongst international studies of 7.6% to 53%.

3.3. THE HEALTH CARE WORKFORCE

In this section, an understanding of the health care workforce is developed within the context of the broader health reform agenda that has taken place within Australia over recent years. The National health reform agenda recognised that in order to meet future health system challenges, particularly within the community based care 4, it was necessary to build the capacity of the health workforce. For example, a skilled workforce was identified as one of the key building blocks for a responsive and integrated primary health care system (Commonwealth of Australia, 2010; HWA, 2011). Health Workforce Australia (HWA) was established by the Council of Australian Governments (COAG) in 2009 as a mechanism for a coordinated approach to workforce innovation and reform. This national body was tasked to provide system-wide leadership and

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4 Community based care is usually provided to individuals who dwell in the community, and usually in their own home. Occasionally services may be provided to those that dwell in residential facilities such as aged care facilities or group homes.
oversight of workforce planning, education and training by operating across both the education and health sectors. Some of the aims of health workforce reform included improving access to health and aged care services, and providing clinicians with the skills and training opportunities they need to respond to the current and future needs of the Australian community (HWA, 2011a). As part of its strategic framework HWA identified four domains of action: i) health workforce reform for more effective, efficient and accessible service delivery; ii) health workforce capacity and skills development; iii) leadership for the sustainability of the health system; and, iv) health workforce planning; health workforce policy, funding and regulation (HWA, 2011a).

The context of the health system is an important influence on the way clinicians are used in different health service settings and recruited and retained within the available health workforce (Duncan, 2011). One of the available mechanisms to achieve change and improve the sustainability, accessibility, quality and safety of health services is through the health workforce. Improving workforce productivity has been suggested as the key to addressing health workforce needs into the future (Duckett, 2006; Duckett & Willcox, 2011; Scott, 2006). Improvements in productivity may be achieved through a consideration of how work is organised, as well as the contributions of various individuals involved in the provision of care such as health professionals, assistants and support care. The investigation and consideration of how the health workforce is used to address various health needs, was identified as a key component in the health reform agenda (Duckett 2008; Duckett & Willcox, 2011; HWA, 2011; Sibbald et al., 2004). The consideration of how the workforce currently contributes to PI management is a necessary first step in any attempt to improve the productivity of the workforce in this area of practice.

3.3.1. Composition of the health workforce
Health personnel involved in the provision of services may include medical professionals, nurses and allied health professionals such as physiotherapists, occupational therapists, psychologists and pharmacists. Associate health professionals such as enrolled nurses, and support care with more generic
training such as case managers and personal care attendants may also be involved (AIHW, 2011; Duckett, & Willcox, 2011).

Throughout this thesis, the health workforce is a term used to encompass health professionals, associate professionals with non-degree qualifications such as enrolled nurses (ENs) & assistants in nursing (AINs), as well as those involved in the provision of support care, such as individuals who work for home care agencies and other community services (Duckett, 2011; HWA, 2011a). According to Duckett and Willcox (2011) health professionals are defined as ‘those that have specific training related to diagnosis and treatment of patients, and/or the organisation of health care delivery’ (p 77). The health workforce is currently comprised of numerous health professionals groups including nursing, medicine and allied health. Allied health is an umbrella term for a group of specific professions, which includes pharmacy, OT, PT, psychology, dieticians among others. These professional groups typically have their own governance and registration processes, and oversee their own professional preparation education programs. Different allied health professionals also have different practice emphases and have developed a range of theoretical bases for interventions. In the current thesis the term clinician has been selected as a generic term to refer to all those that deliver care, this includes health professionals, associate professionals and support care. This term was chosen as it best reflects the breadth of health care delivery in community service settings and current directions in workforce reform.

Within hospital settings there are a large range of clinicians, available in close proximity, for the rapid provision of services. Clinicians may work within a single ward or across various wards and outpatient services, and there is a mix of generalist and specialist skills available within hospital based services. Unlike hospital settings, in community settings, the health workforce is not co-located, and therefore the quality of care provided is very much dependent on coordination and communication between service providers. As a result, the care received by clients is often variable and greatly influenced by the services to which a client has access.
It is important to consider how the unique characteristics of care delivered within community settings may influence clinician practice in relation to PI and therefore client access to PI services. For example, in community service settings the interventions for the prevention and management of PI must be delivered in very different ways, as there are unique strengths and weaknesses that must be acknowledge and adapted to, if care delivery within this service context is to be both safe and effective. For instance, as clinicians must deliver interventions within the client’s home, there are often many logistical challenges in ensuring that interventions actually suits the client’s PI needs, their other health needs and their environment, which includes the physical environment and their support care, who actually deliver the bulk of care within this service setting.

Additionally, as clients have greater autonomy within the community setting, client willingness to accept interventions is also a key variable in the provision of PI services. All these and many other factors combine to create the unique health need, which is PI management within community services settings (Clark et al., 2006, Lewin et al., 2003; Lewin et al., 2007). It is necessary to better understand the unique demands of PI practice within community service settings in order to inform the supports that will enable clinicians to develop the appropriate knowledge and skills to practice effectively in this service context. An understanding of the supports necessary to assist clinicians to safely and effectively practice in PI prevention and management will be developed further over the course of this thesis.

3.3.2. Education and training for the health workforce
The education of most clinicians occurs within the tertiary education system. The system places many requirements on universities in terms of the content covered within individual degrees enabling qualification as a health professional. The example of occupational therapy will be used to illustrate this. In order for graduates to be able to register as an occupational therapist their degree must have been obtained from a program of study approved by the Australian Health Practitioner Regulatory Authority (AHPRA). To be approved the OT program
must cover certain content in order to enable graduates to meet the competencies required. The individual professional boards within AHPRA set these competencies (Australian Health Practitioner Regulatory Authority [AHPRA], 2013). For OT, this involves coordination from competencies developed by both the professional association, Occupational Therapy Australian (OTA), and educational guidelines developed by the international OT governing body, the World Federation of Occupational Therapy (WFOT) (Rodger, Clark, Banks, O’Brien & Martinez, 2009).

The transfer of the education and training of nursing and allied health professions from the workplace and vocational and education sector (VET) to the university sector has influenced the development of separate but related ideological foundations of each professional group. While the division of skills amongst a range of clinician groups has enhanced care, the focus on particular aspects of care and the development of profession-specific skills, has had some negative effects such as the strengthening of professional silos, the devaluation of generalist skills, and a decrease in skill flexibility (Duckett & Willcox 2011; Nancarrow, 2015).

Another essential component in clinician education is Continuing professional development (CPD). This is education that occurs post qualification and is available from AHPRA, professional associations, colleges and universities. It is also available from independent organisations such as registered training organisations (RTOs), which comprise part of the VET sector. The role of CPD in clinician education and training is discussed further in section 3.3.3.

The VET sector also provides shorter educational preparation leading to non-degree qualifications for occupations such as EN, AINs, as well as other health care providers such as disability support workers (CareCareers, 2014). Many of these individuals work in private service providers in the disability and home care sectors, as well as the aged care sector. The term support care, as used in this thesis refers to a broad range of health care roles that may or may not require training or qualifications (HWA, 2011a).
Recent policy initiatives in the area of workforce reform within both Australia and the United Kingdom have called for the greater inclusion of health service providers and clinicians, as well as the VET sector in health workforce development, if future demands for health services are to be met. This approach involves a shift away from a reliance on the tertiary education sector (Health Education England, 2013; HWA, 2011a). It is important to consider how this shift in emphasis in clinician education may influence the availability and development of knowledge and skills in PI prevention and management. For example, it may create opportunities to develop PI education and training programs between the VET sector and local health services.

The role of education in shaping clinician practice in PI prevention and management has been explored (Lewin et al., 2003; Moore, 2001, 2010; Murray, 2012; Samuriwo, 2010a&b). Although, further research into the effectiveness of clinician education programs in preventing the development of PI has been recently recommended (AWMA, 2012; Moore et al., 2014). The necessity of developing a greater understanding of the effectiveness of various educational approaches in shaping clinician practice in PI care has been further confirmed, with the establishment of a Cochrane protocol for a systematic review of educational interventions (Porter-Armstrong, Moore, Bradbury, & McDonough, 2015).

3.3.3. Oversight and regulation of the health workforce
A key mechanism in a more coordinated approach to health workforce reform was the National Registration and Accreditation Scheme for registered health practitioners established by COAG in 2008. The AHPRA was established to implement this scheme. The AHPRA works with 14 national health practitioner boards to set the registration standards for practitioners. The health practitioner boards include; the medical board, the nursing and midwifery board, the occupational therapy board and the physiotherapy board, amongst others (AHPRA, 2013). Key objectives of the National Registration and Accreditation Scheme are to: i) ensure that clinicians are suitably trained and qualified; ii)
facilitate education and training; iii) facilitate mobility of the workforce and iv) enable the continuous development of a flexible Australian Workforce (HWA, 2011a). Other functions include maintaining professional entry standards, and ensuring high quality and ethical practice through mechanisms that enable approval of international qualifications, complaints process and subsequent removal of professionals who do not meet standards (AHPRA, 2013; Duckett & Willcox, 2011).

Most professions have requirements for a minimum level of participation in continuing professional development (CPD) in order to maintain membership or attain higher status within the association or college (Duckett & Willcox, 2011). A range of courses are currently available to support clinicians in PI practice, although most are run through nursing organisations, perhaps presenting a barrier to the participation of other professional groups in PI education (Royal Australian College of Nursing, 2014). The Australian Wound Management Association also offers a platform for access to PI education either run through the organisation itself or through a range of other providers including specialist clinicians located with health services (AWMA, 2015). Given the small number of allied health professional members (n=205 in total, podiatry n=143, pharmacy n=18, other allied health=44, n=48 medical, n= 2533 nursing) of AWMA (2011) the majority of allied clinicians would be unaware that this education is available and therefore access to education around wound management and more specifically PI is limited. An example of education currently available through an allied health professional association includes the ‘Beyond the cushion’ workshop offered through OT Australia (OT Australia, 2015).

3.3.4. Health workforce development
Traditionally workforce planning has involved approaches to address workforce shortages by increasing quotas in particular professional groups (Duckett & Willcox, 2011). Dubois and Singh (2009) suggest that approaches which focus on numbers and types of personnel give little attention to the conditions that determine how staff members’ skills are used. Approaches to workforce
development are currently limited by less information being available regarding workforce development involving health care workers other than nurses and doctors (Comans et al., 2011; Sibbald et al., 2004).

In order to meet PI need alongside broader health system reform and strategic aims, it is necessary to determine the most effective mix of skills to address PI needs within the current organisation of the health services. It is also necessary to determine the optimum ways to develop and support the use of these skills amongst the whole health care workforce. A greater understanding of skill use in PI management, developed through an exploration of current practice across health service settings, is a unique contribution of the current thesis.

3.3.4.1. Team based care

In all areas of health care, teamwork is now seen as an essential part of service delivery particularly for those with complex chronic care needs (Saltman et al, 2006; Wagner, 2000). According to Nancarrow et al. (2013a) ‘interdisciplinary teamwork is a complex process in which types of staff work together to share expertise, knowledge, and skills to impact on patient care” (p. 1). The literature related to different clinicians working together to provide care is extensive and complex, however there is limited evidence regarding the most effective ways to deliver care. The range in terminology used to describe the many ways in which clinicians may work together further increases this complexity. Many different terms have been developed to describe the way clinicians’ work together to provide services including multidisciplinary, interdisciplinary, transdisciplinary practice as well as group and team based care.

The terms interprofessional and mulitprofessional are also used (EWMA, 2014; Saltman et al., 2007). While these terms are often used interchangeably, authors often use these terms to indicate differences in the types of processes, levels of interactions and the staff-mix of the team. For example, Nancarrow et al. (2013a) suggests that the use of terms inter or multi-professional tend to refer to teams that are comprised mainly of health professionals. While the term inter or multidisciplinary indicates a broader approach that includes both professional
and non-professional members within health care teams. The use of the prefixes; inter, multi and trans are sometimes used by authors to denote differences in the intensity of interactions between team members (Nancarrow et al., 2013a). In the current thesis the term interdisciplinary will be used, as it is more reflective of the potential for greater flexibility in skill use amongst the clinical workforce. It is a more inclusive term that reflects the potential contributions of health professionals, associate professionals and formal support care in the delivery of health care.

There are also many elements that influence team work such as service organisation, management structure, characteristics of health service settings, the range of skills potentially contributed by individual clinicians, and the way in which individuals interact to deliver care (Jackson Bowers, 2010; Nancarrow et al., 2013). These require further exploration specifically within the area of PI care as limited work has occurred within this area to date (Moore et al., 2014). The use of team approaches to prevent and manage PI is advocated within international guidelines in the field of wound care and more broadly (Browning, 1997; Clark, 2005; NPUAP/EPUAP/PPPUA, 2014; Ryan, 2006). Moore et al. (2015) in their systematic review found very little evidence from independently funded clinical trials to support or refute the use of wound-care teams for this purpose, and suggest the need for additional research to demonstrate the effectiveness of the team approach. It is particularly difficult to inform team based approaches to PI care when there remains limited understanding of the range of skills contributed by professional groups such as allied health (Stinson et al., 2013a).

3.3.4.2 Skill-mix of the health workforce

Key aspects of new directions in workforce planning and reform include a focus on consumer and health system need first, followed by a consideration of the skill-mix necessary to meet these needs (Duckett & Willcox, 2011; HWA, 2011a). Skill-mix is one way of analysing job redesign and its impact in health care, and then attempting to change the workforce skill-mix in order to improve effectiveness and efficiency (Sibbald et al., 2004).
There are currently variable levels of evidence available regarding the PI roles of the existing health professional groups outside of nursing and medicine. Skill-mix is a concept that has been used to move workforce planning beyond consideration of existing professional groups and their configurations, towards the desired mix of skills and the supports required to meet the needs of clients and the health system. ‘Skill-mix’ is a broad term used to refer to the mix of skills or competencies possessed by an individual; the ratio of senior to junior grade staff or generalist to specialists within a single discipline; or the mix of different types of staff within a health care team (Sibbald et al., 2004). It is recommended that policy makers and analysts need first to analyse carefully the nature of the problem they wish to resolve to inform whether skill-mix change is a potential option to enhance care (Sibbald et al., 2004). Further to this, optimum skill-mix is also ‘dependent on context and may vary from service to service and organisation to organisation’ (p. 36), and therefore careful consideration of the contextual factors that influence skills use in key health service settings is also necessary.

According to Duckett and Willcox (2011) workforce redesign is complex and can involve several different types of changes, which are outlined below in section 3.3.4.4. These changes help to encourage a focus on skill-mix rather than traditional professional roles. Current platforms for health system reform provide the opportunity to address the frequently cited need for more flexible approaches, which recognise that needs can be met in a variety of ways, by a variety of professionals and non-professionals, who can provide substitute services (Bullock & Firmstone, 2011; Chopra, Munro, Lavis, Visit & Bennett, 2008; Duckett, 2005; Duckett & Willcox, 2011; Dubois & Singh, 2009; HWA, 2011a&b; Plochg, Klainga & Starfield, 2009). Many changes within professional, associate professional and support roles are already occurring (HWA, 2011b).

3.3.4.3 Role enhancement and role enlargement

Role enhancement involves increasing the depth of a job by extending the role or skills of a particular group of workers (Sibbald et al., 2004). For example, in the
UK, community pharmacists who have completed accredited training can prescribe antibiotics (Cooper et al., 2008). Another example is the use of up-skilled pharmacists to improve client access to prevention and treatment of Sexually Transmitted Infections (STI) in Peru (Garcia, Hughes, Carcamo & Holmes, 2003). An example from the Australian context is the expanded use of Practice Nurses (PNs) in diabetes management, which has been enabled through additional training provided through the Australian Practice Nurses Association in collaboration with Diabetes Australia (Australian Practice Nurses Association [APNA], 2014).

Role enlargement involves substitution, delegation and innovation. Role substitution involves expanding the breadth of a job, in particular by working across professional divides or exchanging one type of worker for another (Sibbald et al., 2004). The substitution of nurses for doctors in primary care settings provides a well-researched example of workforce redesign involving substitution (Halcomb et al., 2014). Delegation involves moving a task up a traditional uni-disciplinary ladder, for example, therapy assistants (TAs) and AINs completing tasks previously completed by qualified therapists and nurses (Spilsbury et al., 2011). Innovation in work design involves the creation of new roles formed by combining tasks in a new way (Duckett & Willcox, 2011).

McPherson et al., (2006) conducted a systematic view to evaluate the evidence for the effectiveness of an extended scope of practice for allied health professionals. They investigated the evidence in relation to the impact on patient outcomes, the impact on other health professionals, and the impact on health service delivery. Five allied health professional groups were included: PT, OT, speech and language therapists, paramedics and radiographers. McPherson et al, (2006) found that a range of extended practice roles for allied health professionals were being promoted and in some cases already being undertaken, such as extended roles for OT and PTs in hand therapy including injection therapy. A number of benefits directly attributed to a range of extended roles were reported in surveys of doctors and therapists involved in these studies. These included but were not limited to reductions in waiting times for services
and increases in perceptions of professional autonomy and skills. Alongside the benefits, therapists and doctors raised some concerns about litigation, lack of confidence, and individual variation in skills and training. Overall findings from McPherson et al.s.’ (2006) systematic review were that “the strongest evidence is that health professionals can learn specific advanced skills outside their routine scope of practice and apply them, and that access to care can be enhanced” (p.245). However, the article cautions that there remain many unanswered questions regarding the financial and opportunity costs of such service developments, as well as limited understanding of their effect on client outcomes, and that further research is necessary to ensure that such innovations are applied appropriately.

3.3.4.4. Challenges in health workforce development

The literature highlights the complexity in achieving workforce reform and has identified a number of challenges faced in achieving changes in clinicians’ roles. This would also be the case in PI if changes in skill-mix were to occur. These challenges include system level factors such as the role of professional associations, legal issues around which tasks individual clinicians are allowed to take on and being able to fund the use of any new skills and services (Duckett & Willcox, 2011; Ferlie et al., 2005; HWA, 2011a). Additionally, there are local level issues that are known to influence the extent to which changes can be made such as workplace culture and traditions that surround the association of particular tasks with certain professional groups (Duckett & Willcox, 2011; Rose & Mackenzie, 2010). For example, wound management is very closely associated with the profession of nursing in spite of the fact that some other professional groups such as medicine and podiatry are also widely involved with wound care.

Making changes to the way in which the workforce is used is known to have many flow on effects. For example, as the number of staff in a pathway or team based care arrangement increases the more time staff need to spend conferring with each other, thereby decreasing the amount of time for direct patient care (Sibbald et al., 2004). Additionally, any changes to one clinician’s role will have some level of impact on another clinician. The work that clinicians do cannot be
understood in isolation, as organisational issues and system level factors will impact on what they can do in practice. For instance changes in scopes of practice requires the development of training programs and effective change management skills to successfully implement workforce changes (Laurent et al., 2009). Any changes to the scope of practice for clinicians must also be supported by legislation (AHPRA, 2013).

A criticism of the current staff-mix focus is that it is restrictive and that it fails to account for staff members’ skills and their effective use by inhibiting health care providers from practicing to the full extent of their education, training, skills, knowledge, experience, and competence (Dubois & Singh, 2009; Duckett & Willcox, 2011; HWA, 2011a; Nancarrow, Roots, Grace, Moran, Vanniekerk-Lyons, 2013b). Dubois and Singh (2009) suggest that in order to optimise human resources, managers must extend beyond simple staff-mix modifications and understand and have the skills to work within and around key organisational and system factors affecting how the workforce is used.

Dubois and Singh (2009) introduced the notion of skill-management, to refer to the mechanisms that can be used by an organisation to optimise the use of its workforce, these mechanisms largely reflect those described by Duckett and Willcox (2011). Dubois and Singh (2009) contend that skill management shifts the focus from the mixture of clinicians needed, to adapting their skills to the changing demands of the health care environment. They suggest that ‘skill management enables organisations to optimise patient outcomes while ensuring the most effective, flexible and cost-effective use of human resources’ (p. 5).

3.3.5. Exploration of health workforce roles
Duckett (2008) has suggested that one way to improve the existing health system is to consider the different roles among health care providers, and that gaining an understanding of clinician roles provides the necessary the starting point for workforce planning. Developing some clarity regarding the role of a profession is necessary for effective workforce planning, as changes within one
profession will impact on other professions (Duckett & Willcox 2011). Additionally, a fresh assessment of the roles that are actually required to provide the necessary skills to meet future health needs forms another essential step in workforce planning around PI management (Health Education England, 2013; Duckett & Willcox 2011).

Some attempts have been made to articulate the contributions of different clinicians to PI prevention and management in the literature (Ellis & Price, 2015; Hampton, 2005). Much of this information comes from international articles, and while it can assist in understanding the potential role of a clinician in PI care within the AHCS, it is important to acknowledge some limitations in its application to the Australian health workforce. This is due to the fact that models of care and the roles of clinicians may differ due to variations in education and training models, differences in regulation and local issues such as job descriptions.

Information specific to PI is necessary as there is a need to consider the roles that are required to provide the necessary skills and use this to inform decisions regarding how best to address workforce shortages (Duckett & Willcox, 2011). As skill-mix and role reassignment have been identified as an issue of key importance in meeting future health care needs, an exploration of how this relates to the specific health issue of PI is necessary (Duckett & Willcox, 2011). Greater consideration of the skills necessary to provide PI care may assist in the development of education and training opportunities which facilitate better access to PI care. Identifying opportunities to enhance current practice may assist in the provision of effective and efficient services.

PI literature is yet to explore skill-mix as defined here in detail. Amongst the articles that do address elements of skill-mix in PI practice most focus on the delivery of care by ENs and AINs instead of or alongside RNs (Gunningberg, 2013; Hampton, 2005; Murray, 2012). Unfortunately, some of this information is limited as it garnered from opinion pieces, which reflect the views of individuals, rather than being based on evidence gathered in empirical studies. For example,
Hampton (2005), based on her clinical experience, described the potential benefit of using health care assistants to enhance PI care. Hampton (2005) suggested that improving health care assistants knowledge of PI management and establishing competencies would improve quality of care and reduce role ambiguities. There have been a number of studies in which the introduction of AINs and assistant practitioners has been used more broadly across a range of practice areas, and the greater exploration of these types of roles, within the context of PI care, and particularly involving allied health, is necessary (Spilsbury et al., 2011).

A very recent evaluation study described by Ellis and Price (2015) in the UK documented a new role for Health Care Assistants (HCA) called the Tissue Viability Health Care Assistant (TVHCA). This role reportedly emerged from the need to enhance accuracy in the collection of data for PI prevalence studies amidst budget restrictions, which prevented the employment of RNs. To prepare them for their role and ensure consistent validation the TVHCAs received training in PI classification and risk assessment using an electronic learning program to support, and two weeks of supervised practice with a Clinical Nurse Specialist. The role also incorporated an advice service regarding risk and risk prevention strategies. Reported benefits of the introduction of this new role included a reduction in the incidence of PI across the service evaluation period and the associated savings accrued by the health service as a result. These benefits were a significant addition to the original savings made by employing a HCA in this role rather than an RN. Interestingly, a second TVHCA was employed over the course of the project as it was found to be a cost effective strategy to enhance the existing tissue viability service within a health care trust. Therefore, the potential benefits of this type of approach in other services types and health care settings is demonstrated.

There are few studies that have explored perceptions and experiences of a range of health professional groups in the prevention and management of PI. Of the studies that have been conducted, these have tended to involve nurses and physicians (Romero-Collado et al., 2013; Thomason et al., 2006). One study
conducted by Guihan et al. (2009) has examined the role variability amongst OT and PT in the management of PI within specialist interdisciplinary SCI services within the United States. A cross sectional survey and focus group was conducted with a total of 39 therapists (n=24 PT) and (n=15 OT), attending a conference. The findings indicated that usual practice for PTs included direct wound care to facilitate healing, determining causation of the wound, interventions after tissue healing, and involvement in further preventative strategies. Usual practice for OTs did not include direct wound care but did include all of the other categories listed for PTs. Aspects of direct wound care undertaken by PTs included tissue mobilisation, high-volt electrical stimulation, and wound measurement, as well as involvement with decisions around dressings and topical agents (Guihan et al., 2009).

Existing clinical practice guidelines currently fail to elaborate on how different professional groups can effectively contribute to PI care. Clark (2005) identified the importance of supporting interdisciplinary practice in this area by making the roles of other health professionals, in particular allied health, more explicit within clinical practice guidelines. The workforce literature similarly suggests that workforce planning must commence with an understanding of the role of the various health professions. Further research into the contributions made by individuals and teams to PI care is necessary in order to inform how the workforce may be best used and supported to provide PI care. In the current climate, it is difficult for clinicians to make appropriate referrals to other clinicians if there is ambiguity surrounding roles and responsibilities in practice (Browning, 1997).

3.4 EVALUATION AND IMPROVEMENT OF HEALTH SERVICES

It has been suggested that significant changes in the way services are planned, organised and funded are necessary in order for improvements in health care to occur (Swerissen, 2008). Improvements to health care are defined by outcomes. These outcomes relate to the health status of individuals, such as improvements to their wellness and quality of life. Other outcomes relate to consumer
interactions with the health system. For example, these outcomes include consumer perceptions of the quality of care and the level of information received from health services (Duckett & Willcox, 2011). The AHCS faces significant challenges in meeting a range of competing needs, and its ability to adapt to allow for significant change is limited. Therefore, it is necessary to determine the most effective and efficient ways to meet current and future health needs, consider the extent of reform necessary to address such needs, and to determine the best way to go about achieving the necessary changes (Duckett & Willcox 2011). This requires an in-depth understanding of particular health needs, such as PI management, and the effectiveness of current practice.

Evaluating services such as PI management, involves understanding how current care is provided. Duckett and Willcox (2011) describe evaluation as involving ‘a focus on what is achieved (outputs and outcomes) and how this achievement occurs (processes)’ (p. 5). They recommend the use of four related criteria for evaluating services: equity, quality, efficiency and acceptability. These criteria can be used to help evaluate current service provision and therefore inform future changes to the way in which services are delivered. They can also assist in the consideration of the likely effect of such changes, and therefore the development of supports to assist in managing change. For instance, a consideration of the effect of altering the demand for PI services, by encouraging client self-management of PI through appropriate information provision and mechanisms to support access, is necessary in order to predict the likely effect of such changes and therefore ensure that the necessary supports are in place to enable this approach to occur. Additionally, the process of service evaluation can also be used current approaches to supporting informal carer involvement in PI management can also be evaluated. The to inform the development of alternative approaches and the necessary supports that could potentially enhance the ability of support care to participate in PI management. It is also important to consider whether these changes will adequately address issues of supply.

These criteria can also used to evaluate workforce changes such as encouraging the use of different clinicians in order to improve client access to PI services. A
A well-researched example of this type of change is the substitution of PNs for GPs in the management of some tasks within PHC. These changes have been used to address the issues of supply that impact on client access to PHC services, and could potentially be used to improve access to PI services within PHC. The framework can be used to consider these changes in terms of the outcomes for the client and the AHCS. The four related criteria for evaluating service will now be outlined.

### 3.4.1. Equity in healthcare provision

Equity requires consideration of access to health care for different groups. For example, there are differences in access to health services between those located in rural and urban areas, and people from lower and higher socio-economic groups. Duckett (2008) identifies two elements of equity: equity of access and equity of outcomes. An understanding of equity of outcomes is limited by the collection of relevant information related to health outcomes and the complex relationship between quality of care and the influence of other environmental factors (Duckett & Willcox, 2011). It would be beneficial to have greater understanding of issues potentially impacting upon client access to PI services in order to develop an understanding of equity amongst the various client groups receiving PI services. The development of tools and outcome measures specific to PI to better measure client outcomes (Gorecki et al., 2012; Gorecki, Nixon, Lamping, Alvani & Brown, 2013) is already underway. However, everyone that experiences PI may not be able to articulate their needs for PI services and therefore, may not access PI services until crisis situations develop. Equity of access to PI services requires exploration of the perception of clinicians about the needs of clients for PI services, based on their clinical experience. This is an area of knowledge that the current project aims to address.

### 3.4.2. Quality of healthcare

There is a growing focus on the quality of health care both nationally and internationally. Quality is a broad concept and is about the intended outcomes of care, with outcomes interpreted across a number of dimensions including timeliness of access and appropriateness, which overlaps with acceptability.
(Duckett & Willcox, 2011). While Duckett and Willcox’s criteria alludes to the judgement of consumers regarding timely access to services, as a criteria by which the quality of health services may be judged, in the current project an additional framework has been used to enhance understanding of access from the perspective of clients, particularly those that receive care within community service settings. This framework created by Penchansky and Thomas (1981) includes five dimensions of access (availability, accessibility, accommodation, affordability and acceptability) and these will be explored further, with relevance to PI management within section 3.7.

Quality of service provision includes a number of components, and various stakeholders in health care might place a different emphasis on certain aspects of quality (Duckett & Ward, 2008). Duckett (2008) identifies system design issues as another element of quality of care. Poor quality care often arises from poor continuity of care between the different services and providers. Poor continuity of care has already been identified as an issue affecting the quality of PI management (Athlin et al., 2009).

As a mechanism to improve quality and safety the Australian Commission on Safety and Quality in Healthcare (ACSQHC) was designed to develop, implement and monitor national clinical safety and quality standards (ACSQHC, 2011). Selected priorities for action include the prevention of PI, medication errors and falls (ACSQHC, 2012a). According to Duckett and Willcox (2011) ‘safety is taken to mean issues related to the unintended outcomes of health care, leading to a focus on adverse events’ (p. 211). As described earlier in this chapter, a multilevel approach is recommended in improving the quality of health services. A multilevel approach enables consideration of the potential effects of an intervention at the various levels of health systems, and this is felt to be important as making changes to one level can have an overall effect on the health system (Batalden & Splaine, 2002; Ferlie & Shortell, 2001). Equally, failure to consider each level of the health system may influence the likely success and outcomes of an intervention or service.
3.4.3. Acceptability of health care
This criterion refers to the acceptability of the health care system from the perspective of patients, communities and providers (Duckett & Willcox, 2011). It includes principles such as respect of autonomy, non-maleficence (providing safe health care environments in which adverse events associated with care are minimised), beneficence (doing good and ensuring that the benefits and drawbacks of care are balanced) and justice (treatment is allocated fairly, equitably and appropriately) (Duckett & Willcox, 2011). Elements of acceptability can overlap with other criteria for evaluating health systems. For example, the perceptions of consumers and providers about waiting times for PI services may influence perceptions of quality of care. Additionally, differences in processes of care can also reflect elements of equity. For example, a client who is receiving weekly renal dialysis might be able to have their dressings attended to free of charge when they attend an outpatient clinic, whilst an individual not attending this type of service may have to pay for dressings and a visit to a GP to have their wound attended.

3.4.4. Efficiency of health care services
System efficiency includes three contributing factors: technical, dynamic and allocative efficiency (Duckett & Willcox, 2011). According to Duckett (2008) ‘allocative efficiency is concerned with ensuring the best allocation of resources in the health care system, so that the inputs allocated to the healthcare system yield the best possible outcomes’. (p. 6). Allocative efficiency thus involves a focus on outcomes, such as quality of life, relative to inputs (dollars spent). Improving allocative efficiency (reducing inputs per outcome or increasing outcomes per input), can be achieved by improving technical efficiency or improving effectiveness (Duckett & Willcox, 2011). Another aspect of allocative efficiency is priority setting, which involves deciding on the appropriate division of resources among conditions and within conditions (Duckett, 2008).

An additional component involves the appropriateness of care for conditions or circumstances, at different times. Duckett (2008) discusses the importance of analysing the appropriateness of care and how the management of conditions
can perpetuate variability in care. For example, determining whether a health issue can be managed at home with PHC services or whether a client requires admission. These aspects of allocative efficiency are particularly important in considering approaches to PI management within community service settings, where occurrence is thought to be lower, individual’s experience lower levels of risk, and there are well documented issues with resourcing and access to care. Careful consideration is required to determine the best way to increase the attention given to this important health issue, whilst being very realistic regarding the amount of resources that should be allocated to the management of this issue.

Technical efficiency is concerned with efficiency in production, i.e. inputs, such as costs, divided by outputs, such as patients treated. Technical efficiency ‘reflects how the processes of care are designed or managed’ (Duckett & Willcox, 2011, p. 6). Technical efficiency can also be promoted through workforce reform. For example Duckett (2008) argues that by not using the skills of existing staff to their full potential, other staff may be burdened with extra work. In the case of PI it is important to consider if the current mix of skills is effective for PI management and if a better output and improved system and client outcomes, could be achieved by support changes in skill mix. For example, enabling greater involvement of allied health in PI management, by ensuring that job descriptions reflect their full scope of practice in this area. This could enhance current practice and better address PI needs in the context of competing and changing healthcare needs. Shifts towards team based models and greater use of nurses within PHC represent examples of strategies to address technical efficiency (Duckett, 2008).

Dynamic efficiency refers to ‘the extent to which the health care system as a whole, and its constituent elements, adapt to change and innovation’ (Duckett, 2008, p. 325). System-level change is particularly difficult to achieve for a number of reasons including powerful interest groups such as professional associations (Duckett, 2008). For example, while expanded scopes of practice for allied health professionals and nurses may improve client access to services,
there are many barriers to these changes occurring at the system level. These barriers include models of payment such as those in PHC that direct funding to GPs. Professional associations are known to defend professional roles and maintain boundaries between professional groups in order to protect their own interests (Duckett & Willcox, 2011; Ferlie et al., 2005)

3.5 CAPACITY OF HEALTH SERVICES TO MEET HEALTH NEEDS

All health services are designed to meet a need. Donabedian defines need quite broadly as “some disturbance in health and well-being” (Donabedian, 1973 p. 62). A well documented challenge in designing health services to meet a variety of health care needs is that stakeholders such as consumers, service providers and those that are involved in service development are likely to view needs in different ways, depending on their own values and experiences (Duckett & Willcox, 2011; Bradshaw, 1972). One of the many challenges in determining what need is, and what level of need it is appropriate to try to meet, is that individuals and groups of consumers, providers of health services and policy makers have different views regarding which health issues and related services should receive attention in an environment of limited resources (Bradshaw, 1972; Donabedian 1973). Gaining a greater understanding of PI need may help to inform courses of action in enhancing current PI practice within community service settings, and also assist in identifying potential ways to address future need.

The cost of health care is rising, and this has been attributed to a number of factors including the aging population, multimorbidity and increased use of services, increasing use of more sophisticated health technologies and the rising expectations of consumers (Barnett et al., 2012; Franks, 2001. as cited in Morison, 2001, p. 43). Appropriate allocation of resources is always an important consideration in health (Duckett & Willcox, 2011). All interventions are costly in terms of staff time and dollar cost. It is important to identify where and how resources are best used in terms of both workforce and equipment or products. Given that human resources are thought to be the most costly aspect of PI
prevention (Schuurman et al, 2009) an investigation of the use of the workforce in PI management within Australian health services is a necessary component in addressing future need. The AHCS is required to meet many competing needs using finite resources. It is felt that questions regarding need will persist and become increasingly important as health care costs continue to grow (HWA, 2011a).

PI is just one health care need amongst many others. Dror, Preker and Jakab’s framework (as cited in Duckett & Willcox, 2011, p. 8), which drew upon the earlier work of Donabedian (1973), can be used to understand the relationship between health care needs, actual demand for services (expressed need or actual service use) and the supply of health services. The health care services provided within Australia are recognised as having a large number of strengths (Duckett, 2008). Despite these many strengths, there remain areas for improvement and the identification and investigation of these areas is important for the sustainability of high quality services, which are able to meet future demand.

Understanding the factors that influence need, demand and supply has important implications for health service planners and policy makers. For instance, policy changes that attempt to increase self-management of PI (a demand side intervention) and therefore potentially increase the number of those clients seeking care, is very likely to require changes in the way in which services are organised and delivered in order to meet this increased demand. Careful consideration is required to understand the implications of policies and their impact on health care resources such as the workforce (supply). Increasing the number of clinicians to support greater demand for complex chronic care is an example of a supply side intervention.

Regardless of the approach taken, the scenarios described in the previous paragraph, illustrate the importance of the careful consideration of the implications of various health policy options for addressing changing health care demands, such as the growing need for complex chronic care. This information may be put to use in formulating policies designed to influence service use, and
in assessing the probable effects of policy (Donadebian, 1973). Determining which needs should be addressed, and are what level of attention they should receive is complex, and these issues have been the subject of much debate in the health and social services literature over the years. There are a number of different approaches to the assessment of need (Donadebian, 1973; Dror et al., 2002. as cited in Duckett & Willcox, 2011, p. 8; Duckett & Willcox, 2011). In this thesis, the concept of need as described by Bradshaw (1972) will be used to explore the concept of need in relation to the prevention and management of PI, within the AHCS.

Bradshaw (1972) described the concept of need as comprising four different types of need: normative need, felt need, expressed need and comparative need. According to Bradshaw (1972) different sources of evidence and techniques can be used to identify each type of need, and these will be used to enhance understanding of the findings, related to the need for PI services, as presented and discussed in Chapters 5-7. To assist in the application of an understanding of PI need, it is first necessary to define each type of need.

3.5.1. Normative need
Normative need relates to what an expert group considers as need, and is ascertained by comparing a situation with a standard determined by an expert group. An example of this pertaining to PI occurs when community based practice is compared with standards set in clinical practice guidelines developed by expert panels. These normative standards suggest PI is an important concern for health service managers particularly within acute services settings where it appears to be seen as an issue worthy of considerable resources (Soban et al., 2011).
3.5.2. Felt need

Felt need is the type of need expressed by people when they are asked about need. Bradshaw (1972) notes that this type of need can reflect an individual’s want rather than real need. Hays & Veitch (1999) challenge this notion by suggesting that in circumstances where individuals have a good understanding and experience of the issues, felt need may be a good indicator of real need. For example, if a clinician involved in the delivery of services to a particular client group expresses a need for additional education and training to support them to provide services to this group, this would be perceived as a real need rather than a felt need. This is due to the fact that these are experienced clinicians aware of their own educational needs in relation to the needs of a particular client group.

3.5.3. Expressed need

Bradshaw suggests that this need is distinguished by considering what services are demanded, in other words, actual use of a particular service indicates need. Problems with using this type of need to determine actual need can occur as the use of a particular service may be limited by access. It is also dependent on everyone who needs a service actually being referred to a service. Some clients may have a felt need for service to assist them in the management of a skin related issue, yet they are unable to express this as a need for PI services, as such services are not available or easily recognisable. For example, a client may be housebound or unaware that certain services exist, and so may not seek a service.

3.5.4. Comparative need

Bradshaw spoke of comparing the services, facilities and supports of one group with another to determine this type of need. In the case of PI, we can explore differences in client groups in terms of PI needs. For instance, there are likely to be differences in the number and significance of risk factors and care strategies for very high-risk and usually well-supported groups such as those with SCI, compared to those with other complex chronic care needs. This group may have greater health care provision such as exposure to education and mechanisms for
obtaining specialised equipment. Comparisons can also be made by exploring differences in the availability of support services and the level of support for clinicians practicing across a variety of health service settings.

Application of Bradshaw’s taxonomy of need can assist in the exploration of need for PI services, amongst other competing health needs. Gathering data on aspects of health care within Australian health services is needed to inform innovations and solutions to improve health care, and address current and future PI needs in an effective and efficient way (HWA, 2011a&b; Palmer & Short, 2010). Bradshaw’s taxonomy and Duckett and Willcox’s criteria for evaluation will be used throughout the rest of this thesis in the consideration of PI need, and the way in which these needs are currently met within the AHCS. Through the process of applying these frameworks in the analysis, interpretation and write-up of the data, a picture of unmet need for PI will be created. Further to this, these frameworks will also enable the consideration of fresh approaches to PI management, and their potential in addressing unmet need for PI services, within the AHCS.

3.5.5. Addressing chronic complex care needs
Chronic disease is becoming the dominant epidemiologic pattern of illness. The related increase in need for chronic complex care is placing different demands on health care systems worldwide. The AHCS shares many characteristics with most other health systems around the world in that it was developed with an emphasis on acute illness management and hospital based care. Chronic complex care differs from acute illness management due to the longevity, severity, degenerative and complex nature of these diseases. According to von Kroff, Gruman, Schaefer, Curry & Wagner (1997) chronic conditions may be defined as ‘illnesses that last longer than three months and are not self-limiting’ (p. 1097). Due to the ongoing nature of care, clients and their carers generally have an increased role in chronic complex care management (von Kroff et al, 2010; Lorig & Holman 2003). It is thought that effective chronic disease care requires a re-orientation of health systems toward more coordinated approaches that address the ongoing demands of chronic disease (Brooks 2003; Commonwealth of

There is a significant body of literature devoted to chronic disease and its complex care needs (Battersby et al., 2010; Benzer et al., 2011; Erny-Albrecht & McIntyre, 2013; Swerissen & Taylor, 2008; Taylor & Swerissen, 2010; Wagner, 1998). As described earlier, demands on health systems worldwide are increasing due to greater longevity, increasing rates of chronic and preventable disease, advances in treatment and technology and raised consumer expectations (Commonwealth of Australia, 2015b; Dubois & Singh, 2009; HWA, 2011b). Many authors argue that the changes to the way in which services are delivered must occur in order to cope with the increases in people seeking access to health services, and the financial challenges health services are already facing (Dubois & Singh, 2009; Duckett & Willcox, 2011).

The management of the rising prevalence of long-term disorders is recognised as the main challenge facing governments and health-care systems (WHO, 2010). Multimorbidity is considered the norm for those with chronic disease (Barnett et al., 2012) those who are ageing (Erny-Albrecht & McIntyre, 2013), and those with complex conditions such as physical disability (Kinne, Patrick & Lochner, 2004; Kroll, Neri & Ho, 2008). Multimorbidity is the co-occurrence of multiple diseases or medical conditions within one person (Valderas, Starfield, Sibbald, Salisbury, & Roland, 2012). The management of secondary issues is becoming increasingly important as those with complex chronic care needs are living longer. Poor management of secondary conditions can lead to reductions in quality of life and can increase the complexity of care, both of which may increase health service use and therefore the cost of care (White, Gonda, Peterson, Drum & the RRTC Expert Panel on Health Promotion Interventions, 2011). Secondary conditions as defined by Kinne et al. (2004) include “preventable physical, mental, and social disorders resulting directly or indirectly from an initial disabling condition” (p. 443). PI is noted to be a common secondary condition amongst those with SCI (Callaway, Barclay, McDonald, Farworth & Casey, 2015; Kroll et al., 2008) and other disabilities (White et al., 2011). The role of other secondary conditions in those with SCI,
such as diabetes, has been identified as predisposing these individuals to greater risk for PI development (Guihan et al., 2014). Guihan et al. (2014) have recommended that practice and research in the area of PI prevention, particularly recurrence in high-risk groups, should focus on the prevention and careful management of secondary conditions such as diabetes.

According to the Australian Institute of Health and Welfare (2014) 35% of Australians, or about 7 million people, have a chronic condition. Older people are likely to have several co-morbid chronic diseases (van der Akker, Buntix, Metsemakers, Roos & Knottnerus, 1998). The presence of multiple chronic diseases has a considerable impact on quality of life (Walker, 2007), and chronic diseases have been found to be correlated with functional impairments (Bayliss, Steiner, Fernald, Crane & Main, 2003). All of these factors are of concern as they are also likely to place more individuals at risk of PI. The presence of multiple comorbidities is known to place individuals at increased risk of PI (Coleman et al., 2013).

3.6 INCREASING CLIENT PARTICIPATION IN HEALTH CARE

Key mechanisms in the re-orientation of the AHCS to better meet chronic complex care needs include collaborative management and the facilitation of enhanced consumer participation in care. Depending on client needs and abilities, self-management education may be provided (Battersby et al., 2010; Lorig & Holman, 2003; Von Kroff et al., 1997). Self-management is defined by Barlow, Wright, Sheasby, Turner and Hainsworth (2002) as ‘an individual’s ability to manage the symptoms, treatment, physical and psychological consequences and lifestyle changes inherent with living with a chronic condition’ (p.366). Although receiving a great deal of attention more recently, the concept of self-management and the need for health service providers to change their practice to better support this approach, has been recognised for many years. For instance, Levin (1975) suggested that clinicians needed to re-orientate their professional values to promote the potential for self-management of clients and lay people, and to develop a more collaborative relationship (p. 210). The
chronic care model, a well accepted and researched approach for chronic disease management (Coleman, Austin, Brach & Wagner, 2009; Wagner, 1998) conveys that outcomes for those with complex chronic care needs can be improved when health systems are organised to support, inform, monitor and activate clients to become better self-managers (Guihan & Bombardier, 2012).

The role of clients, informal carers and the general community in improving knowledge related to PI care, and assisting in the implementation of best practice guidelines has also been endorsed (Evans, Barklam, Hone, Ellis & Witlock, 2013; Whitlock, 2013; McIntyre, 2013; Donagh, 2013; McIntyre, May & Marks-Maran, 2012). Gillespie et al., (2013) have described the development of a ‘patient-participatory pressure ulcer prevention bundle’ (p. 74) of information to promote active participation and collaborative learning by clients and carers. The bundle that was piloted on one medical and one surgical ward within an Australian public hospital consisted of a brochure and checklist, posters and a video to support PI prevention. A total of 112 individuals were approached to participate and 58 consented and took part in the study. Feedback was sought from patients regarding the success of the brochure in supporting them to take a greater role in their own PI prevention while on the ward. In an interview patients (n=11) were asked about their experiences of using the interventions included in the bundles, whether they had any suggestions to improve each of the interventions and whether, based on the training program, they would do anything different in relation to PI prevention. Key findings from the project indicated that although the bundle was generally well received, patient acceptance of the checklist/information brochure was found to be low. In this pilot study all participants were asked to report their use of the combined brochure/checklist for each day they were enrolled in the study. Only 4 of 58 participants (7%) reported that they used the check/list brochure as a prompt. The authors contend that the patient’s perceived risk of acquiring a PI and the short lengths of stay are likely to have contributed this finding. This raises questions regarding the extent to which greater client participation is actually achievable within acute service settings.
Interestingly, during the study period it was reported that up to 40% of patients in both wards were not eligible for the study because of poor cognition, their medical status, or expected separation from the ward. Again, this suggests that the opportunities for increased client participation within some acute wards may be quite limited. The findings of this study highlight the need for further consideration of the influence of the care environment on a client’s ability to participate in PI management, as well as the needs of those clients that require different types of supports to participate in PI management, such as those with conditions that affect their cognition or their ability to transfer independently without equipment.

Alongside reforms to encourage self-management there has also been an increase in policy development supporting greater client choice and control in their own care. These reforms include the introduction of a National Disability Insurance Scheme designed to deliver a national system of disability support that focuses on individual needs and provides person-centred disability supports by expanding individual funding arrangements to give people with disability more choice and control (Commonwealth of Australia, 2015e). Similarly, the consumer-directed care initiative aimed to provide community aged care consumers with greater control of their lives by allowing them, to make informed choices about the types of care services they access, and the delivery of those services, including who will deliver the services and when they are delivered (Commonwealth of Australia, 2015f; KPMG, 2012).

Given that client participation in care is being emphasised more broadly and also more specifically in relation to quality and safety policy regarding PI management (ACSQHC, 2011; 2012b), it is necessary to investigate these areas of practice in more detail. Further exploration of current practice in PI management may identify barriers to client participation such as problems of access and it may also inform education and training, as well as other supports required such as the development of resource materials and education and training of clinicians to support greater client participation (Kirby, Dennis, Bazeley & Harris, 2012).
3.7 ACCESS TO HEALTH CARE

One of the key aims of the health reform agenda that has emerged from the NHHRC is improving access to care (Commonwealth of Australia, 2009a; Commonwealth of Australia, 2010). Access is a widely used term in the health care literature and variation with its definition and use as a concept are known. Penchansky and Thomas (1981) define access as “a measure of the ‘fit’ between characteristics of providers and health services and characteristics and expectations of clients” (p.139). They nominate five reasonably distinct dimensions of access as being availability, accessibility, accommodation, affordability and acceptability. These dimensions, which are summarised in Table 3.1 represent the more specific areas of fit between the patient and the health care system. As described earlier in section 3.4 Penchansky and Thomas’s (1981) taxonomy was chosen for its capacity to deepen understanding of the relationship between the way services are currently organised and funded within the AHCS and how this may impact on client behaviour in relation to PI management. For example, even if policy is aiming to encourage client participation in PI management, and clinician are subsequently required (a normative need influenced by policy) to provide clients with more education related to PI management (ACQSHC, 2012a, 2012b), clients can only act upon this education if it meets their needs and preferences. Clients are only able to act on this information, either independently, or though seeking assistance to address their health needs, if they are able to access the appropriate care at the right time. Access, as demonstrated in the table below, has a significant effect on a client’s ability to act on information they receive in relation to their health.

In table 3.1 each definition is supported by a scenario that demonstrates its ability to assist in understanding the influence access can have on PI management.
Table 3.1: Dimensions of access to health care (Penchansky & Thomas, 1981)

**Availability:** The relationship of the volume and type of existing services to the volume and types of needs for services by clients. It refers to the adequacy of the supply of health professionals, facilities such as clinics and hospitals, and specialised programs and services. For instance, would a client with a skin integrity issue seek care early, or would they delay seeking care due to a perception that skin integrity issues are minor? Would they feel more comfortable seeking advice regarding this from a PN if they knew about this option and it was easily available?

**Accessibility:** The relationship between the location of supply and the location of resources in relation to clients. For example, is an elderly client with significant mobility limitations able to easily access the GP for services, or would a visit from the PN enhance their access to PI services?

**Accommodation:** The relationship between the manner in which the supply resources are organised to accept clients (including hours of operation, walk-in facilities, telephone services) and the ability of clients to accommodate to these factors and the perception of clients about their appropriateness. For instance, the need to wait for an appointment for an issue such as skin integrity, which may be perceived as low priority, could hinder client access to PI management. A website or phone service, which can offer advice about skin integrity issues and self-purchase of products from a pharmacy could improve client access to PI management.

**Affordability:** The relationship of prices of services and health insurance or gap payments required, to the income of clients, their ability to pay, and their existing health insurance. This also includes client perception of the worth of health services relative to cost, as well as their knowledge of the costs and availability of credit and/or financial support. For example, the cost of equipment, and the absence of a private health insurance rebate for PI...
equipment and wound care products impacts on a client access to PI management.

Acceptability: The relationship of client attitudes about personal and practice characteristics of providers to the actual characteristics of existing providers. This also includes provider attitudes about acceptable personal characteristics of clients. In other words, this refers to client reaction to provider attributes and provider attitudes about the preferred attributes of clients or their financing mechanisms. For example, clinicians can make themselves more or less available, by charging high fees. In the case of PI management, does the client feel comfortable to raise a comfort or skin integrity issue located on their sacrum? Has the clinician been trained to ask about discomfort in this area? Asking the client directly might make it easier for them to raise this issue.

3.7.1. Models of care
There are a number of different models of health care provision that have been developed to better address client need and improve access to services. These include integrated care, co-ordinated care, case management, consumer-directed care, transition care and person centred care (NSW Health 2015; Duckett & Willcox, 2011). It is important to consider how these existing models are currently contributing to PI care, and how they may be used to better address PI need within community services settings, as well as how clinicians that work within these services may be better supported to address PI management.

3.8 SUMMARY
The populations affected by or at risk of developing PIs are extensive. PIs can occur at any point in time in the care continuum and are therefore a challenge for every setting in which health care is provided. Those with PI needs may access a number of different health care settings as their needs change over time (Tiger, 2003). An exploration of current practice is necessary in determining what PI need looks how, how it is currently being met, and what represents unmet need. Gaining a picture of PI need and client need, and evaluating current approaches
to PI management, is necessary in determining the most effective and efficient ways to address these needs in the changing context of health care. This includes the greater consideration of the workforce, and how it can be better supported to address PI management, particularly within community service settings.

As demonstrated in this chapter, community service settings have many unique characteristics, and a sound understanding of the strengths and weaknesses within this context will enable the creation of a better fit between skill-mix and education and training. The existing health reform agenda, which is shaping significant change in the primary health care sector may provide a platform on which a fresh approach to PI management may be created.
CHAPTER FOUR

METHODS

4.0 INTRODUCTION

This chapter includes the selection of the research approach, the main characteristics of the research approach and the range of complementary methods employed as part of the research process. A map of the research process was presented in Figure 1 and was created to provide an overview of the process and situate various phases and steps in the research process within the context of the overall project. The key ethical considerations and procedures for the project are also outlined. The chapter concludes with a summary of the main methodological considerations.

4.1./general research approach

4.1.1. A gap in existing knowledge

The approach taken in this research was influenced primarily by an existing gap in knowledge about current practice in PI management. The over-arching aim of the project was to explore the nature of current practice in PI prevention and management, in order to make suggestions about how current practice may be enhanced to address both health system and client need. This research gap was informed by my clinical experiences, and my prior research experience during which time I was exposed to the PI literature. Based on this prior knowledge and experience a gap existed between what the system was asking clinicians to do and what was actually happening in practice. This raised questions about what might be needed to support clinicians to better meet client and system need for PI management. Gaining an understanding of current practice appeared to be the first step in identifying any potential supports that may be of benefit.
4.1.2 Reflexive statement of researcher positionality in the project

My education, training and practice as an occupational therapist influenced my decisions around the use of research methods for this project in three ways. Firstly, as an occupational therapist, I was attuned towards understanding the role of the environmental context on a person’s everyday activity, therefore, exploration of the influence of a range of health care contexts on practice seemed obvious. Secondly, I had come to value the skills and attributes of different professional groups, as well as the knowledge and experience of individuals, so that these aspects were important in understanding what a clinician did and could potentially do in the prevention and management of PI. Thirdly, I drew on elements of my occupational therapy education where intervention involves understanding and utilising the skills and abilities of individual clients in order to maximise their participation in meaningful occupation. As a clinician researcher who understood that the effective use of limited resources is an essential part of practice and research, pragmatic approaches that would enable the collection of the most relevant data necessary to address the research aims were employed. Strategies used to monitor my role in the research process and therefore stay true to the data collected are outlined in section 4.9.1.

4.1.3 Theoretical framework

The exploratory nature of the project led to the decision that a qualitative approach would be the most appropriate approach in guiding this research project. Following this decision, consideration was given to role that various paradigms could potentially play in shaping the overall approach to addressing the research questions. A paradigm or worldview is “a basic set of beliefs that guide action” (Guba, 1990, p. 17. as cited in Cresswell, 2007, p. 19). The paradigm which best describes the basic set of beliefs that guided the current project, and inparticualy the decision to use mixed qualitative methods is that of Pragmatism. According to Mackenzie and Knipe (2006) pragmatism is not committed to any one system of philosophy or reality. Pragmatist researchers focus on the 'what' and 'how' of the research problem (Creswell, 2007, p.23). Individuals holding this worldview focus on the outcomes of the research and apply all approaches
to understanding the problem (Creswell, 2007). The flexibility inherent in this type of approach provided a good fit with the complex and uncertain nature of health research, particularly that which involves community service settings.

According to Patton (2002) pragmatist researchers are concerned with determining what works and findings solutions to problems. Again, this type of approach presented a good fit with the aims of the current research, which were to focus on exploring the challenges of current practice in PI management with a view to determining the best way to support clinicians in addressing these challenges in everyday practice. Various research methods were considered for their utility in addressing the research questions, they also influenced decisions and actions taken around data collection, data analysis and write-up of project findings. The research questions were 'central' to the research process, and data collection and analysis methods were chosen as those most likely to provide insights into the research questions posed (Mackenzie & Knipe, 2006).

4.2. SELECTING THE RESEARCH APPROACH

Various research methodologies were considered in terms of what they could add to the understanding of the knowledge gap implicit in PI management practices, and how these methods might be used to address the research questions. The application of a single method did not appear to offer the best way to address the research gap identified, and this led to consideration of more flexible approaches commonly used in health research. As the aim of this research was to improve the outcomes of care for both the client and the health system, the findings needed to result in actionable strategies that could be applied within the daily context of health care provision. It was essential that suggestions to enhance practice were achievable and therefore appropriately tailored to the ‘realities’ of service provision at different levels in health care. Therefore, the aims of the research reflected applied research approaches. Taking into account the project aims of improving service and client outcomes through practical strategies to enhance practice, the applied multidisciplinary
field of health services research was selected as the approach that offered the best fit.

4.2.1. Health services research
Health services research provides a body of knowledge and an approach to research which assists in gathering information to address complex questions around health care need, understanding actual client demand for services, and informing the allocation of resources. According to Shi (2008), health services research is an applied multidisciplinary field involving “studies that address the planning, distribution, organisation, provision, quality, effectiveness, efficiency, and outcome of health care services, with the aim of improving health care and public policy” (p. 21). It is also concerned with client access to services and the outcomes of service provision for clients. A range of research methods may be employed when undertaking health services research such as interviews, focus groups, case studies, surveys and experiments (Bowling & Ebrahim, 2008).

4.2.2. The conceptualisation of the project
A review of the PI literature and the health services literature focused this research into three related areas requiring exploration. These included PI management within community setting, current utilisation of the workforce and scope for workforce development, and supports for PI management both existing and necessary. It was decided that an exploration of current practice required a range of perspectives, gathered across various locations, and at several different points in time. Gaining a true picture of practice, particularly the current and potential role of community practice in PI management, required the perspectives and experiences of community practitioners and observations of actual care processes in community settings. In addition to gathering information about these aspects of community practice, it was necessary to complement the community perspective by gathering the perceptions and experiences of clinicians working in services that intersected with community health service settings.
The initial research methods aimed to explore the roles of different health professions in PI management and gather different perspectives of current practice, as this would offer the opportunity for triangulation in the data. An account of current PI practice could then be built using the experiences and perceptions of health professionals. A comprehensive approach also required observing PI practice and how this involved clients receiving PI care. This led to implementing research approaches that encouraged participant observations such as case study research and ethnography.

4.2.3. Determining the data types
The exploratory nature of the research, the number of factors likely to be influential on skill-mix in providing PI services, and the complexity of health services, were elements of PI management that demanded a qualitative approach. Qualitative approaches offer flexible methods that are sensitive to context and complexity. Quantitative approaches including survey research were considered, yet determined to have limited application in an exploratory project that sought to understand the processes involved in current PI practice (Bowling & Ebrahim, 2008; Denzin & Lincoln, 2000; Yin, 2003).

Qualitative methods are currently used widely to inform and improve health service organisation and the delivery of care (Ezzy, 2001; Pope, Ziebland & Mays, 2000). A range of qualitative methods have also been used to investigate the perceptions of service users and clients about health (Cobley, Fisher, Chouliara, Kerr & Walker, 2013) as well as their experiences of illness, such as the impact of chronic illness on individuals and their carers (Charmaz, 1983; Cobley et al., 2013; Jeon, Kraus, Jowse & Glasgow, 2010; Ekman, Ehnfor & Norberg, 2000; Ekman, Skott & Norberg, 2001). Qualitative methods have also been used to explore the perceptions of clinicians about care and health service provision, as well as investigating their views and experiences on implementing change within health systems (Cline et al., 2011; Kaasalainen et al., 2010).

Previous exploration of PI care and management has also been conducted using qualitative methods (Clark et al., 2006; Dunn, Carlson, Jackson & Clark, 2009;
Jackson et al., 2010). Outcomes from these preliminary studies have included the planning and implementation of new strategies and programs to prevent the development of PI (Vaishampayan et al., 2011). This demonstrates the value of qualitative approaches in informing the delivery of health care, particularly for complex and multifactorial issues such as PI management. Clark et al. (2001) endorsed the application of qualitative methods in research related to the prevention and management of PI.

Mixed qualitative approaches incorporating both focus groups and individual interviews have been used in a number of studies exploring health and health services (Bain & Cambell, 2000; Bain, Campbell, Ritchie & Cassidy, 2002; Veitch, Crossland, Steeghs Ho & Hanks, 2008). Katz, Sidell and Komaromy (2001) also used a mixed qualitative methods approach in their exploration of the service and human elements of dying in long-term care facilities. Likewise, Eysenbach and Kohler (2002) demonstrated the benefits of this methodology in their exploration of how consumers search for and appraise health information on the World Wide Web.

### 4.3 SELECTION OF THE QUALITATIVE RESEARCH APPROACH

The selection of the qualitative research approach most suitable for this project included consideration of several methodological approaches and their respective strengths and weaknesses in addressing the research question. These included phenomenology, grounded theory, case study research and ethnography. What actually resulted was a decision to utilise the most relevant aspects of each approach to both understand my role in the research and inform the procedures and processes undertaken, without adhering to any one particular approach.

#### 4.3.1. Phenomenology

This methodology was explored for its strengths in developing an in-depth description of the lived experiences of research participants. Phenomenology has often been used to explore aspects of health care through single or multiple
interviews with participants (Barkway, 2001; Norlyk, 2010). Its aim is to develop a common understanding of the phenomenon begin studied. It describes the meaning of individual lived experiences of a phenomenon, usually the “what” and the “how” they experienced it (Moustakas, 1994). While aspects of this approach could be very useful in answering the research questions, a weakness related to its use in the project was that it explores experiences at great depth. This project aimed to capture a sufficient level of detail about the lived experiences of PI clients and clinicians to inform practical strategies to enhance practice. Focusing to such an extent on understanding individual experiences and collecting sufficient detail to understand these fully was likely to lead to the over-burdening of research participants and a potential failure to address the pragmatic aims of the research.

The essential role of theory in phenomenology and its associated analytical strategies did not present the best fit with the pragmatic approach necessary to best answer the research questions. Several authors contend that it is essential to understand the broader philosophical assumptions of phenomenology and how these influence your particular study and approach to data collection and analysis (Creswell, 2007; Denzin & Lincoln, 2000). The current project was more focused on understanding process as opposed to the meaning of individual and group experiences of PI management. This led to a consideration of more process-oriented approaches such as grounded theory.

4.3.2. Grounded theory
A well-known strength of grounded theory is its ability to capture ‘process’ and it has been used to understand the processes involved in the provision of care (Sbaraini, Carter, Wendell Evens & Blinkhorn, 2011). Grounded theory was considered as a potentially useful approach as it has been used to study aspects of chronic disease and its management from both patient and provider perspectives. Examples include exploration of the experiences of chronic illness, provision of care, and service utilisation (Charmaz, 1983, 1990; Orna, 1990). Grounded theory has also been utilised to study clinicians’ experiences of PI management (Samuriwo, 2010a&b). A grounded theory approach could be used
to explore current PI practice from the perspective of clinicians as it provides structured approaches to data analysis such as simultaneous data collection and analysis to inform both aspects of the research process, and the iterative approach to analysis. While Charmaz (2008) believes that “grounded theory offers systematic analysis strategies that combine explicitness and flexibility” (p. 155) others contend that the goal of theory development implicit in grounded theory methods actually constrains its ability to offer a flexible approach to analysis (Braun & Clark, 2006).

Janesick (2000) acknowledged the importance of understanding the role of theory in a research project. However, theory was not a driving force for this project, and theory development about PI management was not an explicit goal of the project. In this project theory was used to assist in the interpretation of data, in particular, understanding how the prior experiences and professional education of the researcher influenced the conduct of the project. Thorne (2011) speaks of a “methodological tension between those of us whose intellectual projects derive from theoretical origins in the social sciences, and those whose inquiries are motivated by the applied mandate of the professional health disciplines” (p.444). In the current project, it was the need to understand context and the practical application of knowledge that were the intended outcomes. As a core tenet of grounded theory is focusing data analysis to construct middle-range theories it did not appear to offer the best approach (Charmaz, 2008).

Finally, another key component of grounded theory is to minimise preconceived ideas about the research problem. This project emerged from research experiences, clinical experiences and reviews of the literature conducted by the researcher, which made the minimization of preconceived ideas about the topic difficult to achieve (Charmaz, 2008).

4.3.3. Case study research
A case study approach was used to frame the observations of PI care in community service settings. According to Yin “case studies are the preferred strategy when “how” or “why” questions are being posed, when the investigator
has little control over the events, and when the focus is on a contemporary
phenomenon within some real-life context.” (2003, p.1). Case studies have been
used in many situations in order to contribute to understanding the experiences
of illness by a client, experiences of carers, and the provision of health care.
These methods have also been used in a number of different fields including role
development and workforce issues in health care (Spilsbury & Meyer, 2004;
Wong & Wilson, 1998).

Case study methods provide the opportunity to explore multiple stakeholder
perspectives and are therefore appropriate methods to investigate the
experiences of clients, carers and professional groups involved in PI care and
management. Payne et al. (2007) reflected on their use of case study research
methods in the exploration of end-of-life care. They identified that this approach
was beneficial in their research as it enabled them to ensure that the voices of
both service providers and service users were heard.

Health care is known to be complex and the gathering of multiple perspectives is
considered important when exploring a range of influences including health
service organisation, delivery and policy (Palmer & Short, 2010). Including
multiple perspectives are known to be valuable when investigating complex
service environments (Katz et al., 2001; Longman et al., 2011; Seymour, Kumar &
Froggatt, 2010).

While conducting case studies appeared to offer a good fit in terms of answering
the research questions, there were some challenges for this project. The time
required in adhering closely to the case study method was of concern due to the
community based context of the project. It was also difficult to define the case, as
future PI management processes were unknown and sometimes unpredictable,
and the boundaries of the care process were variable. Flexibility was needed to
adequately capture PI care processes in community settings. As project
resources were limited, and clinician workloads were high, there were
constraints on how much support health services could offer the project.
Therefore, a pragmatic approach to data collection was needed, such as adapting
the case study process ‘on the run’ to enable early exploratory data to be collected. Therefore, describing phase one of data collection as case explorations rather than case studies, reflects the reality of community based health research for this project.

4.3.4. Ethnographic research

In order to create a picture of how PI management actually occurs within community services settings, as well as during the transition between acute and community services, it seemed necessary to actually observe care processes. Observations of care had the potential to enhance understanding of current practice and complement the other types of data being gathered for the project. Ethnographic approaches were used to inform this aspect of the study. Exploration of existing practice in context using the perceptions and experiences of key stakeholders is an important step toward developing innovative and efficient services for the future. It was necessary to select a combination of methods to shed additional light on current practice and investigate ways to support the successful translation of research findings into practice.

Ethnography is a research approach that utilises a wide range of methods of data collection and sources of data. The researcher may engage in a number of processes. According to Bryman (2012 p. 432) ethnography is a research method in which the researcher:

- is immersed in a social setting for an extended period of time;
- makes regular observations of the behaviour of members in that social setting;
- listens to and engages in conversation;
- interviews informants on issues that are not directly amenable to observation;
- collects documents about the group;
- develops an understanding of the culture of the group and people’s behaviour within the context of that culture; and
- writes up a detailed account of that setting.
An ethnographic approach, involving in-depth interview and participant observation was utilised by Clark et al. (2006) in their study which explored the daily lifestyle influences on the development of PI in adults with spinal cord injury. They described ethnography as ‘a qualitative approach that is based on accessing the social worlds of research participants to examine the constellation of interacting influences that affect phenomena of interest’ (p.1517). This quote highlights a potential weakness in taking an ethnographic approach, where such an extended comprehensive approach can be very labour intensive and time consuming (Bryman, 2012). Given the limited health service resources and the minimal funding for the conduct of this research, a traditional ethnographic study was not feasible for this project.

However, some aspects of data analysis used in an ethnographic approach appeared useful. For example Bryman (2012) describes a content analysis approach, which involves undertaking data analysis with some existing categories informed by the research questions and prior understanding of the literature. This approach enables both structured analysis of data to inform the research question as well as the flexibility to ensure that data are not being forced into this structure. Altheide (1996) described these qualities of ethnographic content analysis:

“ECA follows a recursive and reflexive movement between concept development-sampling-data collection, coding-data, and analysis interpretation. The aim is to be systematic and analytic but not rigid. Categories and variables initially guide the study, but others are allowed and expected to emerge during the study, including an orientation to constant discovery and constant comparison of relevant situation, settings, styles, images, meanings, and nuances” (as cited in Bryman, 2012. p.558).

4.3.5. Summary
Following a consideration of each of the approaches described above, it was decided that the best way to address the research questions for this project was to utilise interviews, focus group discussion, observation methods and document
analysis methods. Both individually and in combination, these data collection methods could offer the best way to address the research questions. These methods were used across the three related phases of the research project as the project unfolded (Green & Thorogood, 2004; Janesick, 2000; Thorne, 2011).

4.4. SELECTION OF DATA COLLECTION METHODS

The guiding principles in the selection of data collection methods were flexibility, pragmatism and responsiveness to the evolving nature of the research project.

4.4.1 Approaches to data collection and analysis
Planning of the data collection and analysis commenced during the conceptualisation phase of the research project. The questions listed below were also kept in mind when deciding on the methods necessary for answering the research questions (Mackenzie & Knipe, 2006; Patton, 2002).

- Where will the data come from?
- Who did I want to speak to?
- How will I collect data from them?
- What did I want to do with the data? How did I propose to use it to address the research questions? What approaches to analysis would best suit the research question?
- What processes did I want to put in pace to enhance quality?

4.4.2 Approaches to sampling
A range of sampling and recruitment methods were used. Participants were recruited using purposive sampling. The aim was not generalisation and a representative sample was not sought. Recruitment aimed to access a range of health service settings and professional groups. As optimum skill-mix is dependent on context and may vary from service to service and organisation to organisation, it was necessary to capture a broad range of perspectives (Sibbald et al., 2004).
4.4.3. Enhancing quality

By collecting data in a number of different ways from various sources, data interpretation and understanding was strengthened. A decision was made to conduct the research in several phases and to use several methods that would provide a range of complementary data. The final phase, the peer validation phase, was influenced by other approaches such as action research and Delphi methods in which there is a process through which data is collected and analysed, and feedback is provided to participants for comment prior to the next phase of research. Participants’ comments are then used to inform decisions and action in subsequent phases of research (Bowling & Ebrahim, 2008; Keller et al., 2015). While Delphi methods in particular aim for consensus around a particular issue, it is important to note that consensus was not the aim of the group discussions and interview phase (Phase Two); the aim was to explore a range of perceptions and experiences about current practice.

4.5. THE RESEARCH PROCESS

This research project included three phases: (i) case explorations (ii) group discussions and follow up interviews, and (iii) peer validation. Prior to the description of each individual phase and the particular ways in which research strategies were used within each phase, some generic aspects relating to the research process as a whole are relevant. These include approaches to data analysis and write-up, key ethical considerations, and issues of access to health services that arose, as well as the strategies that were employed to minimise the impact of these issues on the present research project.

4.5.1. Approaches to data analysis

The process of data collection, data analysis, and report writing were not distinct steps in the research process as they were interrelated and conducted simultaneously in this research project (Cresswell, 2007; Miles & Huberman, 1994). Guidelines on the analysis of qualitative data were applied in a flexible way to address the specific research questions and the nature of the data (Miles
& Huberman, 1994; Patton, 2002). Care was taken to make the research process systematic and replicable (Braun & Clark, 2006).

Two main approaches to data analysis were considered: thematic analysis (Braun & Clark, 2006) and content analysis (Bryman, 2012). These were used as necessary throughout the project to analyse all data types; group discussions, interviews and case explorations depending on what was appropriate for the particular stage in the research and also in relation to answering particular research questions. The most dominant approach taken to data analysis was thematic analysis, although at times a content analysis was also used.

4.5.1.1. Content analysis
The elements of content analysis that informed my approach to analysis have already been described in section 4.3.4. When a content analysis (Bryman, 2012) approach was used in this project, the analysis was informed predominantly by prior reading. For example, the analysis process involved reading the data and searching for particular words or descriptions that had particular meaning for the project such as “system” or “policy” or “workforce issues”. An ethnographic content analysis approach was the main approach used in the analysis of field notes and document analysis (Bryman, 2012). This approach was also used in the later stages of analysis and write up when the findings were being organised for presentation of the data at the key structural levels of the health system. At this point, data was searched out that were relevant to the core levels; system, client and clinician levels. These were gathered together in order to enhance understanding and usability of the findings in terms of suggestions for future practice and research.

4.5.1.2. Thematic analysis
Braun and Clark (2006) suggest that novice researchers tend to use approaches that reflect a thematic style analysis. According to Braun and Clark (2006) thematic analysis is ‘a method for identifying, analysing and reporting patterns (themes) within the data’ (p. 79). Thematic analysis is a flexible method that is not tied to a particular theoretical position. Therefore, it offered a good fit for
this research project, as it had the potential to create a rich, detailed and complex account of the project data. It can also enable various aspects of the research topic to be interpreted.

Braun and Clark (2006) argue that it is essential that researchers using thematic analysis make their assumptions clear. In this section its role in shaping how I analysed, interpreted and decided to write-up that data is described. In doing this I acknowledge my active role in the research process, including the identification of the themes and decisions around which themes were given precedence over others, as well as how I went about reporting the themes in the present thesis. Several strategies were used to assist me to reflect on my role and its influence on the research process, and therefore stay true to the data collected.

The approach to thematic analysis taken in this project reflects a pragmatic method that reports on experiences, meanings and the reality of practice for participants. This is in contrast to a constructionist method, which examines the ways in which events, realities, meanings and experiences are the outcome of a range of discourses operating in society (Braun & Clark, 2006).

4.5.2 The process of analysis
The first step in data analysis was to record any field notes after a data collection session. This enabled immediate reflection upon the data collected and the way in which the data was collected. Field notes consists of reflections on the research process, analytic thoughts about what is observed and heard, as well as details regarding the time, date and location of the observation or exchange between individuals (Bryman, 2012). These notes provided additional supportive data and they also assisted with planning the approach taken and any adjustments to questions in subsequent data collection sessions. Any observational field notes, particularly in the case explorations were treated in a similar way.
All audio-recorded data was transcribed verbatim, the researcher transcribed some files, while others were transcribed professionally. The audio file accompanied the first read through the transcription in order to check the accuracy of the transcription. Some coding commenced at this point with the researcher making a comment in the margin with any key thoughts about particular data items. Some interesting quotes of relevance to the research questions were also highlighted. Upon the second read-through early preliminary themes were being identified. The second read-through involved the process of coding the data line by line with a caption or comment that was representative of its content in relation to the research questions. Consensus coding by the researcher’s supervisors was also used to help ensure that data were not being forced into categories.

The development of themes involved the observation of patterns amongst the codes and thinking carefully about how these codes might come together to begin to describe themes within the data set. According to Braun and Clark (2006) ‘a theme captures something important about the data in relation to the research questions, and represents some level of patterned response or meaning within the data set’ (p. 82). Decisions were continually made about what might constitute a theme and this often meant making judgments in terms of its relevance in answering a particular research question, rather than how many times it appeared within the data set or how many individuals mentioned this particular theme.

Each subsequent data collection session and its analysis was informed by previous engagement in the field and the analysis process. Having said this, care was taken to reflect on previous data collection experience and consider how new data was adding to or changing earlier perceptions of the meaning of the data. With each subsequent interview, codes and then eventually themes and their sub-themes were reconsidered and as a result, some were kept while others were revised. Braun and Clark (2006) describe this as a recursive process where movement is back and forth as needed, throughout the data set and also throughout the phases of analysis. With each subsequent piece of data this
process continued until all data had been analysed. Data collection was ceased when no new issues of significance, in addressing the research questions, were being identified in the data, and once a final check regarding this judgment had been made following the peer validation phase. Data analysis remained an on-going process up until the thesis chapters were complete, and this was due to the fact that the write-up of results is an essential part of the analysis process. A range of diagrams and electronic files containing chunks of related groups of data were also used to explore key issues and relationships between themes, sub-themes and all the extracts of data coded in relation to them. The diagrams assisted visualisation of issues and processes as they related to the “bigger picture” of the AHCS.

What constituted a particular theme and how sub-themes should be best grouped together was not always clear-cut, and this became even more evident when findings were considered across the health system, client and clinician levels. Staying true to the data and providing a coherent and useful account of the findings was a challenging process. Over the course of the analysis and write-up themes were revised, sometimes collapsed into other themes or became sub-themes of a large theme, and sometimes they disappeared completely and did not appear in the final write-up. An on-going reflexive dialogue on the part of the researcher continued through this process to stay true to the data and guard against data being forced into particular themes.

4.5.3. Relationship of the data analysis process to the research questions
The research process could be described as theoretical thematic analysis, as the approach to research analysis was influenced by prior reading and experience. In other words, analysis was driven by an interest in specific aspects of PI management. Nevertheless, some themes still arose solely from the data, therefore reflecting a more ‘inductive’ data driven approach. Rather than simply describing the whole data set, the aim in the current analysis was to provide a detailed and nuanced account of a group of themes within the data. Braun and Clark (2006) suggest that ‘this may relate to specific questions or areas of interest within the data’ (p. 11)
A thematic analysis approach facilitates the grouping of data in different ways in order to address particular research questions. In this project the entire data set could be used to address a particular research question. For example, in order to gain a picture of clinician roles, the data set was searched for instances where individuals described or discussed what they did and how they worked with others. Then, as the analysis progressed, the aim was to describe differences in roles across settings. Then coding occurred where participants directly spoke about community based PI practice (including the case study data) so that themes about the necessary skills and attributes of those working in community based PI care emerged. This helped to address the research questions related to the nature of PI management in community services settings, and the current skill-mix within this setting, as well as what is needed in terms of future skill-mix to meet changing PI needs.

Another example is exploring client perceptions about PI care and management. The data set was used to identify all instances where participants (both clients and health professionals) talked about client needs or the client’s role in care. This was complemented with the case exploration data in which I observed the PI care process and spoke with clients about their experience of care related to their PI issue. These data sets were the predominant contribution toward the client level chapter.

The reporting of the data was supported with ‘extracts’ of coded chunks from the original data sources. This was a more semantic approach to theme identification using explicit or surface meanings from the data (Braun & Clark, 2006). The goal was not to search for deeper meaning in people’s experiences. However, the theme development went beyond the surface level of the data as consideration was given to the meaning of the themes in terms of answering the research questions, and making sense of the patterns within the data.
4.5.4. Key ethical considerations

Due to the nature of the project and the sampling strategies employed, a number of separate ethics approvals were obtained from the relevant committees. Approval was received for each setting and data collection method. Further detail regarding the ethics process is included within each specific phase. Additionally, each approval letter is included in Appendix D. This research complies with the NHMRC Statement (National Health and Medical Research Council, 2007a&b). Informed consent was obtained from all research participants. All the information statements and the consent forms, which were reviewed by multiple ethics committees, included the following information: that all interviews and group discussions would be digitally recorded, transcribed verbatim and then de-identified. Participants would only be referred to by a pseudonym. Recordings and transcriptions would be stored securely in a locked filing cabinet or password protected computer and only accessed by the researcher for the purpose of the research.

At the commencement of all interviews and group discussions participants were reminded of their right to cease the recording at any time and to request any information to be removed from the audio file. All participants were reminded of the confidential nature of discussions. This was particularly important and was strongly emphasised at the commencement and conclusion of all group discussions.

Recruitment was limited by the willingness of potential participants to agree to participate. This limited the data that could be collected. For instance, there were very limited opportunities to observe wound management practices as part of the case exploration phase, and one nurse did not agree to participate in an audio-taped interview. These instances may suggest some reluctance to discuss PI care processes due to a lack of confidence in skills, and perceptions that development of PIs were reflective of the quality of care provided. Other researchers have reported how similar issues such as workload pressure, and studies in which client and clinician perceptions of clinical incidents may lead to
delays and abandonment of projects because of issues with recruitment and retention of participants (Iedema, Allen, Britton & Hor, 2013; Veitch, Hollins, Worely & Mitchell, 2001). Strategies that have been suggested to enhance recruitment and retention of participants include: personal approaches and face-to-face contact with potential participants during recruitment and throughout the project, combining the first data collection with the recruitment process, and ensuring that participants are regularly updated regarding the studies progress (Veitch et al., 2001).

A number of strategies were employed to assist in both gaining access to health services and in assisting with the recruitment of participants. Key leaders in the field of PI care and management were identified in order to gain access to health services needed for recruitment. Relationships within these health services were built up over time and began by the researcher attending a variety of relevant conferences and being introduced to relevant individuals and requesting permission to contact them later about the research project.

Meetings were requested to discuss the research proposal and potential opportunities to participate in the research, and additional contacts with clinical leaders at the relevant state and national conferences were made. Meetings were also held with the clinical leaders and senior management in nursing within two health districts. Gaining access to closed settings such as health services often involves challenges (Iedema et al., 2013; Veitch et al., 2001). Veitch et al. (2001) stress the importance of personal contact with both senior and junior health service staff to explain the purpose of the project. Extensive consultation and negotiation processes were required in securing sites and support for data collection within the public health service. Ethics processes such as the site-specific assessment (SSA) assisted the researcher to facilitate a partnership between the researcher and the health services assisting with the process.
4.6. PHASE 1: CASE EXPLORATIONS

The case exploration phase was exploratory in that it sought to gain understanding of current PI practice within health service settings. Each case was followed over a three-month period. Various data collection methods were used including interviews, observation and document analysis. The strength of case exploration design is that it reflects data availability and variability across the collection period. This flexibility is particularly powerful when the researcher is also unable to predict exactly what will happen and when in each case (Yin, 2003).

Research questions for this phase included:

- What is current practice in PI prevention and management?
- What is the need for PI services within community based service settings?
- How do client’s experience PI care within community service settings?
- How are clients supported to participate in their own PI care?
- How does the community service setting influence clinicians’ practice in PI care?

4.6.1. Planning and access

Extensive consultations were undertaken with two health services in order to gain support to collect data in the case exploration phase. Ethical approval was obtained from the two sites. The Site Specific Assessment (SSA) processes and other ethics procedures ensured that the site was well aware of the aims of the research, the methods of data collection, recruitment of participants, participation in the case explorations themselves and what assistance they were willing to provide to the researcher in the completion of these tasks. Site one provided additional support through an existing research support officer involved in other projects. This individual was key in the success of the project, assisting with obtaining ethical approval, helping to promote the research amongst nursing staff at community health centres, and informing the researcher when a potential participant had been identified. This person also
attended the first home visit with the researcher and was present when informed consent to participate was provided by clients to ensure that clients were not being coerced into participating. Whilst the allocation of this individual to assist the researcher was central to the success of the project, there were also limitations as when the appointment had ended, no further recruitment or medical record access could take place.

4.6.2. Recruitment procedures
The project originally proposed to assemble six case studies in community settings in order to observe PI management. Multiple case studies have been identified as being important in providing the opportunity for replication (Creswell, 2007; Yin, 2003). Nurses working at health facilities were used to recruit participants. The inclusion and exclusion criteria, which consisted of individuals with a PI, aged over 18, determined by nursing staff to be able to participate in interviews, and did not have spinal cord injury, were used to help them identify potential participants amongst their caseload. Once identified, the nurse asked the client and/or carer if they were interested in participating in a research project aimed at exploring their experiences of the PI and its care. A postcard (supplied by the researcher) was given to the client/carer. The postcard is included in Appendix D. The nurse explained to the client and carer that if they wished to receive further information about the study they could return the postcard. This enabled direct contact with potential consenting participants. However, most initial contact with participants was made through and facilitated by the research officer at the health service. Following receipt of patient contact details from the research officer, arrangements were made with the client and carer to discuss participation. If following the discussion the client and carer wished to participate the researcher organised to attend the next home visit with the nurse and research support officer. During the visit the nurse introduced the researcher and if the patient verbally consented to participate, the researcher stayed and observed the treatment provided during the visit. Once the nurse had completed her visit and had left, the researcher conducted the interview with the client. Before the interview commenced written consent was obtained.
Only two participants were recruited into the study during the time frame set for this project. Site two was contacted at regular intervals and reported that they were unable to recruit any willing participants that met the inclusion criteria. A number of issues contributed to the lower than expected numbers including the recruitment criteria that constrained the pool of participants from which participants could be drawn, and the indirect recruitment strategy required by the lead ethics committee. This relied on clinicians being willing to participate in the project and having the time to explain the project effectively to potential participants.

Additional challenges occurred throughout the case explorations and these were again related to staffing issues, such as workload and leave. Research conducted within community service settings is known to be challenging due to logistical issues such as time, cost and difficulties scheduling researcher attendance at home visits (Lewin et al., 2007). Time constraints on community based clinicians are likely to have impacted on their ability to explain the project to potential clients. In addition to this, the recruitment criteria also limited the pool of potential participants.

It was anticipated that due to the nature of practice in community settings, that it would be difficult to coordinate case explorations and strategies were put in place ahead of time. In practice, it was even more challenging and some strategies had to be developed as the cases unfolded.

4.6.3. Data collection and analysis
Semi-structured interviews were conducted with cliniciansthat provided care to the patient, and were available within the case study period. The interview guides (Appendix D) were informed by the literature and the researcher’s clinical experience. Observations of the home environment were conducted using the template contained in Appendix D. The client diary and observational audit tool (Appendix D) were developed based on discussions with experts and also on clinical experience. Data collected from medical records included
information related to co-morbidities, PI status and treatment plans. The data collection template used as part of this process is included in Appendix D. Medical record audit was conducted under supervision as per ethics approval. Participant diary completion was monitored through regular phone contact. Interviews and home visit observations were conducted with these participants and data analysis commenced as data were collected.

Over the course of the case study phase it was clear that PI practice within community settings was influenced strongly by other service settings such as primary health care and hospital settings. The role of system level issues and clinician level issues was apparent and required further investigation using a range of clinician perspectives. This confirmed the need for phase two data collection.

A summary of each case study and overall project findings was provided to each individual participant involved with each case study. This process provided the opportunity for member checking of aggregated data. No changes to individual case studies or the overall project findings were requested. Overall project feedback was also provided to the health service that assisted with recruitment.
Table 4.1. Case exploration overview

<table>
<thead>
<tr>
<th></th>
<th>Case One (James)</th>
<th>Case Two (Elizabeth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Site One</td>
<td>Site One</td>
</tr>
<tr>
<td>Participants</td>
<td>2 (client and RN- Hazel)</td>
<td>3 (Client, carer and RN-Beth)</td>
</tr>
<tr>
<td>Interviews with clients,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>carers and clinicians.</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(15-30 minutes in length)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations of care</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>processes and home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>environment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical record access</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>(CHIME) Community Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterprise</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.7 PHASE 2: GROUP DISCUSSIONS AND FOLLOW UP INTERVIEWS

As part of phase two, a series of group discussions with clinicians from a range of health service settings and professional backgrounds were conducted. The group discussions provided the opportunity to gather breadth of information on an issue by capitalising on the interactions within groups of clinicians who had PI management in common.

The group discussions incorporated elements of focus groups, which are a commonly used method in health research to explore both client and clinician perceptions and experiences of care (Bain & Campbell, 2000; Eysenbach & Kohler, 2002; Funkesson, Anbacken, & Ek, 2007; Veitch, Steeghs, Crossland, Ho & Hanks, 2008). However, reaching consensus or focusing in on a particular issue
was not the purpose of the group discussion. Instead, the group discussions sought to explore a range of strengths and weaknesses in current PI approaches and identify key issues for further exploration in follow-up interviews.

Phase two aimed to capture a range of perspectives regarding the research questions below:

- What is current practice in PI management?
- How are PI management needs currently met across a range of service settings?
- How are PI issues managed when patients transition between settings?
- How do the various clinicians currently contribute to PI care?
- What existing strategies are available to support clinicians in PI management?
- What additional supports might be necessary to assist clinicians in addressing longer term PI needs?
- How does a clinician’s context influence their practice in PI management?
- What are the skills necessary for PI management within various service settings?

4.7.1. Sampling and recruitment

Once ethical approval was granted, recruitment commenced. Purposive sampling was used to ensure that a range of health service settings and professional groups were represented in the group sessions. Participants were recruited using an advertisement, which was disseminated through professional associations. These associations included the Physiotherapy Association NSW, Occupational Therapy Australia NSW, The Australian and New Zealand Society for Geriatric Medicine, The NSW divisions of General Practice and NSW Nurses Association which were contacted to discuss the possibility of the advertisement being circulated to their members via a newsletter or email and attachment. The advertisement (Appendix D) requested any clinician involved in the prevention and management of PI, to contact the researcher by phone or email if they wished to receive more information or express their interest in participating in the group discussions. Auxiliary sampling methods such as snowballing were
also used, whereby participants were asked to suggest other participants and forward the information about the group discussions onto other clinicians they thought might be interested (Babbie, 2007).

The researcher responded to any (x=42) requests for further information and expressions of interest by phone and email. Following discussions, some participants confirmed their willingness to receive further information (y= 16) while 4 others declined further involvement. Reasons for declining included the inability to fulfil the time commitment involve, misunderstandings regarding the nature of the research and lack of relevance to the particular individual.

An important feature of focus group recruitment was also ‘serendipity’ (Barbour, 2007 p. 63). It was impossible to have complete control over sampling as some participants did not turn up, others simply turned up following last minute recruitment by colleagues and two groups were formed from pre-existing groups or committees at a particular health service.

As the process of recruitment progressed there was attrition as people could not attend on suggested days or were geographically too isolated from other potential participants. In order to not exclude on the basis of geographical location, participation via teleconference was offered to potential participants. Where participants were unable or unwilling to attend via teleconference an alternative was offered such attendance at another group discussion or an individual interview. While some individuals chose to attend an alternative group discussion no one pursued the opportunity of an individual interview. Future research projects of a similar nature should offer these opportunities.

4.7.2. Convening group discussions

Once a number of responses had been received and interest in the research confirmed, potential groups were loosely formed based on geographical location and a variety of health professionals. A group was convened if there were 5-10 participants available and at least three different professions included in the composition. It was important to include a sufficient number of participants to
generate quality discussion, yet not over-recruit, as groups with too many participants can be difficult to manage (Kruger, 1988). The general consensus in the literature is that focus groups should include 6-12 participants (Carter & Henderson, 2008; Rabiee 2004).

**4.7.3. Overview of the groups**

The group setting discussions covered a range of health care settings including acute, sub-acute, community and aged care facilities (See Table 4.2).
Table 4.2. Group Discussion Overview

<table>
<thead>
<tr>
<th></th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
<th>Group 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sydney University</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community health</td>
<td>Regional</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute care facility</td>
<td></td>
<td></td>
<td>Melbourne</td>
<td>Sydney</td>
<td></td>
</tr>
<tr>
<td><strong>Participants</strong></td>
<td>6</td>
<td>5</td>
<td>13</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td><strong>Service types</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Sub-acute</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Community</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transitional care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aged care</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Professions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>OT</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Physio</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Dietetics</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Geriatrician</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Discharge planner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Purposive sampling, ensured a range of health disciplines from a variety of settings participated in each group. Tables 4.3 – 4.7 outlines each group, including the number of participants, the disciplines represented and the location of the groups.

As the group discussion phase progressed, decisions were constantly made regarding whether to run additional groups and if so, who should be included.
Sampling was terminated once a reasonable range of health professions representing a variety of health care settings had been included and no new issues could be identified in the data.

Table 4.3. Group Discussion One: Sydney University (Camperdown)

<table>
<thead>
<tr>
<th>Participant (Pseudonym)</th>
<th>Current area of practice</th>
<th>Professional background and experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Libby</td>
<td>Acute service</td>
<td>CNC</td>
</tr>
<tr>
<td></td>
<td>Paediatric unit</td>
<td></td>
</tr>
<tr>
<td>Jess</td>
<td>Community disability services</td>
<td>Senior OT</td>
</tr>
<tr>
<td>Nicola</td>
<td>Private wound care service. Community settings including primary health care and long term aged care. Attached to a case management service provider SCI/catastrophic injury.</td>
<td>CNC Acute spinal services</td>
</tr>
<tr>
<td>Jane</td>
<td>Aged care</td>
<td>PT</td>
</tr>
<tr>
<td>Brenda</td>
<td>Acute service</td>
<td>CNC</td>
</tr>
<tr>
<td></td>
<td>Management ‘not at the coal face’</td>
<td></td>
</tr>
<tr>
<td>Mel</td>
<td>Acute service</td>
<td>CNC</td>
</tr>
<tr>
<td></td>
<td>ICU</td>
<td></td>
</tr>
</tbody>
</table>
Table 4.4. Group Discussion Two: Sydney University (Lidcombe)

<table>
<thead>
<tr>
<th>Participant (Pseudonym)</th>
<th>Current area of practice</th>
<th>Professional background and experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penny</td>
<td>Community disability services</td>
<td>OT</td>
</tr>
<tr>
<td>Vanessa</td>
<td>Rehabilitation (sub-acute)</td>
<td>Senior OT</td>
</tr>
<tr>
<td>Philippa</td>
<td>Private wound care business</td>
<td>RN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Masters degrees</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Research experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Several publications</td>
</tr>
<tr>
<td>Jan</td>
<td>Long term aged care facility</td>
<td>PT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Previously worked with the MS society</td>
</tr>
<tr>
<td>Beverly</td>
<td>Long term aged care facility</td>
<td>PT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recently commenced work at the facility</td>
</tr>
<tr>
<td>Participant (Pseudonym)</td>
<td>Current area of practice</td>
<td>Professional background and experience</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Helen</td>
<td>Community health centre</td>
<td>Clinical specialist OT</td>
</tr>
<tr>
<td>Jo</td>
<td>Community health centre</td>
<td>CNS wound care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data collection/research in wound care</td>
</tr>
<tr>
<td>Dianne</td>
<td>Community (sole practitioner rural setting)</td>
<td>RN</td>
</tr>
<tr>
<td>Elle</td>
<td>Community health centre</td>
<td>Clinical specialist OT</td>
</tr>
<tr>
<td>Cassie</td>
<td>Community</td>
<td>RN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data collection/research in wound care</td>
</tr>
<tr>
<td>Wendy</td>
<td>Community</td>
<td>OT</td>
</tr>
<tr>
<td>Robyn</td>
<td>Community</td>
<td>RN</td>
</tr>
<tr>
<td>Jacqui</td>
<td>Rural community</td>
<td>OT</td>
</tr>
<tr>
<td>Margret</td>
<td>Community post-acute care service</td>
<td>OT</td>
</tr>
<tr>
<td>Julie</td>
<td>Hospital In The Home service</td>
<td>RN</td>
</tr>
<tr>
<td>Mary</td>
<td>Community</td>
<td>PT</td>
</tr>
<tr>
<td>Megan</td>
<td>Hospital In The Home service</td>
<td>PT</td>
</tr>
<tr>
<td>Annette</td>
<td>Community health centre</td>
<td>Dietician</td>
</tr>
</tbody>
</table>
### Table 4.6. Group Discussion Four: Large public hospital metropolitan (NSW)

<table>
<thead>
<tr>
<th>Participant (Pseudonym)</th>
<th>Current area of practice</th>
<th>Professional background and experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>John</td>
<td>NUM surgical ward</td>
<td>RN</td>
</tr>
</tbody>
</table>
| Marie                   | - Usually works in post-surgical recovery  
                          | - Covering a wound care nurse position at the time of the interview. | RN |
| Annabelle               | Across surgical wards    | PT                                    |
| Jean                    | Orthopeadic ward         | RN                                    |
| Carol                   | Specialist wound care position across the acute services. | CNC (wound care) |
| Katrina                 | Mostly sub-acute         | Dietician                             |
| Liz                     | Looks after acute elderly patients across all wards. | MD Geriatrician |
| Toni                    | Oncology and surgical ward | OT                                    |
Table 4.7. Group Discussion Five: Large public hospital metropolitan area (Victoria)

<table>
<thead>
<tr>
<th>Participant (Pseudonym)</th>
<th>Current area of practice</th>
<th>Professional background and experience</th>
</tr>
</thead>
</table>
| Cynthia                 | Vascular service         | CNC in vascular surgery
|                         |                          | Wound advisory group role              |
| Alison                  | Works across wards       | Discharge planner
|                         |                          | Professional group/level
|                         |                          | not recorded/mentioned.               |
| Sally                   | Vascular service         | OT                                     |
| Jamie                   | Acute aged care wards    | OT                                     |
| Sonia                   | Burns unit               | CNC
|                         |                          | Wound advisory group role              |
| Miriam                  | Burns unit               | CNS (burns)                            |

4.7.4 Group session process

A semi-structured schedule was used to guide the conduct of the groups. This included a list of topics and prompts, as well as formal requirements to be included in the introduction and conclusion such as the outline of ethical issues, and rules for the group. A copy of the group session schedule is included in Appendix D.

These four main topics were covered with each of the groups:

- How do you contribute to PI care and management in your setting?
- What are the three most challenging aspects of everyday practice?
- How would you perceive multidisciplinary practice in your setting?
- How do you make decisions? What are three of the most influential factors on your decision-making in pressure care?
Activities using props such as cards and whiteboard helped to facilitate information sharing and enhance discussion. In addition, these processes provided an additional source of data and therefore the opportunity for triangulation of data (Bowling, 2009).

4.7.6. Follow-up interview process

The follow-up in-depth interviews with a subset of group session participants had the specific aim of exploring and refining previously identified concepts and their relationships.

Individual interviews are often used as an adjunct to focus groups in qualitative research. Semi-structured interviews are used when the investigator requires more specific information and have been used extensively in research exploring health care (Bowling, 2009). In health research, individual interviews have been used to explore client’s experiences of health and illness as well as the processes involved in their care (Jeon et al., 2010). They have also been used to explore health professional’s perceptions of referral pathways and access to health services (Longman et al., 2011).

Participants were selected based on their ability to provide greater understanding of the issues identified in the group discussion sessions. Of particular interest and in need of further exploration were issues relating to different client groups, particularly those with chronic complex care needs and the delivery of PI care and management in community settings. All participants in this phase had senior or lead roles in their area of practice and could provide a greater depth of information in relation to policy, management practices and role development. They would also have a good level of knowledge regarding the resources that were available to them and their staff. These resources might include the human resources and their opportunities for skill development including education and training as well as physical resources such as equipment, pathways and procedures. Eight semi-structured interviews were conducted (see Table 4.8).
Table 4.8: Phase two participants

<table>
<thead>
<tr>
<th>Participant (pseudonym)</th>
<th>Profession</th>
<th>Area of practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Libby</td>
<td>Nurse CNC (wounds)</td>
<td>Public hospital inpatient and outpatient services</td>
</tr>
<tr>
<td>Jess</td>
<td>OT (senior)</td>
<td>Community (ADAHC)</td>
</tr>
<tr>
<td>Elle</td>
<td>OT (clinical specialist)</td>
<td>Community health centre</td>
</tr>
<tr>
<td>Helen</td>
<td>OT (clinical specialist)</td>
<td>Community health centre</td>
</tr>
<tr>
<td>Nicola</td>
<td>Nurse CNC (wounds)</td>
<td>Private practice (community based)</td>
</tr>
<tr>
<td>Vanessa</td>
<td>OT (senior)</td>
<td>Public rehabilitation facility (3rd Tier)</td>
</tr>
<tr>
<td>Cynthia</td>
<td>Nurse CNC (wounds)</td>
<td>Public hospital Inpatient and outpatient services</td>
</tr>
<tr>
<td>Carol</td>
<td>Nurse CNC (wounds)</td>
<td>Public hospital No outpatient wound clinic</td>
</tr>
</tbody>
</table>

In semi-structured interviews, the interview is still conducted in-depth; however the interviewer guides the interview on the topic of interest by asking specific, open-ended questions (Bowling, 2009). The questions used in these interviews emerged from the group sessions data and were refined following reflection upon the overall aims of the project within the context of existing gaps in the literature (Appendix D).

Sampling was terminated after the eighth interview once no new discoveries were being made within the data. The decision to cease sampling was informed by a number of factors including, the knowledge developed in the case explorations and the group discussions, the constant comparative approach to the analysis of the data, which ensured that the researcher had a good feel for the
key issues and the gaps within the data at all times (Braun & Clark, 2006), and an understanding of levels of information necessary to address the research questions, based on the researcher’s previous exposure to the PI and the workforce literature. Feedback was provided to participants regarding their interview to help ensure accuracy in interpretation and also provide the opportunity for further comment.

4.8. PHASE THREE: PEER VALIDATION

The final phase of the research involved peer validation interviews. During this phase, feedback was sought regarding the overall findings from the research and their implications for practice and research (see Table 4.4). Guihan et al. (2009) in her exploration of therapists’ roles in PI management in the SCI population also used participant feedback as a technique to strengthen her research and increase rigour.

Table 4.9. Phase Three interview participants

<table>
<thead>
<tr>
<th>Participant (pseudonym)</th>
<th>Profession</th>
<th>Area of practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elle</td>
<td>OT</td>
<td>Community</td>
</tr>
<tr>
<td>Helen</td>
<td>OT</td>
<td>Community</td>
</tr>
</tbody>
</table>

While a summary of research findings was provided to all participants, some key informants were invited to participate in a final interview. Key issues from within the data/the findings provided the platform from which discussion and debate were initiated. Consensus/opinion was sought regarding the relevance of the findings to practice as well as its potential application within the care environment.

Conference presentations were also used throughout this project, to enhance the projects findings through clarification of my interpretations of current practice and necessary supports, which were based on participants’ experiences. A list of
the key presentations given over the course of the project can be found on p. V. This process also assisted in ensuring the relevance of findings to those practicing within the AHCS. Significant findings from this research, pertaining to a new educational model, were also presented at a national conference in 2014 and an international conference in 2015. This provided an additional opportunity for peer validation of project findings.

4.9. ENSURING THE QUALITY OF RESEARCH FINDINGS

A common criticism of focus groups and interviews is that participants’ responses to questions are likely to be influenced to some degree by social desirability. In the case of health research, participants may respond through a filter of what they believe would be the most socially desirable response. In this project, some participants might also be concerned about the potential implications of discussing their own and their employers’ approaches to PI if they are less than ideal (Babbie, 2007). Similarly health professionals, managers and policy makers may provide a somewhat censored or publically appropriate description of health services and the delivery of care.

Moderator skills can also influence the success of focus groups and the quality of the data collected. Conversation should flow due to the facilitation of the moderator and their skill in picking up cues and including all group members (Barbour, 2008; Kruger, 1988). Moderator skills for this project were developed through peer observation and debriefing provided by my supervisor during the data collection process. Data analysis also relies heavily on the analytical skill of the researcher (Bowling, 2008; Pope et al., 2000). Strategies to assist with reflection upon my own role in the research will now be addressed.

4.9.1. Monitoring the researcher role during the project

As a clinician researcher I chose to accept and acknowledge an active stance within the research process. However, due to the need to be pragmatic and seize opportunities as they arose the level of researcher activity during the research
process had to be monitored and managed effectively. Below is an outline of the strategies used to monitor the researcher role in the research process:

*Note taking:* Comprehensive notes were made during data collection and analysis. These took the form of words and sentences in the margins of transcribed data and documents, as well as brief and comprehensive field notes taken during and shortly after group discussions, interviews and observations of care. In addition, a reflective journal was maintained containing reflections on the research process and the role of the researcher. Similar strategies for managing the role of the researcher within the research process have been described (Charmaz, 1990; Janesick, 2000).

*Mentoring:* Meetings with supervisors also provided opportunities to validate and debate the project analysis and subsequent decisions about future directions for sampling data collection and analysis.

*Triangulation:* Multiple data sources were produced during the group discussions including verbatim transcripts, field notes, whiteboard notes and cards, coding, consensus coding and member checking. Facilitator field notes and for the first two group discussion feedback from the research supervisor were used in the interpretation of the data. Follow-up in-depth interviews were also conducted with a selection of participants in order to allow further exploration as well as provide the opportunity for clarification and increased understanding of certain issues. Multiple sources of data and methods of collection, which have been interpreted using multiple perspectives informed by the literature and undertaken by the researcher and their supervisors, have ensured sound collection, management and interpretation of data (Denzin & Lincoln, 2000)

The multiple phases of research conducted using complementary methods provided the opportunity to enhance and deepen understanding of key issues emerging from the data within different practice contexts. For example, observations of practice in its natural setting provided the opportunity to
challenge thoughts and interpretation and confirm key factors as well as consider new possibilities or important avenues for data collection.

Observations had to occur within the limitations of a research project with limited funds and reliant on the generosity of clinicians and clients in giving up their time to include and work with the researcher. The clinicians involved in the case explorations could have increased services to create a more ‘ideal’ picture of care. However, I did not find this to be a significant concern as case studies were unfolding as it became obvious that clinicians had limited resources available with which to portray ‘ideal’ care.

As outlined above several different types of triangulation were used in this research.

Reciprocal feedback: Participants were provided with a de-identified summary of the case explorations, the group sessions and follow-up interview findings. Participants were encouraged to contact the researcher if they had any comments, corrections or additions to the document. During a Phase 2 interview, one interviewee sought to clarify a statement she had made in a Phase 1. The results were then amended accordingly to reflect this.

4.10. Summary
In this chapter the research approach used to inform and conduct this project has been described. A pragmatic approach incorporating mixed qualitative methods; group discussion sessions, in-depth interviews, document analysis and observations of practice provided a way to go beyond the existing descriptions of PI management within the literature and explore the realities of current practice. The methods used in this project were selected and combined in various ways across the three research phases to strengthen the interpretation of the study findings with relevance to the research questions.

Whilst recognising that the findings cannot be generalised they can be aggregated and used to provide a picture of current practice. They can also
reflect the diversity of perspectives that can inform health service delivery and further research. When considering generalisability this refers to how generalisable the findings from this study are to PI care in general. Conrad (1990) suggests a different view of generalisability in which it is the concepts that should be generalisable, not the samples. He goes on to argue that in qualitative research generalisability “should be measured by the applicability of our concepts to other samples, settings and situations.” (Conrad, 1990, p. 1259).

We can assume that the participant’s attendance at group discussions and interviews is indicative of the value they place on this issue. However, there is no information about potential participants who were less committed to PI care or did not agree to participate in this research.

4.11. Introduction to the findings and discussion chapters
As described earlier it is useful to understand how the various levels within a health system operate to influence the management of a particular health issue, how interventions at various levels achieve change and also to consider the potential effect of such changes. These principles have guided the presentation of the following three chapters. Key issues within the data that informed the health system level are presented first, followed by a discussion of these issues using pertinent literature. Then findings related to the client level and health clinician level are presented following the same structure. While the interdependence of each level will be evident across the chapters and illuminated in detail where necessary, it is the separation of the levels that provides additional insight into PI care within the AHCS. This enables an in-depth consideration of the potential for change to occur at the various levels as well as their likely effect, intended or otherwise, on overall client and service outcomes.
CHAPTER FIVE
FINDINGS AND DISCUSSION
SYSTEM LEVEL

“managers simply don’t understand the aetiology of PI development, nor the relevance of the equipment. There’s definitely a block between what we educate, what we teach, and what actually then happens. There’s a gap between the practical side of things and the theory and the purchasing – many purchasers have never seen a PI; they don’t know what they are. But they’re the ones who make the final decision about purchasing equipment in health care facilities.” (Philippa, RN, Private wound consultant, FG2)

5.0 INTRODUCTION

For the purposes of this chapter the “system level” will be defined as the current policy structure, health care settings and the organisations and influences that help to determine clinicians’ roles and practices. Key considerations are the basis of policy and its effect on PI care, how care of issues such as PI can become fragmented by the current organisation of health services within the AHCS, and the potential opportunities and barriers presented by education access, pre-existing concepts of “roles and responsibilities” and the influence of professional associations.

A view of current practice across a range of Australian health service settings was gathered using participants’ experiences. With the inclusion of case study participants, there was an even number of participants working in acute settings (n=20) and community settings (n=20). Four participants represented transitional care services. Their experiences enhanced understanding of community based PI care, as well as some aspects of hospital based PI care. There were a relatively small number of participants from aged care settings (n=3) and a small number of participants (n=2) described themselves as wound consultants. The majority of participants had been in practice for 6-25 years and
were experienced in the provision of PI management within a variety of services settings and to a range of client groups.

A number of participants had undertaken specialist training or were recognised by the necessary bodies as having achieved the status of a clinical specialist. The two professional groups with these qualifications were nurses (n=9) and occupational therapists (n=2). The two largest groups represented were nurses and OTs suggesting that these are the groups most frequently involved in the provision of PI care. The majority of OT participants worked in community service settings (n=8). There was only one medical participant, a geriatrician who worked across hospital based services, both acute and sub-acute wards and outpatient clinics to address the needs of those that were ageing. There were no participants representing podiatry and social care. There were also no participants representing associate professionals such as assistants in AINs, ENs and TAs. Some perceptions regarding the contribution of these clinicians to PI care were gathered from participants. For example, those in acute service settings frequently worked with AINs and ENs in the delivery of PI care, and described their level of involvement and the supports they required to direct their skills toward PI management.

The case studies provided opportunities to gather client (n=2), carer (n=1) and clinician perspectives (n=2) on the processes involved in PI management within community service settings. Their descriptions of care processes included the role of paid formal and unpaid informal support care such as family members, neighbours and service providers.

5.1 POLICY AND CURRENT PRACTICE

All participants talked about existing PI policy and the role it played in either directly or indirectly shaping PI practice. Many of those that participated in this project were involved in policy development and implementation at a national, state and local level. The policies discussed by participants included specific PI prevention policies, and the broader policies influencing access to equipment
such as procedures for acquisition, and use of the health workforce more
generally within the AHCS and the services of which it is comprised.

Participants talked either directly or indirectly about the influence of policies
and procedures on their practice. This included a lack of policy to support them
to use their skills to their maximum effect in addressing PI management. For
example, policies governing what certain individuals could do or were “allowed”
(Carol, CNC, hospital based service, I7) to perform to address PI needs, whether
that be the professional or non-professional workforce were also alluded to,
although, formal policy documents were not named and directly discussed.
Participants did not refer to documents stating what they could or could not do
in relation to PI management. This indicated that much of the organisation of the
workforce toward PI was influenced by the traditional organisation of services
and the associated use of the health workforce, as well as factors occurring at the
local service level. The quote below from a clinical specialist OT highlights how
the current use of the workforce may not present the best fit and most efficient
way to manage PI needs.

“If you were attached to a medical centre like a GP office and you were
referred a client who had a PI, it probably would be efficient to be the one
person who went out, managed the dressings and looked at the equipment
needs and ongoing management and all that kind of stuff as in the one role.

I mean I can’t see why with training you couldn’t learn how to know which
dressings for what presentation. I don’t, I mean I’m sure there’s definitely the
scope for you to be able to learn that, if that was actually something that
allied clinicians were allowed to do. That would be the, might be the big
obstacle. Because it really, I mean it seems like it’s just, it’s another set of
knowledge and another set of skills that you could actually learn and
acquire”. (Elle, clinical specialist OT, community service, I8).

Those participants that described the use of state level PI policy and clinical
practice guidelines to inform the development of local policy and their
implementation strategies were mainly clinical nurse consultants (CNCs). One
clinical specialist OT described some input on policy documents specifically related to the development of the Enable (the NSW agency providing assistive equipment) prescription guidelines. Further information about the Enable program and its policies and procedures can be found in Appendix F. This program provides subsidised access to equipment for clients that meet the criteria.

“They might not be able to apply to Enable but if you’re working under a different system you could be doing the whole assessment and prescription process and getting, helping people to get access to equipment. If you’re in the private sector or insurance or whatever you don’t, there’s no restriction. It’s only Enable that kind of gives who can prescribe what. So out in the big wide world it’s not limited.” (Elle, clinical specialist OT, community service, 18)

Participants described the influence of state policy directives and clinical practice guidelines on how they practice. The influence of these documents impacted on how participants’ practice appeared to be successful or otherwise based on locally developed implementation strategies. The descriptions of these strategies and their effect on clinician practice are described in later chapters.

Participants described significant challenges in carrying out best practice as set down in clinical practice guidelines. The aggregated data related to the challenges participants faced in meeting the standards set by management, policy and clinical practice guidelines built a picture of what current practice in PI management actually entails and how characteristics of the ACHS influenced the ability of services and clinicians to address this PI management. Participants also discussed the strengths and weakness of current approaches to PI and debated what was necessary to enhance current practice and better address future need thereby providing information about potential system level changes
5.2 COMPETING HEALTH NEEDS

Participants demonstrated their belief in PI as a significant issue for the AHCS. Participants from hospital settings and particularly those in management positions understood PI occurrence to be an important quality and safety issue. A high incidence of PI was felt to reflect negatively on a service. In terms of the impact on the health system and individual health services, participants identified extended hospital admissions, and additional home visits by community nursing. The development of PI also had implication for clinicians, clients and support care and these will be discussed in more detail in subsequent chapters.

“The development of a PI is an ischemic process that kills muscle and fat tissue and then skin. And yet we can wait months for equipment. Patients develop PIs while they’re waiting for care. If we did the same with people who came in with chest pain, there would be lots more litigation. There’s already a lot of litigation for the development of PIs in this state, and growing.” (Philippa, CNC, Private wound service, GD2)

Many participants frequently expressed their awareness of the system’s limited ability to meet all health needs. Participants were concerned about the effective allocation of resources and understood their own role in ensuring the sustainability of health resources related to PI.

“So, we’re hoping to be able to, with those mattresses and also heel devices, maybe reduce our rentals for those medium-risk people, and then reserve high-risk or special needs patients to actually have hired, superior support surfaces. But I’m sure they’re looking at every aspect of the budget thinking, where can we save money? But I think if they tried to clamp down and say, we’re not going to give you as much, it’d come back to bite them. I think we’d see a lot more pressure injuries.” (Cynthia, CNC, Hospital based service, I6)

Amongst participants’ descriptions of their practice a sense of frustration could be detected, as policy appeared to be asking clinicians to be proactive and
prevent PI within a health system that directed resources and effort toward treatment. While participants believed in the importance of prevention and early intervention, they believed that this was hard to achieve.

“So often it is not until they have already developed a PI that they come to the awareness of health services and that’s when they get the education and the equipment and things that they need... So they can be at home and they can be being cared for but they are not given the information and the education until they actually develop a PI and then it all, you know, swings into place”. (Elle, clinical specialist OT, community services, GD3)

Many participants described being involved in working parties or committees to develop policy around PI management at state and local levels. All participants that had attended recent state working parties noted that these resulted in missed opportunities due to inadequate resources and competing priorities that were often the result of recent, acute-focused crises featured in the media.

“The New South Wales Department of Health has convened a couple of committees. One was to look at PI surveillance, but nothing ever gets finished. Another was to look at the policy, to review the original policy because it’s due for revision, but that didn’t get finished either”. (Sonia, CNC, hospital-based service, GD5)

Participants from both hospital and community settings believed that there was a need for more co-coordinated approaches to PI care at state and national levels, as figuring out the best way to develop local policies was a time consuming process, it also led to inconsistencies and communication issues across health services. Participants believed that standardised paperwork across area health services, alongside improved mechanisms for communication between health services such as the sharing of medical information could improve approaches to PI.

Most participants believed that PI did not currently receive the same level of attention that would lead to more coordinated approaches within and across states. While some participants identified that this may change soon due to the
demand for PI services created by the ageing population, most felt that PI would remain a secondary issue.

“*It may be that down the track - because pressure areas are a huge area where people, especially adults I guess, who stay in hospital for longer periods. It maybe come a point when something becomes standardised across the state.....At the moment, tools are different from one area health service to another. Products vary from one health service to another. I think where we were going with this PI Working Party, it may have gone somewhere. It had a very active but very brief life and came to a bit of a halt because the Health Department’s priorities were put elsewhere*”. (Libby, CNC, hospital based service, I1)

### 5.3 Natural History of PI

Participants emphasised the characteristics of PIs when reflecting on the capacity of the system to prevent PIs, regardless of the level of resources available to address PI issues.

“I think prevention is really important, but I think we do have to recognise, there’s going to be a lot of cases where we can’t prevent, because the patient is just too vulnerable.” (Cynthia, CNC, hospital based service, I6)

Participants from the majority of health service settings discussed how patients with chronic health conditions often have multiple interrelated and ongoing health care issues and how they challenge the traditional organisation of services and models of care within the health system. As the CNC describes in the quote below, skills and resources were generally organised around a client’s primary diagnosis and this influenced the skills available for addressing PI care needs. She describes the limitations of the biomedical orientations of services in meeting the needs of those with longer-term conditions and complex care needs.

“The way the system’s constructed at the moment, we don’t have a lot of access to that particular expertise unless you enter in because of the disease process or the trauma process that you’re on. So, it follows the medical model
but because of the phenomena of having an older population and all the issues that are associated with that, these are [pressure] injuries that are occurring for a number of different reasons from what they were in the past and they’re salvageable and they’re sustainable and they’re manageable, but there’s no cohort unless it’s complex and chronic care, but then that tends to be seen as being more in the community, doesn’t it? Yet, it’s in fact in the hospital system as well. So it’s almost as though there’s a need for sort of revision of models of care.” (Sonia, CNC, hospital based service, GD5)

Equally this was evident in community services, where a client’s access to particular services and resources was also influenced by their primary diagnosis. An example of this are children with CP who were well linked into specialised clinics within the hospital system and that provided opportunities for prevention and management to occur. In addition they also provided a resource and support for community based therapists whose clients had access to this service. Here the benefits of community based clinicians having access to expert advice within diagnosis-specific, secondary level hospital clinics was evident. It is important to note that this level of service was not associated with other client groups such as adults and older adults with CP and other diagnosis that were associated with significant physical and intellectual disabilities.

“So, these are kids that are jointly managed by community and us. It is not one or the other. Because they are often more complex, they are getting services from a number of different areas. It is just not necessary, I guess, for them [community based therapists] to have to do it. We see these kids really quite frequently. They are coming in for botox, or if the kids have pumps, they are coming in for refills, so we are seeing them all the time. They are having spinal surgery, they are having orthopaedic surgery. So they have a big exposure to the hospital, which means they have access to nursing consultants and therapists. So it can be managed here, rather than in the community. Whereas, in adults, as I say, I am sure it is a much bigger community problem.” (Libby, CNC, hospital based service, I1)

There was a perception held amongst participants that the standard set by PI policies and guidelines was difficult for clinicians to meet within the realities of
daily practice. Participants described differences in the extent to which policy could be implemented across health services and the reasons for this will now be discussed.

5.4 FRAGMENTATION OF PI CARE

Fragmentation of care could also contribute toward the development of PI. Participants provided numerous examples of adverse events and their descriptions suggested that PI usually occurred as a result of multiple system failures. The extract below demonstrates how multiple system failures contributed towards an acute readmission, as well as the development of skin integrity issues including PI development. The quote also highlights how PI was very rarely the sole issue that clinicians were dealing with and the difficulties encountered with specialties not thinking generally.

Sonia (CNC): Recently we saw a young woman who was discharged home after what was considered to be a fatal or a permanent and deteriorating condition. She was young and healthy apart from this neurological scenario and she didn’t die as expected so she was basically discharged for palliation and to be with her family, but in fact she survived and nothing had really been put in place except a bed surface.

The trouble was that I ended up finding holes in her because of all sorts of things and it was again the person was discharged within a particular paradigm, but that paradigm didn’t follow through.

So it’s that, I’m not sure how you’d articulate this, but the expectation. The pathway that she was on, it changed and it wasn’t a rehab model that was being followed. It was a palliation.

Sally (OT): Well they were mainly giving pain relief so nobody was investigating and the thing was she was a spinal injury, a very high spinal injury, so she fell through the cracks.
Sonia (CNC): *She did and the only reason we saw her was because she came in with a burn injury and then I found a pressure area on the coccyx and then found this hole in the inguinal area from the strap where they were using it to get her in and out of bed. So there were all these problems that the community services didn’t highlight or reflect back.*

*So pressure area prevention management and that is really problematic if you’ve got a particular mindset about where the patient’s coming from and where they’re going and the ability to be able to identify that there needs to be a change in the management strategies.*

*(Extract from nurse and OT discussions, hospital based service, GD5)*

The system failures described in the quote above include an absence of mechanisms for follow-up care that would have enabled ongoing monitoring and assessment of the client’s needs, including the opportunity for the client’s PI needs to be detected. Many other participants from both acute and community settings identified a gap between these two settings around communication and transfer of care for PI.

Fragmentation of PI care also occurred in the availability of resources such as PI equipment and dressings as well as access to services to assist in their prescription. Beyond the constraints of policy, participants also had to work within a number of other systems in order to meet the PI needs of clients such as private services and equipment providers.

### 5.5 COMMUNICATION

The communication failures occurring between acute and community, as described by the participants, also illustrate the fragmentation of services evident in the absence of a coordinating mechanism or effective information sharing between services. Sometimes, at the time of discharge, people with
existing PIs were not reported to community services by acute facilities. There was a perception amongst Group Discussion 3 participants that community services are frequently left to deal with issues, which arose in hospital settings and were not sufficiently addressed on discharge. Participants hypothesised that culture surrounding PIs still appears to be a barrier that appeared to prevent people and services from being truly open and transparent regarding their occurrence. The importance of information sharing around PI was felt to be important in continuity of care and in particular, assisting community settings in the management of hospital-acquired PI.

“I thought the continuity of care and treatment. A lot of it just finishes at the door once they go home. There's nothing going on once they go home whether the GP’s notified or the nurse is notified or even family education”.

(Alison, RN, hospital based service GD5)

Participants also explained that there were gaps in the transfer of care between various services settings, as well as an absence of policy to support the transfer of care between settings, which made communication about and coordination of PI needs difficult. Participants felt that changing health needs were exacerbating existing problems in the transitions between services and also in relation to access to services and skill sets. Participants from both community and hospital services highlighted weakness during transition of care both within and between services. The main issues impacting on the transfer of care, as identified by participants, are outlined next.

5.6 COORDINATION OF PI CARE NEEDS

Participants from community and hospital settings identified that many clients that developed PI had ongoing care needs, and that these were often not adequately addressed, often due to uncertainty regarding who has responsibility for the management of PI issues. This was highlighted by the participants’ identification of the need for follow-up PI care.

“There's a service gap. So once a client’s discharged with their equipment, the hospital OTs aren’t supposed to go out there and follow up for long term
...prescription. Or if they’re discharged with a high level pressure management device, the hospital OT isn’t able to go out and then downgrade and trial because they’ve left hospital. So they refer to the community service, but yeah there isn’t a clear service agreement about how that transfer of care happens.” (Elle, clinical specialist OT, community service, I3)

Participants’ descriptions of the transitions between services developed understanding of the natural history of PI. They also discussed the importance of follow-up care, including the maintenance of prevention strategies and the downgrading of interventions as appropriate.

5.7 ORGANISATION OF SERVICES

Participants’ descriptions of their current practice shed light on the characteristics of the health system and the various ways in which it influenced PI care. These included the current settings and organisation of services, traditional practices, organisation and culture, as well as how the workforce was used including where they were employed and what they were required to do within various service settings in order to meet a range of health care needs.

It was evident from participants’ descriptions that their role in PI care was tied closely to the health service contexts in which they worked. Participants’ descriptions also built a picture of client need for PI services within various health service settings.

The organisation of resources within services also influenced participants practice in PI care. Participants described how practice in PI prevention and management was influenced by other factors related to the organisation of health services such as resources, both physical resources such as equipment and disposables and human resources such as clinicians, clients and carers. A description of the health service contexts and PI care, developed using the perceptions and experiences of participants, will now be presented.
5.7.1. Acute services settings

There was a perception that hospital environments were high-risk environments and that the majority of PIs occurred within acute services. Mechanisms to assist in the effective use of these resources were a common and compatible feature of acute PI prevention and management. The environment was described as quite structured and standardised in terms of furniture and equipment available. Physical and human resources were reported to be available rapidly within the immediate environment twenty-four hours a day.

“The survey that we did in 2006...of all the patients that had pressure injuries on the day in the state, 33 per cent were from on admission, 66 per cent were hospital-acquired. The hospital creates more. We send out more than what we get in, yes. But if you talk to the nurses, they say, no, they all come in from the nursing home and they’re much worse.” (Carol, CNC, hospital based service, 17)

5.7.2. Sub-acute settings

Sub-acute services were described as sharing some characteristics with acute services including standardised environment and good availability of resources however, they differed in terms of more lengthy patient admissions, comprehensive assessment processes and multidisciplinary approaches to care. While some PIs were reported to develop in this setting, participants often reported that clients were admitted to sub-acute services with PIs acquired during acute admissions for procedures including cardiac surgery or orthopaedic surgery, either elective or post trauma. Clients in the sub-acute setting were described as having both the need and the potential to improve their function through rehabilitation. Participants from this setting believed that the ethos of rehabilitation, which involved comprehensive assessment and client participation in care contributed to a reduction in PI risk.

“The sub-acute setting where you’ve got a bit longer, the patients are medically stable, and everyone does a very comprehensive initial assessment, I think everyone knows what their role is and it’s probably a bit more defined in the sub-acute setting. Whereas in the acute setting you’ve often got a sick
patient who’s coming in, who things are happening to quite quickly.” (Liz, Geriatrician, hospital based service GD4)

5.7.3. Transitional services

These home-based post-acute care services, while funded by acute services, appeared to share more characteristics with services delivered in community settings, including working environment, client characteristics and challenges in accessing resources such as equipment and to a lesser extent dressings.

“I work in the community in a post-care setting. So normally people have pressure areas and the nurses will refer it to us within our service. It’s just for a short time so we do provide education, equipment and treat it while we are there and if it needs to be an ongoing thing it may need another referral.” (Margret, OT, post-acute care, GD3)

5.7.4. Community based service settings

Participants from this setting explained that community services are diverse and often provided across a range of environments including, private residences, community health centres, private practices, multi-purpose services, mobile clinics, schools, group homes and aged care facilities. As a result, they may be required to adjust their delivery of care in order to meet the demands of a number of different environments.

“A long time ago our therapists used to be based in those schools but they’re not based in those schools anymore so that’s been a bit of a shift and change in the way we work. We’ll go to respite facilities as well if we need to, so the group homes. We’ll also go to non-government group homes as well.” (Jess, OT, community service, I2)

Care provided in residential facilities, such as groups homes and long term aged care was perceived to be quite different to acute facilities in terms of the equipment available, although they shared some of the features of a hospital environment. In non-residential settings and private homes the environment varies and changes over time. Clinicians may visit a client’s private residence and be required to assess for and provide pressure care. Physical pressure care
resources such as equipment would usually need to be transported to the
residence. Existing furniture within private residences varies widely and this can
make equipment prescription more challenging. In addition, human resources
contained within this setting such as family, friends and neighbours are all
unique. It is important to note here that private nursing services play a
significant role in the delivery of nursing care in community settings. A clinician
working in this type of setting may be co-located with other clinicians or they
may be a solo practitioner.

“In the hospital it is all very clinical. They have got the hospital bed, they
have got the chair that’s adjusted to the right height, and you are limited to
the products you’re allowed to use in the hospital. When you get to the
community it all goes out the window. They have got, the double bed that you
can’t fit the alternating air mattress on, or the chair that is sagging and
nearly on the ground. What you can use then in the community is very
different.” (Helen, OT, community service, GD3)

5.7.5. Residential health care facilities

Based on participant’s descriptions the broad group of settings offering
residential care were significantly different from traditional health services.
These differences were characterised by the needs of clients within these
facilities, as well as the characteristics of the workforce and the way PI
resources, such as equipment, were managed. While there was some variation in
the level of care provided, the clients at these facilities were generally unable to
live independently or with support from services at home. A unique aspect of
client care in this setting was the ability of the staff to develop greater knowledge
of their residents and their pressure care needs over time. The participants
described how residents often have significant physical and cognitive limitations,
which affect their ability to participate in PI prevention.

Participants from these settings did not discuss education of clients in aged care
facilities, instead their comments were around the educational challenges
related to staff in residential care. Two participants that provided external
education and training for aged care services noted how lower levels of literacy
and the number of workers with English as a second language significantly
influenced the way they could deliver education. An OT participant who worked in community disability services also highlighted the challenges present in her role in providing PI training to formal (paid) support care within group homes.

“The staff we’ve got in group homes can have certificates in disability support work but you don’t have to have any formal qualifications to work in our group homes. So you’ll get a range of backgrounds. We also have a lot of staff who English is their second language and also lots of people working shift work (Jess, OT, disability services, I2).

Aged care was perceived to function very differently to health services as it had significant differences in terms of the workforce. Funding was also reported to influence access to particular professional groups skills. For example, participants from aged care settings noted the very limited availability of allied health skills. Based on the data within the current study, care was typically provided by non-professional health workers such as assistants in AINs with support from ENs and RNs. GP involvement is generally fairly limited, with external services being brought to the resident as necessary. The important role of GPs in long term aged care was discussed, yet it was felt that scope for multidisciplinary approaches were limited as GPs, wound care consultants and allied health were essentially external service providers, with limited involvement in day to day care and that they were rarely present at the same time.

Participants that had provided services in these facilities reported that there was variable support for funding of equipment, and that obtaining equipment was very much reliant on a staff member’s ability to convince management of its importance. Participants felt that management decisions were affected by limited knowledge of PI combined with competing needs such as budget constraints.

For example in aged care, most of the care was delivered by AINs with variable support from RNs. While GP involvement was intermittent, they were able to have a more direct influence on a resident’s care. There appeared to be very limited involvement of allied health within aged care, and this was in spite of
recognition of their potential to contribute. Participants linked the absence of allied health with aged care funding mechanisms.

“I guess I see huge benefits in terms of reducing pressure issues, by keeping people mobile. And I’m very concerned at the moment that the funding instrument for aged care doesn’t recognise what physios are doing, in terms of keeping people mobile.” (Hannah, PT, residential aged care setting, GD2)

“So it is a very - demoralising is the word but it is the system I think and also too I think it comes from management up here where their focus is on budget and getting money in. So now with physio, it is not about mobility, it’s about pain management and quick, make sure they’ve all got pain so we can treat them with TENS, hot packs or massage because we’ll get more funding.” (Jane, residential aged care setting, FG1)

5.8. INTERDISCIPLINARY PRACTICE

Several OT participants from community settings identified that even when there is an existing wound, they cannot visually assess the wound, as they cannot remove a dressing because they believed they were not supposed to apply dressings. This had implications for both the identification and management of PI. This limited their involvement the management of PI. It also meant that team approaches to PI management were a necessity in community service settings.

I think when Elle said it’s not just about us. We don’t want to be taking on more than we should, because you definitely don’t want to be - we’d never be dressing wounds or - I mean we can’t even look at a wound unless we’re out with the nurse, because we can’t take a dressing off, because we can’t put it back on again. Healing wounds isn’t our area of work. I mean we’re not supposed to be doing that. (Helen, OT, community service, GD3)

There was an understanding among participants that the culture within the health system made large-scale change difficult to achieve. Role delineation was challenging and was influenced by the health service setting and its unique attributes. In reality there was significant overlap in the interventions used by
clinicians. Exceptions to this were specialist equipment prescription and wound care.

Participants discussed barriers and facilitators of changes in practice. They perceived that change related to roles was challenging due to system characteristics such as professional accreditation and registration, education and training systems as well as tradition and history surrounding the use of clinicians in particular services settings for particular roles.

“it's a tricky line when the patient is in hospital, who is responsible for the prevention and management. It is usually a nursing role and what's the OT role there that we have to take?” (Jacqui, OT, community service, GD3)

“It’s changing culture, it’s changing attitudes, it’s changing mindsets and paradigms of groups who think that this is their territory and this is the way it gets done. It’s all those things. It’s big.” (Sonia, CNC, hospital based service, GD5)

5.9 Changing Demand for PI Services

Most participants perceived that demands placed on health care services had changed. They attributed this to an ageing population, as well as an increase in those living with complex chronic care needs as a result of traumatic accidents, acute illnesses and congenital conditions. It was felt that this presented new challenges to those delivering services in all settings, including an increasing demand for their skills in PI prevention and management.

“Kids are sicker, they are in hospital for longer, they are surviving and they are in the ICU for weeks and are immobile for weeks. It is different now because these kids end up with dreadful occipital pressure wounds or wounds in other ways. But the prevention side is still being poorly understood by nurses.” (Libby, CNC, hospital based service, I1)
“we really now seem to be getting more of an influx of referrals coming through. Whether that is for the aging population and survival rates of children with quite severe disabilities, but it is a new thing particularly for us to look at [PI management].” (Jess, OT, disability services, GD1).

Participants from both acute and community services had observed more clients being discharged from acute services with ongoing acute health needs, including existing PI. Participants from both acute and community settings detected an increase in the acuity of care provided in community settings and linked this directly with changes in the need for PI care within community service settings. While participants felt that PI tended to be more of a concern within acute services and usually more of a priority, many participants felt that community based PI care required attention due to changes in population health and advances in medical care, as well as health policy which was changing the way that care was delivered.

“….we are definitely seeing an increase. Between 2005 and 2008 the number of referrals to our OT service had actually doubled and the number of referrals with an existing PI had doubled. The last time we counted it was like 20 per cent. So one in five of the referrals to our service had an existing PI. We have put it down to the fact that there are more people living in the community with chronic illnesses that limit their mobility.

The majority of our clients have ongoing complex needs. Anything from a degenerative condition like MS or motor neuron to just the ageing process. So lots of frail aged people, but who also have major issues with mobility, transfers and personal care. Then we’re also seeing more and more younger people who were seen in the school system by the ADHC [Aging Disability and Home Care] OTs, but who are now in their early or mid 20s who are needing reviews of their equipment. They’re being referred to us as well. So we’re actually seeing people with cerebral palsy, spina bifida. The other client group that we’re seeing more of is bariatric clients. So that’s another complexity that we’re having to deal with as well”. (Helen, OT clinical specialist, community service, I3)
5.10 ACCESS TO PI SERVICES

Availability of skills in the prevention and management of PI may also be influenced by the workforce within a particular service or whether or not a client can gain access to a service due to criteria or availability. Participants indicated that access to services was influenced by whether a service existed, and if so, whether a client could travel to the service and whether a client was willing to self-fund private services in the absence of public services and subsidies.

This in turn affected the participants’ ability to provide continuity of care to clients. Physiotherapists from the Transitional Aged Care Program and the Hospital-In-The-Home service, which offered home-based post acute care and programs to avoid inpatient hospitalisation, reported that they experienced difficulty in facilitating ongoing services once their period of provision had ended. Nursing participants from the same area health service confirmed the limitations of transitional and short-term services in meeting a client’s ongoing care needs.

Outpatient physiotherapy services, provided at the local hospitals, were identified as a potential alternative if the client could gain timely access. However, with staffing issues a common occurrence in outpatient clinics, there were significant difficulties for patients in accessing this service. This is illustrated in the quotes below.

“The other thing is, for me there is a lack of service. There’s no-one else to refer them on to. There is no community physio out here. If they need more mobility training and exercise progression and stuff like that there is not really anywhere for them to go, besides outpatient physio which is pretty short staffed as well.” (Megan, PT, community service, GD3)

“Where in our case, because our clients are on the books for a very short space of time in that pressure areas are usually the result of orthopaedic surgery, it’s more difficult for us to access those sorts of equipment because there is no intention of this client requiring the equipment long term for a
preventative measure because once the orthopaedic issue has been sorted out the PI concerns usually resolve.” (Margret, OT, community service, GD3)

In contrast to the circumstances described above, those that worked with clients who had access to funding for private service providers did not appear to experience problems with access. For example, a participant that worked for a catastrophic injury rehabilitation company that provides case management services, did not appear to experience difficulty accessing a range of independent service providers as part of a “multi-disciplinary wound care practice” (Nicola, CNS, private wound service, I4). Although, it is important to note that over the course of this project this service actually ceased to exist, as it was found to be financially unviable.

“We’re all independent - well, there’s internal and external people so there’s external independent physiotherapists and OTs that are private providers that I’ve linked in with. Every client’s different so you may go okay, this person may be good for this client, this person may be good for that client so it’s just about networking and making sure that you’ve got a handful of different professionals” (Nicola, CNS, private wound service, I4).

The quotes presented above illustrated how policies governing the funding and provision of services within the health system influenced client access to PI services, and in particular whether clinicians, in this case allied health professionals, could be involved in PI management, particularly preventative efforts.

5.11 ACCESS TO SKILLS

Participants from community settings described disruptions to continuity of care due to delays in finding out who to contact for advice about certain issues or assistance with dressings, as well as who had sufficient skills and was also able to attend to a referral in a timely manner. A particular area where all OT participants sought skills from another profession was in the management of wounds. They explained that they do not have sufficient knowledge and skills to dress wounds or remove dressings. An OT from community disability services reported that she had to locate nursing skills when a client developed a wound,
because she did not have the skills to make recommendations regarding the management of the wound. In this case, she sought the skills from another community based service she had heard about.

“So on my team there’s physios, OTs, speech pathologists, psychologists, and some case workers or social workers. We don’t have nurses on the ground in our community service. So pressure care, the role is pretty much seen as the domain of the OT. What would usually happen if I got a referral for pressure care, or I have – most of my clients have pressure care issues anyway, so you end up doing it as part of your intervention – so I’d be doing the risk assessment, and then as a result of that, I’d be recommending the equipment and then applying for funding. I use community wound nurses, which are really good. Once the skin’s broken, that’s when they’d be referred to – I’d get a wound care nurse involved for dressings, I don’t feel like I have enough skills in that area to make recommendations about dressings” (Penny, OT, disability services, GD2)

The experiences of participants representing other community services, particularly those from the disability sectors, were noticeably different. Participants from disability services identified that they worked in teams made up of a variety of professionals and non-professionals however, due to the diversity in service delivery models and other factors such as recruitment and retention, the make-up of teams and availability of skills change often. The occupational therapy participants from disability services both reported that they engaged in collaborative practice around pressure care. However, they reported that this more frequently involved physiotherapists, as often nurses were not available on the team.

“I do have a team within my office that I can work with but I guess what’s lacking in that is the nursing input which is really important. When I got a certain client recently, it took me quite a long time to work out who was the best person to refer them to. I think what would work would be to actually have a multidisciplinary team that has an OT and nurse.” (Jess, OT, disability services, GD1)
Community based care in particular was described as presenting significant challenges to preventative efforts. Status changes could not be detected as easily in community settings nor as rapidly attended to. In the quote below, a participant from community disability services describes how they usually received referrals for clients with PI at crisis points and identified that this is also one of the reasons why risk assessment was often obsolete for their client group.

“We are getting the ones that are in crisis with urgent and really bad skin breakdowns. So we probably could be using it [the Waterlow] more as a prevention tool say in the group homes”. (Jess, OT, disability service, FG1)
5.12 RESOURCING OF THE SYSTEM

Most participants demonstrated awareness of the fact that PIs were only one issue that the health system had to address amongst many competing needs. While participants were frustrated by delays in access to equipment they also realised that it was expensive and can be a drain on health resources if not managed appropriately. Many participants highlighted uncertainty and challenges in knowing which piece of equipment to prescribe in which particular situation. The consultant nurse from an acute setting in the quote below emphasises the important role of sound clinical reasoning skills in the effective and efficient use of existing resources.

“I know resources are an issue but we can’t just keep putting resources into something without some evidence to say what it is you need it for. I guess I would see that the resource issue is not just about material things, it is about supporting your decision making which is probably more of a gap I would say. There is so much equipment sitting around unused in I’m sure government storerooms and hospitals and old equipment loan centres and pools. So I think there is equipment there, I just think that what is used for who is more the problem.” (Libby, CNC, hospital-based service, GD1)

Participants from acute settings described mechanisms such as protocols and pathways, that were required by policy, to assist in the prescription of equipment. These mechanisms were felt to be important in not only adequately addressing PI needs, but also in ensuring the sustainable use of equipment by supporting health professional’s clinical decision making. While participants from community settings did discuss these mechanisms, they talked about their poor fit with community based practice due to the limited resources and the necessity of multifaceted assessment of a clients’ function in their own environment, in order to determine the most appropriate interventions amongst the available resources.

An additional problem linked to the transition from hospital to home was the need for follow-up care and monitoring of the equipment. OT participants were more concerned about this issue as they were predominantly responsible for
addressing equipment requirements. Ongoing monitoring of equipment was necessary for several reasons; there were policies which determine how long clients could access equipment, there were safety issues around equipment use that could only truly be assessed through observation of the client using equipment in their own environment, and there was also the potential to alter equipment needs to match improvements in function or changes in wound status and therefore assist in the sustainable use of health care resources.

While it was felt that PI policy stated that the health system was very interested in reducing adverse events and preventing PI, participants perceived there was a gap between this and the reality of the current capacity of the AHCS to actually enable a greater emphasis on preventative health. This was clearly evident in challenges with access to equipment for prevention. Access to resources was influenced by idiosyncrasies related to policy of provision between States and also individual services. Generally, access to resources was felt to be more problematic in community settings.

All participants believed that timely access to equipment was essential in the delivery of optimal care. This was perceived to be particularly problematic due to the potential for PI to emerge quickly and rapidly progress without appropriate intervention. Resources for PI management, their availability, accessibility and use formed a significant portion of discussions. Issues relating to the access of resources were most prevalent in community service settings and at the intersection between acute care and community based services.

The majority of participants from hospital settings felt that they had rapid access to resources for the prevention and management of PI. All of the hospitals represented had equipment contracts with private suppliers. In addition to this there were limited stores of facility purchased resources. This was indicative of its recognition as a health issue worthy of considerable resources.

“The wards have a maximum of two Roho’s - they either have one or two Roho cushions, but then over and above that they hire it and there’s a turnaround time of about three to four hours from when the order is put in to
when it’s delivered. And the air mattresses are rented too - except for a small amount of Roho mattresses that are available”. (Carol, CNC, hospital based service, GD4)

Policies governing access to equipment in hospital and also community based loan pools had a significant impact on what a clinician had available to them and therefore their ability to perform their role. For example, in the participant’s comments below it appears that resources are rationed and priority is given to those requiring equipment to help manage an existing wound. While this is appropriate and highlights the importance of budgets, it demonstrates the frustrating circumstance for clinicians in that they identify the need for prevention, yet they are constrained in their ability to do anything about addressing this need.

“The other problem is the loan pool that we all draw from for our clients, you actually have to have a pressure area before you can get a pressure cushion. You can't get it as a preventative thing.” (Wendy, OT, community service, GD3).

In care facilities where residents required lower levels of care such as hostels and group homes, equipment is less uniform. There was reduced availability of pressure care equipment and sourcing funding for equipment was problematic. As is demonstrated below participants from aged care settings attributed their challenges with available resources and access to additional resources to funding tools specific to aged care, lack of funding in aged care generally and poor knowledge and understanding of the issue by management, in particular the value of preventive measures.

Some participants expressed frustration as those that did not have sufficient understanding of PI often made decisions regarding the purchase of equipment. This was particularly prominent amongst participants from aged care settings, where the nursing home was responsible for the funding of equipment. It appeared that managers had competing needs, which they were required to address, including budget constraints and profit.
“one of the things I’d say to managers of facilities is that if you want to do a lease and buy plan, for example, you can lease for about $6 a day a really good overlay, until you own it. Once they develop a PI you’re spending at least $6 a day on the dressings, not even nursing time. So some managers can grasp that concept, others can’t.” (Philippa, RN, Private wound service, GD2)

“It’s all supposed to be funded under the aged care funding instrument, and the residential care manual states that unless there’s a customised item, that the facility has to provide it. But when you come to a roho cushion that might cost $800 – and this happened to me recently – certainly the facility, they say they can’t afford that.” (Hannah, PT, residential aged care service, GD2)

In contrast to the quote earlier, which demonstrated rapid access to equipment in hospital settings, all OT participants that worked in hospital settings described significant challenges in obtaining timely access to equipment. They believed that this affected their profession in particular, as they predominantly became involved in PI prevention and management when a patient requiring ongoing management was to be discharged from hospital.

“Restricted access to equipment for patients on discharge. We only have so much of certain things in loan pools and if someone’s from an out of area hospital then often we can’t access their loan pools and that sort of thing so that can make it hard for discharge planning, to get equipment for people.” (Sally, OT, hospital based service, GD5)

Overall, access to resources was a much more significant issue in community settings, than in acute and sub-acute settings where PI was considered to be quite serious. All participants from community settings described both lengthy application processes and extended waiting periods for equipment. Delays in accessing equipment were thought to be due to long waiting lists caused by limited availability of equipment through the publicly funded equipment program. There were mixed perceptions regarding the publicly funded NSW equipment program Enable, formally Program of Aids for Disabled People (PADP) as can be seen in the quotes presented below.
“So it might be six weeks before Enable decides that the person is eligible to access Enable and then they have to have their application for equipment assessed. So it’s like a two-step process and, yeah. So it means that going through Enable maybe two months that even if they did send out the equipment as soon as they approved it it’s still a minimum of two months, which is just too long if someone really needs equipment.” (Elle, clinical specialist OT, community service, 18)

“I think that people’s long term needs are met well through Enable. I think we can get the equipment that we need through Enable, we just - the danger period is that initial phase where they have nothing. But once somebody has been seen the process of maybe upgrading and changing to meet their needs over the long term can be done adequately through the Enable process. Because they’ve already got so some kind of pressure management equipment in place.

If you need to change that or upgrade it it’s not as desperately urgent as going from nothing to trying to get them something. Once we know them we can anticipate and plan ahead, I guess. So we have that capacity to do that and Enable’s good at that- I’ve never had any problems with Enable not wanting to fund additional equipment. If we assess and find that what they’ve got is inadequate they’ll provide what they do need.” (Helen, clinical specialist OT, community service, 18)

One participant working in the community disability sector suggested that her clients were commonly waiting a minimum of six months on equipment at the time of the group discussion.

“Not just lack of funding but lack of prompt funding of equipment. I have a six year old who has a grade 2 PI at the moment, it’s because of her wheelchair cushion, and she just needs a new wheelchair with a new wheelchair cushion, new seating system. But it’ll be a year before she gets it, because that’s how long it takes. (Penny, OT, community service, GD 2)
Again, participants noted that it was much harder to address a client’s preventative needs as access to equipment for this aspect of care was much harder to address.

“You identify the need and you do the assessment, you put a management plan in but you are sort of waiting, waiting, waiting for the equipment”. (Cassie, RN, community service, GD 3)

“We are all willing to take the action pretty quickly but there is a delay in getting the equipment”. (Jo, CNS, community service, GD3)

5.13 SYSTEM LEVEL CHANGE TO IMPROVE PI CARE

At the time the data was collected some participants noted that reviews of the state-funded equipment program Enable were underway and changes to application processes and criteria for prescriber skill were being phased in. Participants hoped that this would address some of the inequalities in access to resources for PI prevention and management, as well as result in the more sustainably use of resources. Over the course of this project it appeared that participants were experiencing some benefits related to these reforms, including increased collaboration, supervision from more experienced staff and a reduction in the prescription in of high-end equipment in unnecessary cases. This was an example of system level policy change for good.

“Enable has come under a lot of criticism for changing processes quite significantly. But I think this bed is a good example of where previously it could have been prescribed. But because of the processes and justification now required, this OT rang me and we were able to problem solve it, whereas, previously, that collaboration probably wouldn’t have happened. So it is a good example of how a change in a system has probably been for good not evil, even though there has been a lot of criticism about it.” (Libby, CNC, hospital based setting, I2).
However fragmentation of care and role confusion are still prevalent despite this positive change.

5.14 DRESSINGS FOR PI INTERVENTION

Access to dressings was also influenced by state policy, local policy, service setting and clinician skill. It is important to note that there were discrepancies in policies between states in regards to funding of dressings during the transition from hospital to the community both in terms of duration of time and also the type of dressing products that could be accessed. Access to dressings appeared to be less of an issue than PI equipment. Most nurses reported adequate access to a range of dressings. One exception to this was a comment from an RN from a post-acute care service.

“for me one of my biggest challenges is the appropriate dressings to treat them. We don’t really, in our service, carry a lot of equipment like dressings and stuff to actually treat the pressure areas. So that’s always a challenge for me, where I am going to get them from for all the users in the service.” (Julie, RN, transitional service, GD3)

This type of transitional service also experienced difficulty accessing equipment in a timely manner. According to participants, challenges with access for this service, arose as they were funded by acute services and therefore dressings had to be taken from the ward, yet the service was based in the community and the need for PI care may arise insidiously. Another nurse from this group discussion questioned the nurse about a policy of provision for a certain number of days, highlighting confusion with regards to access to dressings as a patient transitioned though various services.

“I understand though that transferring from service to service there is a policy of provision of dressing for one week. So you’re strictly post, you’re strictly transitional really, aren’t you?” (Jo, CNS, community service, GD3)
The quote below demonstrates how a client’s diagnosis can influence their access to follow-up care. It also shows inconsistencies in policies of provision for disposables such as dressings. For example, the CNC describes how dressings could sometimes be provided free of charge or alternatively the patient may be required to fund their dressings. According to this CNC it was influenced by the patient’s primary diagnosis and also the concessions to which they had access.

“Yes. So it’s the Royal District Nursing Service, and they provide services, but again the limitation is the patient has to be on a Health Card, so if they’re employed, they can’t access RDNS, or if they do they have to pay $80 a visit. Obviously people can’t afford that, so it’s not really available to them. So the only service that’s available for employed people is they can access a week’s community, like RDNS, for a week, but it’s called [PACFUN]. That’s only for a week, and after a week they have to sort their own provisions out, so the options there would be really only local doctor or the family.

That’s really limiting for people who are employed because this hospital doesn’t have a wound clinic, so if they don’t fall under - if their unit isn’t a unit that gets sent back to outpatients, and reviews wounds, they’re reliant on their GP. Sometimes their GP’s don’t do wound dressings, so it’s a big gap. RDNS - the problems are with dressings again, because the patients still have to pay for their dressings even though they’re under RDNS, so again it can limit your regime.” (Carol, CNC, hospital based service, 17).

5.15 THE INFLUENCE OF POLICY ON PI ASSESSMENT

The main risk assessment tools identified by participants included the Braden risk assessment scale and the Waterlow risk assessment scale. At the time of the group discussions and interviews those from the disability sector reported that their use of a risk assessment scale was not enforced by their service’s policy. They reported that it was personal choice to use the tool and that it was usually an adjunct to their own comprehensive assessment processes. In the absence of
any other formalised assessment tool they also used risk assessment scales as an objective measure to support clinical decisions.

“you know, right at the end of my intervention, where I’m writing my report for the funding body, and just to throw in a number according to this risk assessment scale, to sound professional”. (Penny, OT, disability services, GD2)

The OT participant below notes that use of a risk assessment scale score was actually a requirement of the Enable application process.

“we are having to put them in applications through Enable now for equipment. We need to show that we’re using risk assessment scales which I don’t think we have been using probably enough of because we’re more going in now with our background of going yes this person is higher … pressure risk but using those scales to support what we’re applying for. Everything is quite expensive when you’re looking at that higher end equipment.” (Jess, OT, disability services, GD1).

The quote below shows the manner in which the risk assessment tools then correlate to specific equipment or practices isn't clear and may be based on assumption rather than evidence.

“You can get the nurses to use a tool, but then the evidence isn't there to say which mattress should they have if they are a high risk patient, or something. It is still too hard, I think.” (Libby, CNC, hospital based service, I2)

5.16 IMPEDIMENTS TO CONTINUITY OF PI CARE

Many participants involved in the transition between acute and community services expressed an awareness of the need to provide follow-up care in order to meet both client need and also the need of the system for sustainable pressure management. Yet provision of adequate follow-up care appeared to be the exception, not the rule, as indicated in the quotes below. Participants explained how characteristics of the system made this difficult.
Nearly all participants identified the need to improve the continuity of care for those with PI issues. They described many aspects of the system which impeded continuity of care. As most care occurred in the community and the transitions in and out of acute services were identified as a particular concern, primary care was suggested as the service offering the most opportunities to enhance this aspect of care by coordinating care.

In the quotes presented below, the participants propose an alternative model, in which clinicians other than GPs may lead team based approaches to PI management within primary care. The OT participants in the final interview proposed that a more realistic approach may be for practice nurses to take a lead role in assessment and care planning, including referral to allied health, as part of team based approaches within primary care.

“we really need to form teams in the community, I think. The GP isn't the boss of the team - I think that's the problem. It needs to be the most appropriate person that knows the patient the best. But that's a whole new thing. But certainly from my perspective, I wonder who is responsible for people out there.”(Cynthia, CNC, hospital based service, 16)

“So maybe that as a trigger to flag a more comprehensive assessment [a client's mobility]. If they did have a practice nurse, getting them to do a risk assessment and identify how great is that risk, and do we need to refer to a specialist professional to look at intervention?”(Elle, OT, community services 18).

5.17. PROFESSIONAL ROLES IN PI CARE WITHIN THE HEALTH SYSTEM

As previously shown in the above sections the participants expressed confusion regarding role definition and responsibility in multiple settings. Due to the fragmentation of care and transitional nature of PI the roles of each professional sector in PI intervention is a significant factor that must be explored. The sections below attempt to show the participants' own definition of the roles and responsibilities for each profession.
5.17.1. Nursing

Participants believed that nursing was the professional group most often associated with PI care, and they believed that this was appropriate given their skill set, especially their well established role in wound care, as well as their traditional roles in personal care. For example, the nursing participants’ roles reflected the historical tradition of their involvement in this area of practice and research, their more constant connection to the patient’s bedside than the other professional groups represented and their opportunities for career advancement through specialisation in wound care.

Within acute care their presence at the patient’s bedside provided many formal and incidental opportunities to assess, monitor and maintain skin integrity. For example, while assisting with personal care tasks such as bathing, dressing and toileting. Nurses were noted as the professional group primarily responsible for the completion of PI risk assessment as part of admission paperwork and at specified periods informed by the PI prevention policy.

“when you talk about PI, everybody’s response is that it’s a nursing responsibility, because the nurses are there 24 hours a day and they’re the ones that provide the most care to the patients, and they’re the ones that always get blamed for the PI. It’s no one else. But it is everybody’s responsibility” (Libby, CNC, hospital based service, I1).

Within community settings, nurses were reported to be even more reliant on information from others due to their inability to be at the patient’s bedside with frequency. A range of nurses participated in this research including RNs, CNSs and CNCs. While ENs and AINs were not represented amongst participants, they were felt to have an important role in this area of practice due to the nature of their skills and involvement in core tasks around basic care and hygiene. Three of the CNCs were of the opinion that wound care was a basic nursing skill that with training and supervision can be carried out by AINs and ENs. Nursing participants reported that some areas of wound management including the use of certain dressings or techniques such as wound debridement should be carried
out by nurses with additional training in wound management such as wound CNC or RNs or nurses closely supervised by those with expertise.

All participants with specialist training in wound care were nurses, and they usually worked across wards and services. They were usually called in to work with any client who developed a wound that was beyond the skill of those with generalist training and required expert skills. As such, they had a consultative role, which offered clinical support and education and training, alongside policy development and some research.

5.17.2. Medicine

Participants from all settings felt that medical professionals had a role in the management of PI. The extent to which medical professionals involved themselves in PI issues was reported to vary based on their caseload, with GPs and geriatricians the most frequently discussed medical professionals by participants.

The demands on medical professionals was felt to prohibit an increased direct role in PI prevention and management. However, they were believed to have an essential role in facilitating access to other clinicians and initiating team based approaches, particularly GPs within community settings. Medical professionals’ involvement was felt to be hampered by their own awareness of their role. Nursing participants believed that medical professionals had long-held perceptions of PI prevention and management as a nursing role rather than a medical one.

Three of the CNCs from hospital settings identified that there had been gradual change in the knowledge and awareness of PI by medical staff. Several participants singled out geriatricians as a specialty that had recognised the importance of this issue amongst their caseload. In the quote presented below, it can be seen how the CNC believed that support from geriatricians had strengthened their PI prevention program and had contributed toward increasing awareness of this issue amongst all staff.
“now I think there’s something like five geriatricians that are really into skin integrity and prevention, which is making a huge difference, because they’re making it part of their rounds to raise the awareness of the junior doctors to assess patients and look at them on a daily basis. That’s helping reinforce the message.” (Carol, CNC, hospital based service, I7).

Most participants believed that GPs were an essential part of PI care due to their coordination role within primary care. A number of difficulties related to GPs’ current participation in this aspect of a patient’s care were identified by participants as including poor understanding of PI and its associated risk factors, competing needs and a lack of knowledge regarding the potential contributions of Allied Health to PI care.

“That’s then what brought me in to then liaising with her health care team that was involved so she was quite heavily linked into a lot of services, lots of different clinics at children’s hospital. I had to go to - because mum went to the GP and the GP was like I don’t really know what to do with this, maybe you should just do - like he just didn’t really know”. (Jess, OT, disability services, I2)

Participants discussed the role of GPs in coordinating their patient’s care, initiating some aspects of care and facilitating access to services within primary care. Some participants suggested that GPs were at times essential in gaining access to certain aspects of PI treatment such as equipment and medications due to their greater authority with private providers or being allowed to prescribe.

“I’ve talked to the CEO of the division of GPs to see if we can actually get something tee-ed up, so that GPs can actually prescribe. Because the [aged care] facility managers, I’m told, will do it if it’s a proper order from a general practitioner, rather than from me, the nurse”. (Philippa, RN, private wound service, GD2).

Another aspect of the system that influenced client access to services was its recognition of the GP as having the authority to determine and approve the funding of certain treatments and services, such as allied health. It is interesting to note that no participants discussed chronic disease management items nor
enhanced primary care program in relation to a client’s care. Participants singled out GPs as a group of professionals that were essential in facilitating access to skills and services within community settings, yet they also identified significant issues with this process due to their limited awareness of PI issues and their limited ability to attend to PI issues amidst heavy workloads and competing client and service needs.

“If someone’s got a wound it’s a lot easier just to put a band-aid on it and to walk away than to actually look into it and start saying to the GP or arguing with the GP that you need to get this, this and this or there may not be the funding for that to occur.” (Nicola, CNC, private wound service, I4).

“the GP would be the most common person I work with because they can’t do dressings everyday but I can’t prescribe, but if we work together the patient gets a good outcome” (Beth, RN, community service, CS2).

The challenges that the current roles and organisation of services along with funding mechanisms present to the management of PI issues was clearly evident in the previous few sections. The system ensures that GPs are in the position of leader, co-ordinator of care and gatekeeper in the community, but they may not have the knowledge or awareness to lead to PI management. Whilst we cannot be certain of GPs perceptions of their role, as there were no GP participants, the participants in this study suggested that system level funding mechanisms in their experience can inhibit efficient PI management.

Participants described working with GPs to identify and address PI issues and that further education of GPs about the PI needs of consumers as well as the potential contribution of other health profession’s was necessary. Others felt that GPs were unlikely to be interested in PI care due to competing needs and its perception as being a ‘nursing issue’.

“I feel really sorry for GPs, because the scope of their practice is massive, and I know they struggle with wounds - we’ve done a bit of work with our division of GPs talking about wound management, which is what they want to learn. I would suspect that a lot of GPs would see pressure prevention as nursing
business. I don’t think it is, because sometimes you’ve got certain patients that you need to work with medical practitioners to manage their behaviour so you can get them to do what you need to do. But I think most - I would suspect most doctors would say, that’s all nursing, which is a real shame. I don’t know that they’re that interested in listening to stuff about changes in pressure prevention….because they’ve got so many other competing demands.” (Cynthia, CNC, hospital based service, 16)

5.17.3. Allied Health

Allied health participants perceived that their role was quite variable, generally less understood, and tended to be influenced by their own and others’ awareness of their ability to contribute to PI care. Allied health involvement appeared most prominent within community settings, followed by acute services settings. Some allied health practitioners may need to develop skills if they have an interest in PI due to the absence of other health professionals.

The culture and the expectations of the service in which they worked affected the role of allied health practitioners in the community, as well as their caseload and the mechanisms available to support their involvement, such as referral systems integrated into pathways and protocols required by policy. However, these mechanisms were more characteristic of acute service settings where allied health were readily available when necessary.

5.17.4. Physiotherapy

Participants from community, acute and aged care settings believed that physiotherapists have skills in the management of positioning and mobility. In acute settings PT was involved in assisting clients to mobilise early post surgery, developing these skills over time, and then assessing their readiness for discharge home.

The physiotherapy participants identified roles in educating nursing staff and families about safe transfers and mobility. Additional aspects of their role identified included providing advice to nursing staff regarding frequency or
turning and positioning and ensuring the correct use of equipment related to seating.

“Most of the kids that we see with CP, who spend all their days in wheelchairs, rarely get sacral pressure areas. Okay, getting pressure areas on their feet from splints and orthotics, AFOs, sometimes bracing, if they have a back brace or something like that. But rarely on their sacrum. So that is telling me that the OTs and probably some physios, are doing a good job at prescribing the cushions”. (Libby, CNC, hospital based service, II)

As explained by the PT below, the nature of their role means that they are always assisting with the prevention of PI by promoting mobility. Although they are not always thinking PI.

“I’m a physiotherapist and I work in the community. I work closely with the OTs to look at preventative measures for wound care, so whether it be keeping people mobile, looking at people with chronic diseases. I also work at treating people with wounds in terms of exercise and working on, you know, increasing circulation and decreasing swelling.” (Mary, PT, community service, GD3)

5.17.5. Occupational Therapy

OT appeared to be the most established allied health profession in community PI care, due to a recognised role in seating and equipment prescription. While involved in some aspects of PI care within acute settings they were employed to deal with acute issues, and OT participants noted they had limited capacity to address longer term PI needs. This proved to be a source of frustration for OTs based in acute services as they were the professional group primarily responsible for discharge planning. According to both nursing and OT participants from community and hospital settings, the key indication for OT involvement tended to be complexity of the pressure care issues, the need for consideration of function and pressure management and also consideration of environmental factors and pressure management including discharge to community settings.
Community therapists described how they were responsible for following up equipment needs post discharge. As can be seen in the quote below, OTs were recognised as a prescriber by the government equipment program. This appeared to support them in their role as specialist equipment prescribers with skills in complex functional assessment related to the use of equipment in everyday life.

“For any client who’s say been discharged from hospital, the hospital OT has to provide for all their immediate needs to make sure they’re safe. But then we take them on to work out what they need for the long term and do the Enable applications and everything.” (Helen, OT clinical specialist, community service, 18)

Participants described the change in how OTs were being used in PI care. Two OT clinical specialists from a community health centre described a change in their practice in the last 6-7 years. They believed that the OT role in PI care had grown due to the increased demand for the management of longer term PI needs, as well as greater awareness of the potential contribution of OT within their particular service. These contributions included assisting nurses to put strategies in place to help heal a wound, such as equipment and education.

The OT participants believed their unique contribution lay in their approach to assessing the client’s function within their environment. This included an understanding of the way in which the completion of everyday activities such as self-care and transfers may contribute to PI development. The way they implemented and evaluated PI interventions based on a functional assessment of the client within their own environment was in addition to their traditional skills in seating and wheelchair prescription.

“I see a huge role in OT as well. We do education of someone whether it be the client if they are cognitively able or their family members”. (Jamie, OT, hospital based service, GD5)

“I mean from an OT profession, is that the role that the OTs can play in assisting, you know, the nurses to actually put strategies into place to help heal a wound. I think that that is a fairly recent phenomenon. When I say
recent, I mean in the last six or seven years, that nurses have been aware of the variety of equipment and because they are so pushed and they are so busy they say well OTs do equipment. So I think as an OT profession it has sort of grown, we’ve grown in that area because we’ve had to because we’ve been getting the referrals.” (Elle, OT, community service, GD3)

5.17.6. Dietetics

In spite of having one of the more clearly defined roles several participants believed that more work was required to raise the profile of Dietetics in PI care. OTs and Dieticians from community settings felt that there still remained some limited understanding of the range of interventions a dietician could offer in the prevention and management of PI. Those identified by participants included; assessment of nutritional risks, monitoring of the nutritional status and diets for inpatients, as well as providing dietary advice and supplements. These interventions were used within acute and community settings, although, there were additional challenges in terms of implementing interventions within this setting due to greater client autonomy in terms of food choice and preparation, less access to resources such as funding for supplements, greater challenges in monitoring weight, and the absence of a centralised meals service as was available within acute settings. Dieticians were not involved in equipment prescription.

“My role is to help educate clients on the importance of good nutrition for the prevention of wounds and for wound healing”. (Annette, DT, community service, GD3)

“I’m currently working mostly in sub-acute. I think it’s early identification of those people that are at risk mainly of malnutrition, because we know that they’re the types of people that often lead on to developing PIs, or those that actually have PIs that are not healing very well because of their nutritional state.” (Katrina, DT, hospital based service, GD5)
5.17.7. **Other allied health professions**

The contributions of other clinician groups were also raised including social workers and psychologists. Particular contributions were noted to be around assisting those with chronic conditions, particularly pain, to feel more motivated to participate in care.

“If they’re [patient with PI] psychologically not coping I will ensure that a social worker or a psychologist is able to come out and see them so it’s a very comprehensive model, multi-disciplinary team.” (Nicola, CNC, private wound service, GD1)

Participants also mentioned podiatrists as an important resource in the management of skin integrity and assisting with wound healing around the feet. These services were noted as essential in the management of those with diabetes, and also important in the use of casting or the application of orthoses around the foot.

5.18. **NON-PROFESSIONAL CONTRIBUTIONS**

Participants highlighted the fact that a significant amount of hands on care critical in PI management is actually provided by associate professionals such as AIN and occupational therapy assistants (OTA). Participants from community settings in particular recognised the essential role of support care, both formal and informal, that are providing the bulk of the care. This included family within the home environment as well as agency staff from government and non-government care agencies. Staff within residential aged care were identified to be predominantly non-registered nurses such as ENs and AINs. Group homes were reported to have limited RN involvement with the bulk of care being delivered by AINs, EN and laypersons without any formal qualifications aside from in-house training.

This demonstrated how PI management was an all of service responsibility, and was illustrated in descriptions of the contribution of non-clinicians in PI.
However, these groups could be better supported to complete their roles in PI care.

5.19 EDUCATION AND TRAINING SYSTEMS

Participants talked about how various professional groups contributed to PI care. They described an individual’s professional background and associated education and training as influencing their role in PI management. Education and training at the service level, was also raised as an influential factor upon an individuals’ practice in PI care. This included formal professional development opportunities, as well as supervision and informal training delivered by peers. These aspects of education and training are discussed further in the clinician level chapter.

“Surgical doctors are interested in the operation and if the patient is okay. They don’t think about PI. They never look at their patients to see whether they are developing a PI, because that’s not the way they’ve been taught, and it’s not their focus”. (Carol, CNC, hospital based service, I1)

There was a perception amongst participants that policy and guidelines described PI prevention and management as an “all of service responsibility” (Libby, CNC, hospital based services, I1) with many participants expressing frustration that not every clinician was contributing to PI. Additionally, some participants felt that existing skills amongst the workforce were not being mobilised as effectively as they could be toward PI care. In the quote below a clinical nurse consultant states that allied clinicians were not supported by the necessary education and training opportunities that would enable them to assume a more active role within acute services.

“It’s a medical responsibility to be doing a head-to-toe assessment when they do their rounds, when they’re seeing patients. It’s a nursing responsibility, and it’s also allied health, but I don’t think that the education has extended that far yet” (Libby, CNC, hospital based service, I1)
5.20 SUMMARY

The findings highlighted system weaknesses during transition of people with PI across services. Problems occurred around lack of information sharing between services, breakdowns in the care process caused by lack of awareness and knowledge, as well as variable service availability within community service settings. This occurred for a number of reasons including inadequate discharge planning caused by insufficient time for planning and organisation as well as problems with timely access to skills and resources. Additionally, participants described a gap between the standard set by PI policy and how the system supports clinicians in applying these policies – for instance, the organisation of services, workforce policy and policies of provisions affecting client access to resources.
5.21 DISCUSSION

The key concepts that summarise the findings are around the challenges and pressures inherent in i) the influence of biomedical approaches to policy, ii) a lack of policy to manage service transitions, and iii) the unintentional fragmentation of care. System level issues which were noted by participants as impacting on their practice in PI management will lay the foundation for the discussion of the issues occurring at the client level. It will also lead into the factors occurring at the clinician level. It is important to acknowledge that details relating to system level issues were mainly gleaned from participants directly involved in delivering client services and not from representatives of managers of the system itself. Many of these participants were recognised and credentialed leaders in PI practice and they had significant experience in policy development at a national, state and local level. They also had experience working with those directly involved in the financial management aspects of health service delivery. It should be noted that when referring to ‘health services’ throughout this chapter, this denotes the services that participated in the current research project.

5.22. THE ORGANISATION OF PI SERVICES

The health service setting influenced how clinician participants could address PI needs. The extent to which clinicians could address PI needs were based on the policies governing the provision of services. Criteria for services also determined which clients could access a particular service and the resources available to address the clients PI needs. The findings indicated that the health service setting was also very influential upon the way in which clinicians worked together. The setting determined who was available to provide care and what responsibilities they were employed to carry out.

The findings suggested that hospital settings are high-risk environments for PI development and the ease of access to resources experienced by those in this setting was deemed appropriate. One exception to ease of access was the
intersection of hospital based and community based services where accessing PI equipment resources and skills became challenging due to differences in skill levels, waiting lists, financial incentives and disincentives, and competing priorities amongst community services.

The findings demonstrated that there were many useful aspects of PI management within hospital based services that appeared successful. There appeared to be limited scope for enhancing inter-disciplinary approaches to PI management within this setting, as there were already existing pathways and protocols in place and ready access to a range of medical and allied health services as necessary. This presented some ideas for enhancing approaches to PI management within community services settings whilst bearing in mind the unique characteristics of community service settings.

The findings highlighted the significant differences between residential aged care and health services. Firstly, patients who require placement in long term aged care are debilitated with impaired functional status and are in need of twenty-four hour nursing supervision and support (Takahashi et al., 2011). Secondly, the residential aged care workforce was very different and was mainly comprised of AINs and ENs. Participants highlighted the importance of developing specific educational requirements for residential aged care workers due to the fact that they tended to be less skilled and experienced than RNs. These educational requirements included hands-on training and observation as well as plain language explanations rather than extensive medical terminology for this group of staff (Xakellis, Frantz, Lewis & Harvey, 2001).

Long term residential aged care appeared to have very limited options in terms of creating inter-disciplinary approaches due to the limited presence of both allied health and GPs within these facilities. There is unlikely to be greater scope for their involvement in the near future given the very limited funding mechanisms promoting employment of allied health within these facilities. This highlights the way in which the system views residential aged care as ‘the end of the line’ rather than a ‘health’ service. Further research specific to the needs of
residential aged care is required, given that both the findings of the current project and previous literature identify a role for GP services in supporting facility management. It is for the reasons, just outlined, that in spite of PI management being an important issue in residential aged care, it will not be dealt with further in this thesis, and warrants a separate study.

Findings confirmed that community service settings present unique challenges to those that provide services within this health setting as well as to clinicians who interact with these services, such as those involved in addressing PI needs during the transition from hospital based services to home. Community care and in particular community nurses are known to be faced with challenges such as a lack of control over the environment (Whitlock, 2013). In her article Whitlock (2013) describes the introduction and use of a 'bundle' of evidence based interventions designed to prevent pressure damage across health care settings. While reporting some gains across primary, community and intermediate care divisions, challenges in the delivery of care within the home environment were highlighted. The author states that there was 'an unexpected dilemma between providing proactive and reactive care. Proactive prevention of pressure damage for all is more resource intensive than reactive treatment for a few.' (p. S39).

Others have similarly identified the challenges in providing proactive care within Australian community services settings (Lewin et al., 2007). It is also known that acute services tend to receive a very high proportion of the allocated funding for healthcare (Duckett & Willcox, 2011; Palmer & Short, 2010). There is a need for development of specific supports for PI management within community services settings and an efficient use of resources. The findings suggest that it will always be challenging to address all PI needs. Studies that have explored risk factors in community service settings highlight a very diverse range of potential risk factors (Bergquist-Berger & Gajewski, 2011; Clark et al., 2006; Takahasi et al., 2011). However, prevalence data relating to the community setting are generally agreed to be incomplete and of indifferent quality (Hopkins & Worboys, 2015; Stevenson et al., 2013).
Participants from community settings were the second largest practice group represented. This group reflected the diversity for which community service settings are known. Participants from community settings identified a difference in their involvement in PI prevention and management. They believed that PI needs of their patients were more around fluctuating levels of risk and intermittent crisis management that occurred over the course of ongoing care, rather than a preventative short term focus typical of acute services. However, the incidence of PI appears far lower in community settings due to the nature of the client group. The community population is generally thought to be less at risk than those that are hospitalised as they often have a range of characteristics that act as a buffer and may help to prevent them from PI. Buffers include mobility, independent participation in a range of everyday activities, the absence of acute illness and carers who are knowledgeable about their individual needs (Paquay et al., 2008).

Information gathered about current practice within various health care contexts demonstrated that PI need varies across practice contexts. This knowledge about PI need combined with an understanding of the strengths and weakness that each health service context presents in addressing PI issues, is vital to understand current resource use, and improve it.

5.23. PI NEED

The findings demonstrated that the need for PI prevention and management varied across health service settings. The experiences and perceptions of participants regarding current practice and approaches to the management of PI more broadly within the AHCS developed a picture of PI need. The findings suggested that clinicians faced a number of challenges in addressing PI care needs and that many of these challenges stemmed from the way in which the health system behaved.

The findings suggested that there was often a gap between what a clinician felt that they were expected to do, as defined by clinical practice guidelines and PI
policy, and what they could actually achieve given the current organisation of services within and characteristics of the health system. Specific challenges highlighted by participants included difficulty meeting increasing demand for PI management amidst competing needs and delays in clients accessing skills and services in a timely manner, stemming from system characteristics that fragmented care. They also highlighted difficulties in accessing resources in community service settings due to the way in which policies of provision prioritised treatment of wounds over prevention.

Clinician perceptions of PI need were shaped by their education and training, either indirectly or directly related to PI, and their interactions with others including fellow colleagues and managers as well as their awareness of the clinical practice guidelines and policy documents about PI care. All of which contributed to there being a perceived impression from the participants that there was a systemic culture around PI management that did not correlate with PI need. It is important to note the significant work of groups such as the IHI (2011) in supporting practice change in relation to PI management and other aspects of quality and safety across health systems internationally. The IHI (2011) has reported changes in clinician behaviour to reflect positive PI practice through the promotion of concepts and strategies for improving care, such as their Model for Improvement, which incorporates small scale Plan-Do-Study-Act cycles to support implementation of change, followed by the spread of change to other parts of the organisations or other organisations. Further information related to the IHI in shaping practice was provided in section 2.5.

While the role of financial penalties, in changing clinician and system behaviour were only rasied by one participant, this is likely due to the fact that these penalties had not been introduced in Australia at the time the data was collected. Both final penalties and the benchmarking of PI data across services is now a requirement across several states in Australia and counties internationally, and this has been reported to have a positive impact on reducing avoidable harm to users of health services (NPUAP/EPUAP/AWMA, 2014; Miles et al., 2013; IHI, 2011). For further discussion of clinician behaviour and the influence of
education and training and other supports achieving change can be found in section 7.11.

The findings suggested that clinicians were not convinced that general approaches to the prevention and management of PI were meeting the needs of all clients and services. The existing mechanisms to assist clinicians to provide PI management were felt to offer limited support to clinicians in addressing PI needs as they did not give sufficient consideration to the influence of health service context, nor the natural history of PI (ACSQHC, 2011; AMWA, 2012; Asimus et al., 2011a; NSW Health CEC, 2012). For example; there appeared to be some differences in the types of skills and supports required by clinicians working within community services in order to better enable them to reach the standard set in clinical practice guidelines and PI policies.

5.24. COMPETING NEEDS

The findings suggested that there was a gap between what the system defined as PI need through its existing policies and mechanisms for PI management and what was perceived to be necessary to meet real client need for PI management, based on the experiences and perceptions of participants. The findings also demonstrated an increasing demand for PI skills, especially within community service contexts. Participants believed that this was due to increases in the need for chronic complex care, associated with longer life expectancy and survival following significant trauma. The findings confirmed that there was a need to re-orientate health services to better support the management of longer term PI needs and support clinicians to achieve PI policy goals within the context of the health system.

The findings uncovered a range of unmet needs in PI management from the system perspective, described as felt need (Bradshaw, 1972). Most participants were frequently involved in PI management and several were experts in the field with specialist training and significant levels of involvement at national, state and local levels of policy development. Therefore, it is very likely that
experiences and perceptions of participants regarding current practice and the need for PI services across various health service settings represents real need (Bradshaw, 1972).

Clinicians were acutely aware of the limited capacity of the health care system to address all health needs. This was evident in comments about budgets, the importance of supporting sound clinical decision making, and the need for mechanisms to enable the review of interventions, in order to ensure that sustainability of resources was addressed alongside client need for PI management. Given limited health care resources, careful consideration of the best way to use these resources towards an enhanced approach to PI management, that may go some way to meeting ‘real’ need, is required. Further discussion of the heath economics related to PI management can be found in section 2.7.3 and section 5.33.

As community service settings are known to have lower levels of resourcing, there is great diversity in the range of public and private providers, and the population that access these services is likely to have a range of levels of PI need. Determining what level of need it is appropriate to try to meet in community service settings, and the most effective and efficient way to go about addressing this need is a complex and necessary process for health services. The characteristics of the health system that contributed toward the unmet needs for PI management, which were uncovered in the findings, will now be described.

5.25. FRAGMENTATION OF CARE

The findings highlighted several ways in which PI management became fragmented by the characteristics of the health system. These were related to policies influencing how clients gained access to services and resources such as PI equipment and the way in which skills were organised within the health system. For example, due to the natural history of PI, it was vary rare that PI was the sole health issue requiring management and it often occurred as a result of multiple system failures and would therefore be managed as a secondary issue.
As a result, access to PI management generally occurred through a client's primary diagnosis. Therefore, the skills and the level of resources in relation to PI care, to which the client had access, were influenced by their primary diagnosis.

The findings demonstrated that meeting the preventative needs of clients was often more challenging than treating existing PI. This was evident in both policies of provision and also the group discussions and interviews referenced in this chapter. Health services and leading professional groups have laid down a desirable standard by suggesting in guidelines and policy that clinicians should be able to detect all patients requiring PI prevention and implement appropriate strategies in order to prevent PI occurrence (ACSQHC, 2012; AWMA, 2012). In contrast, the findings highlighted the reactive orientation of all clinicians regarding PI within the current system.

Issues occurring at the system level which impacted on proactive approaches to PI prevention practice were similar to those documented in the literature. For instance the system’s ability to meet a wide range of needs with finite resources, as well as the reactive rather than proactive nature of the health system, makes significant change to improve continuity of care and preventative care difficult (Duckett & Willcox, 2011; Swerissen, 2008).

While need has been defined as being broader than states of illness and inclusive of the need for prevention and health promotion, the health system is currently not geared for this type of approach. Many have argued for a shift in care away from an emphasis on the provision of acute curative services and towards preventative public health strategies. This type of approach is unlikely for PI as they affect a small sample of total population and they have a complex and multifactorial causality, which makes allocation of resources challenging (Lewin et al., 2007; Palmer & Short, 2010; Thomas, 2013).

The findings suggested that there was variable access to PI services and that there were differences in access across client groups and health service settings,
therefore, there are areas of unmet need in both PI prevention and management (Bradshaw, 1972). While the effect that this has on client care will be illustrated further at the client level, it is important to understand why the health system behaves this way and how this impacts on care at the system level. Some client groups had better access due to their primary diagnosis. For example, those that had neurological issues such as SCI tended to have better access to PI services than those who were frail aged. These services also tended to place more emphasis on PI care and had staff with greater knowledge of PI and better access to resources. While participants felt that this was appropriate, they believed that more could be done to improve access for other clients, particularly the frail aged and those with chronic conditions. Due to increasing levels of multi-morbidity and associated needs, management of secondary conditions has become an increasingly important concern for health services (Callaway et al., 2015; White et al., 2011).

The biomedical orientation of the health system contributed to unmet PI need as access to PI services was influenced by a client’s primary health need. However, the biomedical model has been noted to contribute toward the fragmentation of care by orientating care around diagnostic groups based on disease categories (Heath, 1999). As PI is often the result of multiple system failures and presents alongside other co-morbidities, it is usually managed as a secondary issue. As access to PI care was described by participants as being organised around the primary health need, this influenced the types of skills and resources that a client received. Access to clinician skills were also inhibited by workforce policy. For example, if a clinician was not employed or funded to work with a particular client group then access to their skills was impeded.

An alternative to the biomedical model is the biopsychosocial approach illustrated by the International Classification of Functioning (ICF) (WHO, 2002). Using this framework in education and training related to PI management would provide a shared framework across professions and specialties, and therefore assist clinicians from various professional backgrounds and clinical settings to find common ground. Education and training has been demonstrated to
influence clinician practice within PI management and also more broadly (Ham et al., 2015; Lewin et al., 2007; Paquay et al., 2010). A biopsychosocial approach may assist clinicians to understand the importance of secondary issues such as PI, as well as the range of factors that might contribute toward PI development, such as difficulties participating in self-care activities, nutritional status, mobility or the need for assistance with personal care. This approach involves prioritising maintenance of health, activity and participation as the primary focus of the health system, as opposed to the current focus on treating disease (Engel, 1977, 1979; Palmer & Short, 2010). Despite the recognised benefits of a biopsychosocial approach to care particularly for those with chronic conditions, it remains poorly embedded in practice (van Dijk-de Vries, Moser, Mertens, van der linden, van der Weijden & van Eijk, 2012).

The findings also highlighted how ways in which the system influenced skills development opportunities also had the potential to increase fragmentation of care. For example, leaders and experts in this field, who participated in this research, clearly identified that specialist skills have an important role in providing high quality care through expert knowledge of existing and new health care procedures, techniques and technologies, as well as their role in supporting clinicians to deliver care and develop new knowledge and skills. However they also believed that too great an emphasis on the development of specialist skills had also contributed toward the fragmentation of care. Participants noted that clinicians would at times make a referral to a specialist straight away rather than trying to develop their own skills in PI management, and this they felt contributed to de-skilling amongst clinicians in the area of PI care.

Participants noted that achieving changes in practice and health service delivery, was in their experience, challenging. This was evident in their identification of the need to strengthen preventative approaches in order to address unmet need and the limited degree to which they thought that this would actually be possible within the current configuration of the health system. The limited capacity of the health system, more broadly, to achieve significant change has been widely discussed in the literature (Duckett & Willcox, 2011).
While some aspects of the health system may be enhanced through incremental change, significant change is very unlikely to occur in the short term. A reason for this is the complex and interdependent nature of the relationships between all components that combine to create the health system, which makes the planning and implementation of interventions complicated and time-consuming. There are also limited funds with which to instigate change and careful consideration of potential input (resources) and likely output (effectiveness) is necessary. This includes outcomes for clients and the whole system, as well as professional groups and individual clinicians (Duckett & Willcox, 2011; Duckett, 2008a; Palmer & Short, 2010; WHO, 2009).

The current study has shed light on the way the health system influences PI care by exploring current practice across a range of health services and in particular, by developing understanding of PI management within community service settings and during transitions between services. The range of health services that clients with PI needs may encounter also created potential for fragmentation of care processes, which impacts on continuity.

One way to address fragmentation may be to promote the development of professionals that offer generalists skill sets. The importance of generalist roles and skills in combating epidemiological and workforce changes is recognised (Duckett, 2006). Traditional approaches to the use for the workforce had flow on effects for PI management. The growing role of OT in PI management as evident in the findings of the current project and the literature suggests that generalist skills are particularly useful and adapt well the management of secondary conditions such as PI. This is also supported by other studies which have explored the role of OT in PI management within Australia (Macens et al., 2011; Rose and Mackenzie, 2010). A problem with this approach at the present time are the delays in accessing OT services due to lengthy waiting lists for services.

Another way of overcoming fragmentation caused by specialisation is to strengthen team based approaches. Team based approaches are becoming more
necessary due to a range of factors. Some of these include increasing
specialisation within health professions that is thought to cause fragmentation in
disciplinary knowledge and therefore greater need for input from a larger range
of clinicians in order to meet client needs, complexity in care needs caused by the
increase in chronic disease and the complexity in skills and knowledge required
to provide comprehensive care, as well as a policy emphasis on improving
continuity of care (Nancarrow, 2013a).

All participants discussed the realities of practice within Australian health care
settings including competing needs and the need to prioritise issues. In addition,
amongst the participants’ descriptions it seemed that PI was rarely the primary
reason for health service input. As demonstrated in the data PI is usually a
secondary condition and client access to services occurs via their primary
diagnosis. This in turn impacts on the skills and resources available for PI
management.

The findings demonstrated how certain caseloads were reported to demand
greater involvement in PI prevention and management regardless of
professional groups and these were nominated by participants from acute
settings as including intensive care units, burns units and orthopaedic care.
Based on their descriptions, participants felt that PI was just one concern for
health services that sat amongst many others and that as a result PI was often
relegated to secondary status. This was evident in participants’ descriptions of
the coordinated approaches at service and state levels that lost momentum due
to a sudden reallocation of resources by the health department or management
to other more pressing health issues.

These experiences align with the literature which is recognising the disparity
between the dominant approach to health-care delivery, medical research and
clinician education, which reflects individual diseases and the challenge
clinicians face in effectively managing multi-morbidity and competing health
care needs (Barnett et al., 2012; HWA, 2011a, 2011b).
5.26. SYSTEM LEVEL INFLUENCES ON PI PRACTICE

The findings demonstrated a range of system level influences on the way in which clinicians use their skills toward PI care. As described earlier in this chapter, the role of individual professional groups was strongly influenced by the health service setting in which they were working. These influences appeared to constrain the use of the workforce in PI care, with many participants describing that their skills were not recognised or that they were not really sure how they should be using their skills towards PI care. This was particularly evident in the case of the use of OT skills within hospital based services.

Based on the findings, the health service context was very influential on PI practice in that clinicians were employed to perform certain tasks. For example, those OTs working within acute settings were employed to deal with acute issues and this made it particularly hard for them to address ongoing PI needs, even though they identified the need to do so. The way in which health services employed and used their staff appeared to follow traditional roles for professional groups within certain health service settings. This was evident as existing clinical practice guidelines actually offer reasonable flexibility in terms of which clinicians can perform what tasks, yet current practice within Australia represented far less flexibility in the use of professions, in particular allied health, than exists in other countries (Guihan et al., 2009; Nancarrow, 2015).

The influence of various education and training systems were evident particularly when participants expressed concerns about ‘stepping on toes’ or concerns about the ‘politics’ involved in taking on specific roles thought to be associated with a specific professional group. Participants did not refer to undergraduate and postgraduate training often in relation to where they received knowledge about PI care, nor in reference to where they felt it should be obtained. Some of the OT participants referred to a training program provided by their professional associations yet most participants did not specifically mention the role of professional association in shaping practice. More participants mentioned education and resources provided by the health service
in which they were employed. The AWMA, which is a multi-professional skills based association, was referred to most often.

5.27. ROLES AND PROFESSIONAL GROUPS INVOLVED IN PI CARE

The skills of nurses in wound management within all settings place them at the centre of PI care. Their role as the most constantly present clinician within acute services further affirms this position. In terms of professional groups represented, nursing was predictably the largest group represented reflecting their status as leaders in PI care and research, which stems from their historical role in health care, their scope of practice, their significant contribution to the body of knowledge supporting practice in this field, and the existing education and training opportunities that enable them to take lead roles across the spectrum of wound care skills, from basic to specialist wound care (Asimus et al., 2011a; Romero-Collado et al., 2013).

The use of the workforce towards PI care appeared constrained by traditional perceptions of the health workforce, in particular the established health professions. This was in spite of the fact that changes were already occurring in how clinicians used their skills toward PI. This was most evident in the case of OT. With OTs forming the largest group of allied health professionals to participate in the current project, the findings have confirmed a growing role for OT within PI care, reflective of a recent trend within the literature (Geisbrecht, 2009; Macens et al., 2011; Rose & Mackenzie, 2010; Stinson et al., 2013a). As identified in the literature review the role of podiatrists in wound care is already well established through their work in the prevention and management of foot ulcers (Bergin, 2009; Butters, 2011). For clinicians such as social workers and psychologists, wound care would be outside of their scope of practice. The role of these particular groups in PI care is likely to remain focused on counseling and educational interventions, rather than the delivery of ‘hands-on care’.

The geriatrician, as the sole medical professional that attended the group discussion, highlighted the relevance of PI care to the aged care client group.
Medical staff may view PI as being more of a nursing issue and perhaps have a limited knowledge of PI management, as well as less awareness of their role in PI care. A number of studies have identified similar issues as affecting medical professionals practice in PI care (Cox et al., 2013; Romero-Collado et al., 2013).

While some findings and literature suggest that there is limited scope for involvement of medical professionals in PI management, GPs have a particular role in enabling access to care and this warrants further investigation. As funding in community settings is likely to remain linked to GPs, investigation of ways to support them in their recognition of PI issues and in establishing processes to assist them to easily manage PIs, for instance through delegation to a practice nurse is necessary.

5.28. ENCOURAGING MULTIDISCIPLINARY APPROACHES IN PI CARE

Based on participant perceptions a truly multidisciplinary approach in which representatives from all professional groups make a contribution to PI management at all times is neither feasible nor necessary in every case. However, some participants were of the opinion that certain client groups in particular settings would benefit from multiple clinician skills. Alterations to existing professional roles in hospital settings such as altering the involvement of hospital based OTs may not be the most efficient nor the best place to make lasting change in approaches to PI prevention and management.

There may also be scope to strengthen team based care through the development of competencies and revisions of scopes of practice by professional associations. Given the extent of the overlap in PI tasks undertaken by clinicians, it may be prudent to consider the necessary skill-mix required to meet both health system and client needs in PI care and determine the necessary supports to drive a fresh approach. The existence of significant overlap suggests that there may be scope for even greater sharing of tasks given the appropriate education and training opportunities and additional systemic supports.
The findings outlined many influences on what tasks clinicians undertook in PI management. While there were subtle differences in approaches to PI, and certain professional groups and individuals possessed specialist skills, many of the skills necessary for PI management were shared across professional groups. Despite this, participants involved in discharge planning from hospital settings and those involved in the provision of community based PI management experienced delays in accessing services. Participants suggested that there was more flexibility within the existing workforce than is currently recognised.

Several examples of up-skilling of health professionals, associate professionals and laypersons in PI management were described. These included, ENs being trained to take on additional tasks in wound care by wound CNCs, community based health professionals, such as nurses and OTs assisting lay persons to be involved in PI management and clinicians providing training for other clinicians in PI management.

If professional groups outside of nursing and medicine are to have a greater role in PI care, professional associations would have a role in influencing scopes of practice, and establishing the necessary competencies required. These competencies would have to be approved by the registration boards, which set registration standards for practitioners. These processes should also include the determination of competencies for associate professionals, as well as the consideration of what tasks can be delegated to formal and informal support care (AHPRA, 2013). The existing examples of PT and OT involvement in wound care demonstrates the possibility of expanding therapists’ roles in PI management. Expanding clinician roles would have to be supported by changes to regulations in order to ensure that clinicians are legally able to perform these tasks. There are currently limited postgraduate opportunities for allied health in PI management and this will need to be addressed if allied health practitioners will take a greater role in PI management.

Health service context also appeared to influence professional roles in PI care. For example in community service settings there was felt to be less of a career structure and limited opportunity to develop skills in PI as clinicians did not
have the same opportunities for supervision and incidental education compared to acute settings. Supporting the workforce through the creation of career pathways with embedded formal educational opportunities for skill development, has been identified as essential in primary care – for instance with practice nurses (Halcomb et al., 2014; McCarthy, Cornally, Morna & Courtney, 2012).

5.29. ACCESS TO PHYSICAL RESOURCES FOR PI CARE

The findings suggested that access to resources for PI prevention and management was a significant issue, especially access to equipment. The supply of equipment and disposable wound care products differed across health service settings. While acute services were described as well-resourced with clear pathways for rapid access to PI equipment, those from community service settings perceived that PI as a health need was not always allocated sufficient resources by service planners and administrators. The disparity between resourcing of community and acute services is well acknowledged (Commonwealth of Australia, 2009a, 2009b; Palmer & Short, 2010; Paquay et al., 2010). Several studies have identified shortcomings in aids and equipment programs including waiting lists, substantial levels of unmet need, complex application processes and eligibility criteria, waiting times for repair and access to loan equipment in the interim and financial stress resulting from co-contribution payments (KPMG, 2007; Layton, Wilson, Moodie & Carter, 2010; Scope, 2006).

The limited availability of resources to address short-term preventative needs was a prominent issue amongst participants involved in care provided in the home and during the transition from acute service care to the community. Further recognition of shortcomings in access to equipment is evident in the recent reviews and restructuring of equipment programs (Enable, 2009). While insufficient data were collected to comment on the success of these service changes, as they were being phased in at the time interviews were conducted,
the findings did suggest that this was an example of policy reform for good in that it had taken a step towards enhancing collaboration.

Given the well-documented rising costs in delivering health services and competing needs, scope for a substantial increase in equipment resources to support PI prevention across a range of clients potentially at risk appears unlikely. A way forward in improving access may be to explore the use of lower cost equipment and skilled use of the environment by clinicians and support carers. While most studies tend to explore equipment resources in general, few studies have investigated the use of low cost, portable and reusable equipment within community service settings (Mistiaen et al., 2010; Price, Bale, Newcombe & Harding, 1999).

Where equipment is necessary and it cannot be subsidised in full or in part by public funds, the use of alternative avenues for sourcing equipment such as self-funding of hire or purchase is likely to become increasingly important. The potential role of private health insurers in improving access to PI care resources is also worthy of consideration in addressing future PI need. Currently, most private health insurers do not offer rebates for interventions related to PI prevention equipment and wound healing (Yelland, 2014)

5.30. IMPORTANCE OF MONITORING PI NEEDS

The ease with which PI data could be collected in acute settings was evident in the number of quality improvement projects described by participants and the importance of coding processes. In hospital settings the International Classification of Diseases (ICD) is the standard diagnostic tool for epidemiology, health management and clinical purposes. Codes are used to classify diseases and these are used to monitor the incidence and prevalence of diseases and to provide an overview of the general health status of populations. While there is an ICD code for PI - L89 (ICD10Data.com), there is no Medicare item number for PI that would enable GPs to be reimbursed for PI management (Commonwealth of Australia, 2015c). Data is collected on PI within the Bettering Evaluation and
Care in Health (BEACH) although perhaps is under-represented, as data collection is reliant upon GPs coding the wound as a PI (Charles et al., 2014).

The mix of public and private services that characterise the Australian health system was influential on PI management according to participants. Compared to other countries Australia is unique in terms of the extent of public-private and State-Commonwealth interaction (Palmer & Short, 2010). Of particular note was the way in which community based PI care was reliant on the interface between private service providers such as GPs and public health services. Currently, there appears to be limited scope for the involvement of other private providers such as allied health professionals, due to poor access to these services, and a lack of coverage by private health insurers.

Approaches that emphasise secondary prevention are also reliant on the collection, accurate recording and sharing of information related to PI occurrence. Clinicians need to be alert to a client’s previous history of PI, this requires the sharing of a certain level of medical information amongst a range of providers. Currently, there are significant issues related to the sharing of medical information amongst providers and this is a frequently raised issue in the broader health literature (Jackson Bowers, 2010). However, existing policy platforms are championing this cause and offer some support for the sharing of medical information amongst a range of providers occurring in the future (Commonwealth of Australia, 2014a).

The findings demonstrate the importance of communication and information sharing in PI management. Challenges with communication between health services and individuals within health services are known to be problematic (Muecke, Kalucy & McIntyre, 2010). The proposed personal e-health record system offers access to a secure online summary of health information as well as facilitating the sharing of clinical information between healthcare professionals thereby providing a more comprehensive and efficient health system (Commonwealth of Australia, 2014a). This platform could potentially be used to
record and share information about high-risk PI status based on current or previous PI.

5.31. COORDINATION OF PI CARE

The findings suggested that coordination of PI needs is another area requiring attention. There has been increasing recognition of the need for improved coordination of care and continuity of care for those with complex chronic care needs (Bird et al., 2007; Commonwealth of Australia, 2009a, 2009b, 2010; Guihan et al., 2014). Poor continuity and coordination of care are known to threaten quality of care (Duckett & Willcox, 2011). Challenges in continuity of PI care are well documented in the literature and include difficulties in accessing PI resources and follow-up care post discharge from acute services and poor communication and hand-over regarding PI management (Athlin et al., 2009; Haggerty et al., 2003; Santamaria, Glance, Prentice & Fielder, 2010).

Recent initiatives have recognised the important role of community based health care and in particular primary health care in enhancing continuity and coordination of care (Halcomb et al., 2014). This existing policy platform may provide an opportunity to enhance PI management, with PHNs offering a hub to manage post acute discharge as well as ongoing PI needs, including the planning and coordination of future admissions. A number of supports would be required to assist health services to develop team based approaches to PI management within primary health care. These would include assistance to establish pathways to private and publicly funded allied health services as part of team based approaches to PI prevention and management, as well as the development of policy related to the transition of care between services (Commonwealth of Australia, 2010, 2014b).

There are existing financial incentives for team based care for those with complex chronic care needs within primary health care. These items include the Enhanced Primary Care and Chronic Disease Management programs that enhance access to team based care via a rebate for allied health services. This is
an established and plausible avenue to provide funding for the development of better PI management within team based care. The data suggested that team based approaches are likely to assist the workforce in PI management and also improve client outcomes. It has been suggested that team based care is important in achieving good clinical outcomes for clients with PI needs and also more generally (Halcomb et al., 2014; Harris et al., 2011; Jackson Bowers, 2010).

While there are some examples of wound care teams within the literature, examples of structured teams for PI management are relatively rare and of poor quality (Moore et al., 2014; Moore et al., 2015). In order to support team based approaches within primary health care it would be necessary to provide ongoing support for the implementation and evaluation of these approaches. This would begin to develop a knowledge base to support PI management within community service settings (Charles et al., 2014; HWA, 2011a; Yelland, 2014).

The findings suggested that inter-professional approaches were important in the effective prevention and management of PI and that fostering these approaches would be of most benefit within community service settings. This was felt to be necessary due to the traditional division of tasks between professional groups and the fact that not all professional groups were co-located. It also appeared important to provide clinicians with the skills and supports to initiate team based care approaches and tailor these to the needs of individual clients using the skill-mix available within various health care contexts.

The findings confirm known underlying hurdles to team based care including the mix of public and private provision of services and their respective funding mechanisms as well as professional and jurisdictional boundaries (Scott, 2006; Swerissen & Taylor, 2008). Teamwork is known to be influenced by the structures and mechanisms that support or undermine system integration (Jackson Bowers, 2010). This process could be facilitated via prior planning to develop or locate the necessary skills or supports for PI management within the service or surrounding services. An existing mechanism such as PHNs could provide the necessary support for these processes.
5.32. FUNDING MECHANISMS FOR PI SERVICES

The way in which a team functions, and therefore the degree to which certain professionals are involved in the management of an issue such as PI, could potentially be influenced by funding mechanisms (Duckett, 2011; Jackson Bowers, 2010). Incentives for team based care such as the EPC program and CDM have been shown to be of some benefit in facilitating team based care within primary practice and enabling greater access to expensive allied health services (Foster et al., 2008; Haines et al., 2010; Holden et al., 2015). It is not surprising that many have identified the limited capacity of this program to meet the chronic care needs of patients, given that a rebate is only available for five sessions in total between all allied health professions. The limitations of such a program, given the chronic nature of PI are clearly evident, yet it illustrates an existing avenue for practice change, which can potentially be exploited.

Another issue, particular to primary health care is that funding such as Medicare benefits outlined in the Medicare Benefits Schedule (MBS) influences clinicians roles in primary health care and therefore a GPs ability to delegate tasks to another clinician (Duckett, 2005b). Existing Medicare items for care planning could potentially offer some assistance with management of PI by improving funding availability for practitioners. Assistance with the recognition of PI as a chronic wound amongst GPs and practice nurses may enable mobilisation of these funds toward comprehensive approaches to PI care where necessary. This requires education to raise awareness regarding the ability to use CDM items for the management of a chronic wound such as PI.

A number of policy changes have assisted GPs to 'relinquish some of the work which could be done safely by other health professionals' (Roxon, 2008. as cited in Thistlethwaite & Topps, 2009, p. 7). Different measures have been implemented by the Australian Government to support a broader and flexible role for PNs. These include the introduction of MBS items for practice nurses in 2004 and the Practice Nurse Incentive Program, which provided incentives for
practices to employ RNs and ENs in PN roles (Britt, Fahridin & Miler, 2010; Commonwealth of Australia, n.d.). These incentives have been linked to changes in practice patterns noted in the Medicare claims data and the BEACH (Bettering the Evaluation and Care of Health) program data (Britt et al., 2012; Taylor, Horey, Livingstone & Swerissen, 2010).

An example of the use of financial levers was the expansion of the Practice Nurse Incentive Program (PNIP) beyond rural-based practices in 2011. The difference between this program and previous approaches to the funding of PNs was that this program offered a block grant (Pearce et al., 2011). As a result of the changes, brought into effect in 2012, the potential for role developments related to wound care and many other areas of practice, have been curtailed (Australian Medicare Local Alliance, 2012).

5.34. SUMMARY

In this chapter the factors occurring at the system level, which influence current PI practice have been presented. Contextual factors noted to influence practice included resources such as equipment and workforce skill and availability, process or organisational elements as well as behaviour of individuals and the system. The findings demonstrated that current approaches to PI by the health system tend not to consider the challenging characteristics of PI nor the relevance of different health service settings on clinician practice.

The findings in relation to the health system level confirmed significant challenges for clinicians in meeting policy goals, which attempt to shift the focus of the health system towards prevention and greater participation of clients, within a predominately reactive, bio-medically oriented and acute focused health care system. Participants were of the opinion that the changes required to meet system expectations would be difficult to achieve within the current configuration of the health system. A way forward, which was suggested by participants as necessary in order to address unmet need for PI, was to increase
client involvement in PI management. Greater client and support care involvement in PI care may enhance PI prevention, as well as lead to their earlier recognition and expedited management. Although, it was felt that this approach was not without significant challenges for clinicians, clients and the health system.

The enhanced understanding of the strengths and weaknesses within and across the health system, which influence PI practice, as described in this chapter, may enable a better fit between PI management needs and the AHCS to be created. In the next chapter, issues relating to the client level within the Australian health system, as described by participants, will be presented and discussed.
CHAPTER SIX
FINDINGS AND DISCUSSION
CLIENT LEVEL

“I think, in the community, it’s so much out of the control of health providers that go in. It’s really up to patients. But I know the community have worked really hard to have a lot more access to equipment, and we have equipment loan pools attached to most of our hospitals, larger hospitals. So, I think people are getting access to a lot more equipment. I know in some areas as well, they’re privately sourcing things. But for a lot of people, the financial costs for that can be prohibitive”. (Cynthia, CNC, hospital based service, 16)

6.0 INTRODUCTION

The findings presented in this chapter are comprised of both data from clinician participants and also client participants. The data was collected using various methods including interviews, group discussions, and document analysis, as well as observations of care and the home environment. It is important to emphasise again that the client data collected in the case studies was used to complement and enhance understanding of clinician’s perceptions of current practice. While the client experience of care was very important, it is not the focus of this chapter.

6.1. FINDINGS FROM CASE STUDIES

A brief summary of each case study is presented here in order to provide some context for the presentation of the findings and their subsequent discussion. A more detailed description of each case study can be found in Appendix E.
James

James was a 48 year old man with a history of cholecystectomy and diverticulitis. Following a period of illness lasting 6 months and several hospital admissions, James had an emergency laparotomy and anterior resection. James had an ileostomy as a result of surgery and had already received follow-up care from a stomal therapist.

James spent 9 days in hospital post surgery and was referred to community nursing on discharge for removal of clips from his abdominal wound. James reported that the plan was for the ileostomy to be removed in a few months. James was a tall and fit man, who did not take any regular medication prior to his surgery. During the 6 months prior to surgery James had nil appetite and dropped from 118kg to 76kg.

James was discharged from hospital on a Thursday and an initial visit was conducted by a community nurse (CN) the following day. During this first visit an initial assessment was completed and wound care was provided to the incisional wound, which was described as no more than 30 cm in length. As per the PI prevention policy, a risk assessment was conducted. James was given a score of 4 on the Waterlow scale and determined to be “not at risk” of PI.

The following Tuesday when the CN visited James to provide routine wound care, a PI was discovered. Upon observation the CN noted a stage two PI in the sacral area. As James was about to be discharged from the service due to the successful management of these wounds, a second PI was observed on his heel. Due to the discovery of the second PI, James continued to receive community nursing for a further 3 weeks. James received community nursing twice weekly for approximately 8 weeks.
Elizabeth

Elizabeth was an 82 year old lady with a history of rheumatoid arthritis, psoriasis, non-insulin-dependent diabetes mellitus, hypertension, high cholesterol and a history of falls. The presenting issue was noted in Elizabeth’s medical records as an ulcer on her upper left leg near the buttocks about the size of a 10 cent piece with the skin off. Elizabeth’s husband had passed away the previous year. Elizabeth lived with her son who had liver failure. She had two other sons John and Edward who are very supportive. Elizabeth mobilised with a four-wheeled walking frame at home and she had a manual wheelchair for community mobility.

Care commenced promptly the day after the self-referral was received. Both the CN and Elizabeth noted that she was known to the service having received care for a number of small skin breakdowns in the past. The nursing assessment included a Waterlow assessment score as per health service policy. Elizabeth was given a score of 16 and determined to be “at risk” of PI. At the first visit Elizabeth and the CN determined that their goals were for ‘wound care and referral to OT for pressure relieving’.

The wound was dressed twice weekly over a 6 week period. A Repose mattress, which the CN described as a portable short-term PI measure, was applied to Elizabeth’s bed to assist in the healing of the wound and to help prevent further PI. Elizabeth and her family reported that altering the bed surface had had some detrimental impacts on quality of sleep and bed mobility. Elizabeth and her family reported that they were still awaiting the OT visit at the end of the 3-month case study period.

6.2 FINDINGS FROM INTERVIEWS (CLIENTS AND CLINICIANS)

Clinicians described the significant impact of PI on individual clients and their support care. In addition to the impact of PI, participants created a picture of PI need by describing the range in need for PI services amongst various client groups over time. They also highlighted the difficult aspects of addressing PI need at the client level, including factors related to the individuals’ risk such as
their environment, their knowledge and skill, and their access to services. Individual factors that influenced PI care behaviour, including client and their support carers’ ability to act on the education they received were also described. All of these descriptions of care at the client level helped to build a more detailed picture of the natural history of PI, that is the course that PI tend to take over time, in terms of preclinical manifestations right through to recognition and treatment as PI (Quian-Li, 2011; Zarin, 1996).

6.3. IMPACT OF PI ON CLIENTS AND SUPPORT CARERS

6.3.1. Impact of PI on clients

Clinicians provided numerous examples of the impact of PI on clients including experiencing a reduction in quality of life associated with pain and restricted ability to participate in ADLs. In addition to pain, participation was also restricted by the positioning necessary to alleviate pressure and assist with healing the wound. Participants described circumstances in which patients were subjected to prolonged periods of bed rest, restricted movement and alternative positioning.

They also described the compounding effect of existing morbidity and complexity of care through increased risk of experiencing morbidities associated with PI such as sepsicaemia and amputation. The heightened potential for the development of psychosocial issues in clients was also discussed.

“She’s blind and she’s got renal failure, so she’s on haemodialysis three times a week. So, the impact for her and her carer - prior to getting her PI, she could actually find her way around her house without her son’s help. So, obviously, she was familiar with that environment and she could get from her bedroom to her bathroom, she could shower herself. She just had to have Ben set things out for her. When she got the PI, she couldn’t walk on her feet at all,
so she hasn’t walked for two years because of the pain of her pressure injuries.”

“Yes, and with the other lady, hers was on the sacrum, and she became - she lost her mobility, because she was kept in bed, obviously, because she couldn’t sit out. She had to go to rehab and learn to walk again, because she was in hospital for such a long time, and her other conditions contributed to her becoming really de-conditioned.” (Carol, CNC, hospital based service, 17)

Carol went on to describe the potential financial burden for clients associated with the purchase of products to assist in management of PI. The quote presented below illustrates how a client’s primary diagnosis can influence their access to services as described earlier at the system level.

On the heels, yes. She got them in - we’re now in 2012, she got them mid-2010 and it still hasn’t healed. One's healed, one is still going. So she has dressings three times a week. In one sense she's lucky because she's dialysis patient, so from that point of view she gets them done every time she comes through dialysis, so she doesn’t actually have to pay for them. But if she wasn’t a dialysis patient, yes, it [the cost] would be huge for her”. (Carol, CNC, hospital based service, 17)

6.3.2. Impact on informal carers and support care

Both the prevention and management of a PI had the potential to increase the physical burden on support care, due to the demands of regular repositioning required to assist with both prevention and wound healing. The development of a PI was an additional complication, which meant that existing care processes often needed to be altered. For example, as illustrated in the quote below, the schedule of support carers had to be altered to accommodate additional transfers in and out of bed to enable the client to meet the required amount of bed-rest to assist with healing the wound.
“The strain that [PI development] puts on carers, puts on the person that’s going through that as well and that constant everyone saying you need to get off the wound, but is it a great quality of life to be in bed 24x7? ... They had to have really frank discussion with him about him having to get off it [the PI] and not being in his chair as much as possible... being able to get a carer that could possibly come in on some of those days to help put him to bed...so you have to change all your respite and care.” (Jess, OT, disability services, I2)

Clinicians from the community context described the necessity of working closely with the individuals within the client’s environment. They believed that support care was an essential resource in meeting a client’s PI needs, and were aware of the significant burden this care could place on those without any formal training in health care.

“Whereas previously they might have gone into nursing homes or they might have died, they are actually living and they are living at home and they are being cared for by non-professional people who do their best but they don’t understand about the risk factors involved.....That has been our conclusion that there is just more people out there who are at that high level of care need”. (Elle, FG3, OT)

6.4 UNDERSTANDINGS OF PI CARE

6.4.1. Misconceptions regarding PI

Clinicians conveyed the complexity of pressure care practice for individual clients through a description of their everyday clinical experiences and accentuated its multifactorial nature. Participants described a range of risk factors related to individual clients and their environment. Some participants believed that misconceptions regarding those clients at risk on the part of
service providers affected a health professional’s vigilance regarding PI development.

“But isn’t that a bit of under-estimation as well, that you’ve got to be old to get a PI; young people can’t get PIs, which is not true. Because as a physio we see so many long-term chronic disorders which tend to make the patient bedridden and they think, oh the patient’s young, he’s not going to get a pressure sore, which is not true, because any and everyone can get a pressure sore. It’s just education, awareness again - we’ve got to tell it to even young patients - 30s, 40s - we’ve got to explain it to them that even they are subjected to having pressure areas.” (Annabelle, PT, hospital based services, FG4)

6.4.2. Participation in self-care activities

A clinician from disability services explained how activities of daily living (ADL) such as dressing and completing transfers from one surface to another using a sling could contribute toward the development of PI. Here these seemingly inconsequential factors that can contribute to PI development help to reinforce the importance of constant vigilance, and highlight the challenges presented to clients, support care and clinicians in the prevention of all PI.

“Even what clothes to wear, if someone’s sitting in a wheelchair up to 12 hours a day sometimes, don’t give them jeans with buttons on the pockets at the bum. There’s just so many different things that go into it. It’s just massive, lots of comprehensive assessment, and it’s a lot of time, usually, because our clients are quite complex, so spending a lot of time with the family and the carers at school”. (Penny, OT, disability service, FG2).

Participants described how daily care processes can contribute toward the development of PI if not matched to the clients and the needs of support carers, and supported with appropriate education and training. For example, some clients may be dealing with ill-fitting equipment and or equipment that does not meet the broader health care needs of the client or the capacity of the support carer. Equally, equipment used incorrectly could harm patients by causing a PI to
develop or limiting their activity thereby placing them at further risk for PI or leading to other morbidities associated with decreased participation in self-care such as psychosocial issues.

“...the huge range of issues that go into pressure care, like nutrition and manual handling. A lot of education to staff about when you’re hoisting someone, don’t rip the sling out from under them, because their skin’s going to break down over time, if you’re doing that every day. (Penny, OT, disability services, FG2)

Participants also described how typical processes involved with care, such as the wearing of thromboembolic deterrent stockings (TEDs) post surgery could actually contribute toward PI development through providing a visual barrier to the observation of the skin. In the quote below James (Case study 1 [CS1]) explains that his PI may have been there longer than he thought, however, he could not be certain as he had been wearing his TED stockings. Here we can also observe the challenges in knowing when the signs and symptoms of PI emerge and how they present over time.

“It might have been there longer but I was wearing the TED stockings, and I had actually worn shoes a few days earlier. I thought it was a blister but the nurse said it wasn’t a blister.“(James, client, CS1).

6.4.3. PIs often hidden

The problems created by the multifactorial causation of PI was compounded by the fact that they are often hidden from view. Clinicians felt that in busy health care environments it could be easy to overlook PI prevention and existing PI. Constant awareness and vigilance was required on the part of clients and clinicians if PI were to be detected early.

In community settings there was felt to be even more complexity and possible causes of PI. Additionally, clients may not necessarily associate the signs and symptoms they experience with PI. A number of potential reasons for not acting on early warning signs straight away were evident in the client case studies.
Clients were uncertain about the severity of the issues and did not want to trouble carers and clinicians unnecessarily. Modesty issues also appear to play a role due to the locations where PI tend to develop. For example, in James’ case study he seemed to feel uncomfortable discussing the location of his PI at times, this was evident in his uncertainty about the language he should be using to describe it.

“I’m bony and I was quite a fit sort of person... I’m that bony now that even just sitting here now my bum points ...my bony points are sore”. (James, client, CS1)

In the next quote we can observe Elizabeth’s journey toward seeking care. Elizabeth explains that she had an itchy patch of skin and that as she monitored it over time it became a moist patch of skin. As described by Elizabeth, her son contacted the community nurses on her behalf. It is interesting to note that her son contacted the community nurses once he was alerted to the wound by a neighbour who was assisting Elizabeth with her personal care.

“It’s just that I had this itch on the side of my leg, and being a scratcher I scratched it, but it wasn’t the scratching that made the sore come up, it just sort of came, and then I kept feeling at it and it felt moist and I thought well that shouldn’t be like that...and “you rang up didn’t you?” [directs the question to her son and he replies “yes”]. (Elizabeth, client, CS2)

6.4.4. Identifying the start of a PI

As demonstrated by James’s case study, determining the exact point at which a PI develops can be problematic. James reported that the PI appeared when he had been at home for about a week. The nursing staff also documented the presence of the PI around one week post discharge following the second nursing visit. It is difficult to know whether the damage to the tissues occurred during the hospital admission and manifested later or whether the damage to the skin occurred whilst James was in the care of the community nursing service.
“I was sitting up most of the time when I came home. I wasn’t super active but I was more active than when I was in hospital. I didn’t get either of them [the pressure injuries] till I came home and I was more active at home than I was in hospital. But a lot of lying around and sitting around for the first few days I suppose.” (James, client, CS1)

Once James’s PI was discovered, the PI notification paperwork was completed and its occurrence was recorded within the incident management system. The site of the PI was documented to be a Stage 2 injury at the sacrum centre. On the PI notification form, the section where the nurse is required to indicate whether this is a new or existing PI was not completed. This may highlight the difficulty in determining when a PI actually occurs. The community nurses’ notes within the client medical record infer that this may be a hospital acquired PI, however it is not possible to be certain of this.

“Home visit for wound care to abdomen......client discussing sensation at sacrum with pain and discomfort noted a few days ago and carer viewing wound at sacrum from previous stay in hospital after surgery. Photo taken and total surface area attended with tracing 1.5cm2. Base 100% sloughy”. (CS1 medical record).

The quote below from James illuminates how even with some prior knowledge regarding PI and awareness of the need to undertake preventative measures, provided by his mother-in-law who was a retired nurse, he still developed PI. This was in spite of the fact that he states that he did actually undertake preventative movements and weight-shifting.
“I thought I was doing a lot of turning around when I was in hospital, as I said my mother in law was a nurse and she kept saying to me ‘don’t just lay there, make sure your moving around,’ and I thought I was doing enough of that, and when I got home I thought I’d done enough of that. I suppose you don’t know when you are going to get them, they just pop up. The heel really surprised me” (James, client, CS1)

Difficulties in determining exactly when a PI developed may appear inconsequential. However, group discussion participants described a number of significant implications including the utilisation of resources from one health service to manage an issue potentially created by another service. This highlights the challenges in the detection of the need, the important role of clients and carers in the identification of PI need, and the challenges in allocation of resources to various clients.

6.5 CLIENT NEED

As previously discussed there are many client groups requiring PI management. Participants felt that while any client has the propensity to develop a PI and clinicians must be alert to this fact, there are certain groups for whom risk is heightened. This included those with persistent and on-going risk such as the frail aged. A second group included people at high risk for a period of time who then experience complete remission, such as those who have surgery or illness that restricts mobility for only a relatively short period of time.

The client groups identified as high risk in the hospital environment included frail aged, orthopaedic, and vascular and burns patients, as well as those in intensive care units. While all clients in hospital settings were perceived to have good access to PI management and the necessary resources, those high risk groups just identified were prioritised and had greater access to resources. Aged clients were also discussed in-depth as a high-risk group and the attendance of a
geriatrician as the sole medical professional appeared to confirm this as a client group in which need for PI prevention and management was worthy of attention in acute service settings.

Overall, clients within acute settings were felt to have greater exposure to PI management than those in community settings. Participants from community service settings described a considerable range in need amongst their caseloads. Most OT participants described how many of their clients were on a constant-risk continuum such as those who have SCI, cerebral palsy as well as those with progressive degenerative disorders such as multiple sclerosis and motor neuron disease. These OT participants discussed the limitations of risk assessment tools in determining the PI needs of these clients, and tended to emphasise the use of an individualised comprehensive assessment, which they felt was necessary to meet their clients’ needs.

Participants felt that the constant-risk group was potentially easier to manage as these clients already had access to the system due to their primary condition. Although, the diagnostic group also had an effect on client access to PI care, for example children living with cerebral palsy in the community had access to a model of care that enabled them to regularly attend an outpatient clinic and so they and their carers were exposed to CNCs with expert skills in PI care. In the quote below the OT describes how useful it was to access hospital based clinics for advice with paediatric clients and PI issues.

“She’s linked into the physical disability team at children’s hospital so that has a rehab specialist on that team, the CNC was on that team and they’ve also got therapists on that team. They look at things like coordinating surgery, coordinating referrals in the hospital system for clients like this girl. She was also linked into a dietician at the hospital and they looked at supplements.” (Jess, OT, disability service, I2)
6.5.1 Unmet needs for PI management

In contrast, older clients with complex chronic care needs like Elizabeth (case study two) did not have the same level of access to services and resources. Participants believed that this resulted in unmet needs for PI services. While participants understood the importance of allocating resources to those at greatest need, they felt that there remained some priority groups where it would be beneficial to improve access to PI prevention.

Difficulties in accessing GP services promptly to have PI needs addressed were exemplified in Elizabeth’s case study (Case study 2 [CS2]). Elizabeth and her son reported that she had limited access to her GP due to her significant mobility issues. Elizabeth needed to use a walker indoors and required a wheelchair for all community mobility. Problems with accessing GP services reportedly arose due to the GP being busy and the limited frequency with which he could perform home visits.

“The doctor situation you can’t do that. You have to ring the Doctor and say could you come to the house, he might come the following week or two weeks later... if that had have waited to see him, that would have been dangerous, you’ve gotta ring XXXX health and hopefully they come out.” (Elizabeth’s son and carer, CS2).

Elizabeth’s case demonstrated the role chronic illness can play in the development of PI and also how functional limitations associated with disease processes can increase an individual’s susceptibility to PI and complicate the management of PI. Elizabeth’s chronic conditions impacted on her in numerous ways including both her physical and psychosocial health. This is illustrated in the quote from the community nurse presented below.
“Chronic conditions do, the rheumatoid arthritis effects because she had pain and she very limited movement, she doesn’t like moving around in bed and so that makes her very vulnerable to pressure wounds. Also the medications that slow down healing so whatever wound she gets is slower to heal, and that can make her more prone to infection.” (Beth, RN, community service, CS2).

6.5.2. Longer-term PI needs

Participants raised the importance of on-going monitoring of longer term PI needs for those that had complex chronic care needs and those that had had a previous PI. Participants believed that a mechanism for such monitoring was important as clients’ needs change over time. For example, in the quote below a CNC from an acute service highlights how a client may experience a short period of heightened risk due to recent acute illness and associated de-conditioning however, they are likely to then experience a return to usual function.

“Just the case mix generally of certainly the children I’m involved with so they are predominantly kids with chronic and complex needs but they sometimes have acute needs and one size doesn’t fit all for management. (Libby, CNC hospital based service, FG1)

Participants from community services settings, in particular OT participants highlighted how the constant threat of changing needs through growth, changes in body shape and periods of illness, as well as decreases in function altered PI needs over time. Participants described how clients’ PI needs varied over time depending on a range of factors including health status, and their environmental context. This again highlighted their awareness of the necessity of the on-going consideration of longer term PI needs.

Participants believed that there were gaps between what clients with chronic conditions were demanding and the way care was being delivered. Participants described aspects of care that could be enhanced to better address the PI care
needs of those that required chronic care. These included improving the organisation of services to reduce exposure to potential PI risk factors by improving care within community services.

### 6.5.3. Continuity of PI management

Most participants felt that keeping people managed well at home was important. One CNC participant from a major tertiary hospital remarked how managing people in their usual environment in community was important in reducing their exposure to risks for PI development, such as an acute admission.

> “just last week, we had a man sent from a nursing home, because he had a multi-resistant organism. A 91-year-old put in a single room, and he just stayed there all weekend waiting for us to sort out his problem. So, he was totally socially isolated and away from all the people that, like, know him, and the neighbours in his nursing home. I just think, sometimes, we’re really not making a difference, and that all relates back to pressure stuff as well. So, he comes here, he sits around, he’s likely to get a PI because the nurses don’t have enough time to do all the things that, probably, in his routine in the nursing home, has been happening. So, we just create more problems for people like that. So, the connection between hospital and nursing home, or even these really elderly, frail people in community, we really need to avoid hospital presentations. So, I agree, a lot of the work has to happen in community”. (Cynthia, CNC, hospital based service, I7)

Participants also described models of care as a mechanism to change the delivery of care to better suit client needs, with additional benefits such as the building of PI skills within the client’s local community. This is illustrated in the quote presented below, in which a nurse who had developed a private wound care company, within a case management service, highlighted the beneficial role that technology such as teleconferencing could play in facilitating the management of wounds in rural and remote communities. This participant also identified the dual benefit of developing wound care skills within the client’s immediate
context, and also more broadly within the local service providers, through remotely delivered education, supervision and support from someone with specialist skills.

“Why bring them down to a metropolitan hospital whenever the shit hits the fan? With the video teleconferencing there’s no reason why you can’t keep them [those with SCI and PI] within their local home and community. I think that’s really important because you are not only educating the local community where they’re going to live for the rest of their life, you are educating the people around them who look after them on a day-to-day basis about prevention and management and you’re also spreading the word on treatment and prevention out into the other services. (Nicola, CNC, private wound care service, I4)

The quote from another CNC below describes how some clients can play an important role in actually monitoring their own care. This CNC identifies that client participation is particularly important given the nature of community wound care in which there is poor continuity of care due to the fact that different nurses visit daily and this can make it hard to maintain the dressing regime.

“The other thing is continuity of care is a big issue once they’re discharged. We’ll send them out on the regime, but that’s not necessarily a regime that’s maintained, because it’s not the same nurse going all the time. Patients find it really challenging getting different nurses all the time because then they may not know what to do or may not do it the same way. Once patients have a wound for a while they get to know what’s right and what’s wrong. Some people can be more pedantic in the way things are done for them.” (Carol, CNC, hospital based service, I7)
6.6. INCREASING CLIENT PARTICIPATION IN PI MANAGEMENT

Some clinicians described the possible role of self-care in enhancing PI prevention. Several participants from hospital settings described the need to encourage client participation in care as a fairly new concept that they felt may contribute toward the prevention of PI within hospital services.

“We can only do so much and we need to engage them [the clients].” (Cynthia, CNC, hospital based service, FG5)

“There’s the self care component which we talked about quite a bit. I can’t stress enough that I think that that’s huge and that we actively need to empower patients and their carers and families to learn as much as they can about their individual bodies, their physical health, their mental health, a whole pile of things because the system just isn’t there to be able to look after people on that kind of scale that was there in the past. I think people power is where it’s going to be...so much of our work is also following that philosophy of self care, autonomy and a collaboration. Rather than being a recipient of services you’re actually a decision maker in the process and that can be quite a challenging change in paradigms for the society and the people within society.” (Sonia, CNC, hospital based service, FG5)

In contrast, clinicians from community settings spoke of client and support care involvement as if it was already an essential part of everyday practice and talked more in terms of the challenges that this brings to their everyday practice and the strategies they use to overcome these and facilitate client participation. As described earlier in the case studies, both the clients and their carers played essential roles in the early identification of PI in community service settings.

Most clinicians provided examples of situations in which clients behaved in ways that were counterproductive to clinician attempts to implement care as outlined
in guidelines and policies. Participants hypothesised that this occurred because of issues related to the client’s environment, issues related to the way in which care was delivered as well as issues specific to the individual client. These factors were all thought to influence a client’s behaviour including commitment to financial investment in equipment, and other strategies for prevention and management such as increasing movement, positioning and participation in care.

Some participants felt that PI was hard for some clients and their carers to understand. For example, the quote below highlights limitations in perceptions regarding the way in which PI develop. Additionally, it also highlights how the relevance and potential implications of PI could be underestimated and therefore potentially overlooked.

Jean (RN): You’d be surprised with relatives just how much they don’t understand.

Liz (MD): Often with older patients you say, you’re going to get a bed sore...

John (RN): I think it is ignorance, like stopping smoking, they’ll still do it.

(Extract from discussions FG4)

6.6.1. Environmental influences on client participation

Most clinicians felt that the environment also influenced a client’s behaviour. For example, the geriatrician in the quote below describes how participants would at times not want to participate fully in their care as they were in hospital to be ‘sick’.

“I think there’s a fair bit of sick role, whether it’s intention or whether it’s something that’s been there at home and they are elderly. But there is a bit of that, I’m in hospital and I’m sick and I therefore should be in the sick role, and the families reinforce that to an extent”. (Liz, Geriatrician, hospital based service, FG4).
Participants from community settings also felt that the health care context had an effect on the success of PI interventions. In community settings, care is provided within the client’s own environment and participants recognised and respected that clients had greater power and more legal rights in their home environment. An experienced CNS from a community service also pointed out that sometimes a service is withdrawn due to potential risk to staff safety which in turn impact on their ability to address PI needs. This CNS also described some of the implications of poor access to PI equipment, such as an increase in the provision of nursing services.

“...individuals and their families are in charge of that environment and they won’t always want to make changes that are necessary for you. So the environment and individual’s own decision-making. So it’s a completely different environment in the community and you may need to under-service or withdraw service due to risk or over service due to risk. So it can go both ways.” (Jo, CNS, community service, GD3).

Participants believed that in the hospital environment, clients were more willing to accept interventions as they had little choice. Whereas in community settings clients had greater autonomy and control over what happened in their environment. There was a perception amongst some participants that another factor which impacted on their ability to provide care was that clients do not take recommendations offered in community settings as seriously as those made in hospital. Some participants believed that this in turn influenced the success of the PI care they provided.

“I mean, when someone is in hospital they don’t really have a choice, they just, you know, they just get what they are given and they have to do that and they are usually quite compliant because they want to get out of hospital, so they will do whatever they are told. When they are in the community they have a choice and they don’t have to…” (Elle, clinical specialist OT, community service, GD3)
“Patients seem to get the information at the hospital and hold that up as something and if they get the information out in the community it’s not as important as if you’re in hospital.” (Cassie, RN, community service, GD3)

### 6.6.2. Resource issues influencing participation

Clinicians from community settings made some comments regarding the way in which PI was managed during the transition from acute to community services. As can be seen in the extract from a group discussion presented below, there may be a number of potential reasons for the lack of equipment interventions being in place on discharge from acute settings, and it is not always neglect on the part of an acute service. Client autonomy was again influential on whether follow-up services including equipment were put in place and therefore whether they may demand crisis management. There are potential gaps in the transfer of information and comprehensive preparation of clients with ongoing PI needs as they transition between health services.

**Elle (OT):** “There has been a number of times when it’s been the community nurse who has identified the pressure wound. That it hasn’t been identified pre-discharge. So there is nothing set up, nothing is planned and the client hasn’t gone home with anything. They get home and then it’s identified as a problem and so it has to be dealt with in the community. There is nothing, sort of no discharge planning for it.

**Helen (OT):** Or even if they have been identified, they are not always sent home with anything. It’s, we will wait when they get to the community they can deal with it then.

**Dianne (RN):** Sometimes they decline. They are asked do they want equipment organised, in hospital, and they say no thanks, we’ll be right, we’ve got equipment at home. Until we get there and
find they haven’t got appropriate equipment at all and you wonder what...

Jo (CNS): They don’t want their homes to be hospitalised. They can’t wait to get home to their lovely place. The last thing they want is to drag equipment with them to remind them of the acute setting.

(Extract from discussion GD3)

6.6.3. Providing education to increase participation

Clinicians felt that there was not a coordinated approach to PI education for clients and their carers, and that the range in educational needs had not been adequately addressed. Most clinicians described using unique approaches shaped by a combination of factors including the setting in which they were located and their own skills and beliefs about what worked well for the particular client groups and individuals. No participants described receiving specific training on the education of patients in the area of PI care. Some participants described educational approaches such as pamphlets that were developed within their service or externally by a health department.

“If patients are at risk I give them the Move, Move, Move handout which is something that was developed from Victoria Health. Then if they’re at any more risk I’ll give them a pamphlet which is Preventing PIs”. (Jamie, OT, hospital based service, GD5)

An OT from disability services used clinical practice guidelines for group home staff, to supplement her own approach to education.

Participants described what was challenging about providing PI education to clients and support care. Participants felt that despite educating their clients about PIs and their own individual risks for developing PI, many of their clients still did not understand what a PI was and did not think that it would actually
happen to them. Assisting carers to understand what a PI was and its significance was also challenging.

Many participants also shared strategies that in their experiences had worked. For example, some were of the opinion that education involving visual elements and ‘shock’ tactics was an essential element of pressure care education as illustrated in the quote below from a CNC.

“...the visual impact of a pressure sore, I mean you can’t go past a PI for carers in particular. They just don’t have the concept until they actually see a photograph of something and my God, you know, you wouldn’t believe that that could actually happen. My understanding is that all things that stick in people's head are associated with emotional response and that’s why they go for gory pictures and stuff like that, because you have to generate some kind of emotional response that actually makes the information that you've received have some meaning and stay there as such”. (Sonia, CNC, hospital based service, FG5)

The availability of carers within community service settings was perceived to be a barrier to effective education. Participants believed that carers significantly influenced the success of PI preventative strategies. A particular challenge identified by those working in community settings was accessing carers during home visits as illustrated in the quote from a nurse below.

“The carer availability. If they are living alone it’s a problem. The carer is not always there or available to talk to when you are educating the client. I like to talk to the client and the carer when I am doing pressure care education.” (Robyn, RN, Transitional service, GD3)
6.7 INDIVIDUAL FACTORS INFLUENCING PI MANAGEMENT

The participation of the client in the management of the wound was generally perceived by clinicians to be important however, the extent to which their clients were able to participate was variable. A range of factors influenced client and support care participation in PI care. These included elements related to the individual client and their support care, such as their physical and cognitive attributes, and the clients’ interactions with their broader environment including participation in self-care and PI equipment. These factors appeared to be important components of PI assessment.

6.7.1. Physical capacity

Clinicians described how limitations on ability to move, illness, de-conditioning and surgery impacted upon a client’s ability to participate in PI care. Participants also noted how it may be difficult to address these issues for a number of reasons. For example, there were significant delays in accessing publically funded physiotherapy services to improve mobility and there were circumstances in which surgical goals had to be prioritised over PI issues.

Pain was another issue felt to impact on ability and willingness to participate in PI care. The impact of limited mobility and joint range of motion due to pain and underlying pathology related to arthritis could also be observed in Elizabeth’s case study. A physiotherapist from a hospital setting identified the importance of pain management in assisting people to mobilise and thereby enhancing capacity to prevent PI. She discussed this both in relation to the general and hospital population.

“Pain is a major factor, on-going pain problems, which stop people from moving, depresses them pretty quickly, so having pain under proper control actually could help with their mobility. I think the impact of pain that stay on a patient with a chronic pain syndromes and on-going pain issues. There are some pains, which really can’t be helped, even with numerous medications.
It’s just there. That can stop people from getting mobile and preventing PIs.”
(Annabelle, PT, hospital based service, FG4)

6.7.2. Cognition and understanding

Participants had experienced a number of challenges in assisting clients and their support carers to understand PI, its significance and the importance of preventative measures. Clinicians believed that clients sometimes struggled to understand the implication of PI and therefore the relevance of prevention. The quotes presented below illustrate the misunderstandings created by the various terminologies for PI. Participants also raised the challenge of educating clients and support care with varying abilities and learning styles.

“The problem I face is more the cognition that the client has. You can be educating them every time you go on a visit, trying to reinforce what you educated them on prior, but whether they take it on board or not, it is up to them, or whether they are cognitively able to take it on board. So you are worrying about that.” (Robyn, Nurse, FG3)
Client understanding of PI was also felt to influence their ability to participate in their own care. In the extract presented below some OTs and nurses discuss how old terminology can limit a client’s understanding of their potential risk for PI and therefore their ability to fully participate in care.

Jo:  
Historically they all know about bedsores and they have all got a story about a bedsore, you know, whether it was grandma or somebody.

Robyn:  
They call them bed sores, which is...

Elle:  
They don’t call them chair sores, because that’s where they get them.

Jo:  
So there is a gap there just in the terminology.

(Excerpt from community clinicians, GD 3)

Many participants reported that, regardless of the type of education provided, some clients found it hard to understand information about the PI itself, and the purpose of preventative strategies. For this reason, they believed that education about PI had its greatest impact when delivered close to the time when the wound is first identified.

“I find that we have some of our patients you explain why you’re doing what you are to relieve the pressure but they get in a comfortable position and they don’t like to move, until something happens and they go okay, now I understand what’s going to happen. Sometimes it’s hard to get through what we’re trying to achieve”. (Miriam, CNS, hospital based services, GD5)

A dietician from community settings also noted that often clients may be more open about their shortcomings regarding food preparation or lack of equipment
when in their home when compared to how they may answer similar questions in clinical settings. These less formal settings allow clinicians to be more inquisitive regarding these important issues.

“So I actually find now working in the community, sitting in their home, having them, you know them letting me look in their fridge and cupboards and things like that. Sometimes you really get a picture of what is in the house and they are more honest in the fact that they can’t prepare foods and things like that. So I find that much better”. (Annette, dietician, community service, GD3)

6.7.3. Psychosocial aspects

Some clinicians also noted how psychosocial issues such as a client’s motivation to improve their health (particularly mobility), may play a part in their willingness to take on board information and act upon it. Participants reported that, whilst there is individual variability, chronic illness by its nature could impact on clients’ motivation to improve their health and mobility thereby assisting in the prevention of PI. Participants often recalled circumstances where they felt clients were supplied with everything they needed, but goals could not be reached, as the clients were not always motivated to help themselves.

“I find in the community that the type of clients that have pressure sores are the type of clients that usually have either chronic diseases and are usually lacking motivation to do anything at all, really, to take any of your equipment, to mobilise, to do anything that you try and give them and when the dietician comes in, same thing. So like we’ve got the dietician, the OT and the physio, we all go in like trying to do the one thing and we just sometimes can’t reach the goal that we are looking for”. (Mary, PT, community, FG3)
The nurse that had been involved in Elizabeth’s care over a long period of time noted that Elizabeth had been educated about the skin care and risk factors for PI development, as well as strategies to address them yet in spite of this knowledge she did not always follow recommendations. It is important to note that she did not link this directly with a lack of motivation and instead felt this was more likely to be influenced by disease factors and age, which limited her capacity to participate.

“Elizabeth won’t always take it on board. Maybe it’s a product of her age and her disability, sometimes her comfort zone is a bit narrow but she always tries everything. She doesn’t take every bit if advice but she does listen... and that’s a very human thing” (Beth, RN, community service, CS2).

“If I have got an issue that I think she is ignoring and I think it would be to her advantage to take advice, I will ring her sons up and talk to them. She is very open about her family, she knows we contact them, you have to balance out confidentiality with networking with the family. She has a very supportive family which makes it easier to do things.” (Beth, RN, community service, CS2).

6.7.4. Socioeconomic factors

Occupational therapy, nursing and dietetics participants discussed instances in which they had encouraged clients to fund their own equipment. This may have been because of difficulty obtaining timely access to resources, or when clients were not eligible for funded or subsidised equipment programs. Participants recognised that a client’s willingness to do this was constrained by their financial circumstances and their understanding of PI. If a client cannot utilise a service due to its cost they are unable to express a demand for it.

“I love suggesting the Sustagen drinks and Ensure, they do do that, but only temporarily and then they say the cost they find hard. Also the cost of attending a community physiotherapist. They are really reluctant to do that if they can’t access one at the hospital.” (Robyn, RN, Transitional service, GD3)
“We have distributors that we use for some of our nutritional supplements, and so they’re provided at cost price, so it is a minimal price that these patients have to pay, but yeah, they do have to pay.” (Karina, Dietician, hospital based service, FG4)

6.7.5. Social situation

Clinicians felt that a client’s social situation, including formal and informal support from friends and family members, was an important consideration. Participants believed that clinicians had to consider the abilities of informal carers providing the majority of the care when conducting assessments and planning interventions. As they were not trained health professionals, informal carers may not be able to recognise and deal with health-influencing situations effectively. Consideration of the client’s social situation including the role of their carers in supporting PI interventions, such as education and PI prevention as well as their direct involvement in client care, were discussed by all participants. This was particularly important for clinicians from community settings and those involved in planning discharge from hospital services.

6.8. THE ROLE OF SUPPORT CARE

Client participants had a very important role in the identification and monitoring of PI due to the positions on the body in which PI occurred. Clinicians and clients identified that support care was an important resource that could be used to assist in the processes involved in PI prevention and management. Both of these roles were exemplified in James’s case study in which his wife assisted in the identification of his wound and also took part in his care by applying dressings.

“I was having a shower and I thought what was that? And I came out of the shower and said to my wife ‘there’s something on my bum’ and she said ’you’ve got a sore there’....the girls [community nurses] came a day or two
later to check my wound out on my stomach and I said that there was something starting on my tailbone.” (James, client, CS1)

“What they have been putting on has basically lasted from Tuesday to Thursday. My wife has put a couple on me [dressings] when they came off. I could do the heel one myself... the bum I couldn’t do, I couldn’t see.” (James, client, CS1)

“we have done education with him on dietary requirements and maintaining skin integrity and making sure his partner checks his skin out, as he didn’t feel it, he didn’t experience pain, he hasn’t able to identify those things.” (Hazel, CNS, CS1).

In Elizabeth’s case study her family was perceived by the community nurse to be an essential component in the successful treatment and rapid resolution of her PI. As can be seen in the quote presented below Elizabeth’s family played an important role in initiating care quickly and also in assisting the nurse to implement interventions and monitor progress.

“with people like Elizabeth because it’s [the wound] shallow, because she has family...they have healed because we got in there quickly, and just that attention, the dressing, talking to the family about little things, the Repose mattress for a short time if she can tolerate it and the other ideas have worked for her” (Beth, RN community service, CS2).

As described earlier James’s case study also highlighted the important role of clients and carers in the early identification of PI and seeking of care. In the quote below we can see how carers can also assist and inhibit PI management through the purchasing of dressing and equipment from chemists. For instance, James used the rubber ring purchased by his wife in spite of the fact that it is actually contraindicated in clinical practice guidelines. Although, he reported that he eventually stopped using it as it hurt his bones.
“Even now I’m sore in the coccyx area, my bum bones are sore all the time just sitting on the lounge. I’ve been sitting on a ring. When the sore came out my wife went and bought it from the chemist. The ring actually hurts my bones now… My wife also bought me an egg shell thing for my heel” (James, client, CS1).

“He described a little bit of moisture from his backside and said that his wife had been to the chemist and had put something on his bottom and I asked if I could look at it and when we had a look at his sacrum area we discovered a pressure area stage two.” (Hazel, CNS, CS1).

6.9. MATCHING INTERVENTIONS TO INDIVIDUAL NEEDS

Clinicians were attuned to the importance of assessing each individual’s PI risk and care needs, yet they knew that their capacity to achieve this was constrained by competing health needs, limited resources and variable skill levels in PI assessment amongst their colleagues. Participants described how high and low risk categories were determined, including risk assessment tools and protocols. While all participants were aware of the limitations of such processes, participants from community settings and those managing complex and longer-term PI needs were particularly concerned about this. An OT from community disability services reported that traditional risk assessment tools are not sufficient in that setting because of the nature of her client group who nearly all come out as very high risk.

“If I get a typical client with cerebral palsy, severe intellectual disability, lots of complex body deformity and that kind of thing, you know straight away that they’re very high level pressure care needs, because they’re a full time wheelchair user and not very mobile in bed. You don’t need to do a risk assessment, because it’s staring you in the face. So I do a physical and social assessment, the problem with the risk assessments is that they’re really, really general. They’re just nowhere near the information you need to find out. So a massive thing is positioning. If someone’s in posterior pelvic tilt, and they’re just sitting right on their ischial tuberosities all the time because they’re not
positioned correctly, no risk assessment is going to tell you that, even if they come out as low.” (Penny, OT, disability service, GD2)

For this reason, she described the physical assessment and the positioning assessment as crucial, for example, identifying if the PI is associated with a transfer, a particular position at night or the seating system. This participant described it as requiring a full physical assessment across different environments, including the school and home or day program.

Across all health settings clinicians described instances where they had to compromise their professional judgement, due to other health needs or client preference and ability, although this appeared to be a more prominent feature of pressure care practice in community settings.

“I find I am often giving people things that aren’t optimum but it’s what suits them and what they are happy with and what the carer is happy with, or it might not affect their transfers where the optimal piece of equipment might have a big impact on transfers, or something like that. You really have to compromise and be trying different things all the time. Balancing out their needs and their wants”. (Helen, OT, community service, DG3)

Most participants particularly those from community and sub-acute settings highlighted the importance of considering the impact of equipment on the day-to-day function of clients. Some equipment interventions can make it difficult for patients to transfer independently thereby potentially increasing PI risk. For example, Elizabeth’s son and the nurse who was interviewed as part of the case study believed that Elizabeth’s poor bed mobility contributed significantly to her being at risk of and developing PI. Elizabeth and her son reported that her existing difficulties with bed mobility were compounded by the interim measure installed by the CN. Elizabeth reported that plastic cover was slippery and that
this exacerbated her problems with repositioning herself in bed. In addition she reported that the mattress was very thin and that she could feel that she was in contact with her own mattress.

“since they took that thing off my bed, I’m able to turn on the side better now, so I keep doing that now “(Elizabeth, client, CS2)

“It was too slippery, there was no grip, she wears socks to bed and it had a plastic cover over it. So the plastic and the socks, she couldn’t grip to turn over so she wasn’t sleeping” (Elizabeth’s son and carer, CS2)

The nurse who initially assessed and treated the wound determined that Elizabeth required further assessment by an OT for pressure relieving equipment. A referral was made and within the associated paperwork it stated the following.

“Repose mattress applied to bed. Encouraged Elizabeth to change position in bed at night. Elizabeth states that she usually sleeps on her left side. Clinician to clinician referral made to OT for assessment of pressure relieving equipment.” (Excerpt from medical records CS2).

However, at the three month home visit and interview it was discovered that Elizabeth had not been seen by the occupational therapist due to a lengthy waiting list. Here some of the barriers within community-based practice can be observed in that even when careful assessment is conducted, client access to equipment can be problematic.

Appropriate equipment selection and prescription is very important to the success of interventions for both prevention and management. Interventions prescribed to meet the needs of the client and their environment may reduce PI risk and the need for equipment by increasing function and participation in self-care activities. Additionally, well-prescribed equipment may enable clients to be
independent with or require less assistance with pressure relieving techniques. This is illustrated in the quote from a senior occupational therapist from a sub-acute service:

“The other thing we would do also is look at other equipment so we might put a bed rail in to assist patients to be able to turn, we use bed cradles to stop heavy blankets being on the top of people’s feet that then put more pressure on their heels. So we use different equipment if we can to able to give them the independence they need to be able to get out of bed and be able to participate in their rehab program.” (Vanessa, OT, hospital based service, I5)

Some participants also described other significant implications of poor access to equipment in the community such as clients needing to be placed or admitted to hospital for management of their PI and other needs.

“So restrict their activities which impacts a lot on people if they are needing to be on bed rest, or with some aged patients if they can’t be managed in the community they have to be placed or hospitalised. So it does impact a lot on people’s health by not having adequate equipment available at the time when it’s needed.” (Jacqui, OT, community service, GD3)

Consideration of the resources within the environment was also discussed by the participants. It is possible to infer that in a community care context this is particularly beneficial given the limited resources available in this service setting. Comprehensive assessment processes, involving an assessment of the client functioning within their own environment, were described as a necessary component in maximising client participation in PI management. Some participants also felt that comprehensive assessment, follow-up and evaluation assisted with the sustainable use of resources. Most participants felt that the processes used within acute service settings to determine PI need and allocate resources accordingly, such as risk assessment algorithms, had limited application within community service settings.
Many other negative implications for clients of not matching equipment to clients’ individualised needs were raised. For instance, participants described the importance of achieving a careful balance between PI needs and other health needs, both physical and emotional. They also described the careful consideration of equipment use in client groups with other issues including dementia.

“We have the same problem with the alternating air mattress on the aged care wards, they actually stop clients from being independent with their bed transfers. So we’re actually disempowering them in that sense as well and we’re probably blowing the time it takes to heal some”. (Jamie, OT, hospital based setting, FG5)

“... and in older patients, too, a lot of the air loss, low air loss, actually gets them quite disorientated so they become quite frightened and anxious when demented in some cases. It actually adds to their confusion and disorientation. Half a dozen of one and six of the other, which is the best way to go in that situation”. (Cynthia, CNC, hospital based service, GD5).

Another area of concern related to quality and safety issues around equipment prescription were the serious consequences of using inferior or inappropriate equipment in order to reduce expenditure, such as providing less safe options and using equipment with clients for which it was not designed. Other safety concerns included cushions that are not the right width and depth for orthopaedic chairs or mattresses that increase the height of transfers.

“...getting facilities, and this is all health care facilities, to lease or lease and buy the correct alternating pressure air mattresses. I often arrange for really great alternating pressure air mattress overlays to be delivered to aged care facilities for trial for a fortnight. Everyone can see how they work, everyone loves them, but then a manager or an owner or the purchaser of the
equipment for facilities will then order an el-cheapo mattress that does not – where the alternating cells, the deflating cells don’t deflate to atmospheric pressure; they don’t have alarms; they deflate and the patient’s left lying on a hard, rock-hard base of a mattress. They don’t have side formers, so patients can roll out of bed; they can roll and get stuck between the bed rails and the mattress, and there’s actually been documented cases of people who’ve suffocated” (Philippa, RN, private wound service, GD2)
6. 10 DISCUSSION

The client level data identified issues that provide a picture of client need for PI management based on the experiences and perceptions of clinician participants and some client perspectives gathered in the case studies. Some of the key issues that are discussed in this section include the range in client need for PI services and the importance of client and carer participation in the initial expression of PI need and also in the on-going monitoring and management of PI.

6.10.1. High and low client risk

The findings suggested that the identification of need and the allocation of resources were challenging aspects of practice for clinicians. Participants discussed a wide variety of client groups requiring PI management, reflecting the diversity of clients identified to be at risk in the literature. Amongst the client groups discussed there were several clusters that could be observed in the participant’s descriptions of their PI needs:

i). Those at on-going yet fluctuating levels of risk such as those with chronic complex care needs and those that have had a previous PI.

ii). People at high risk for a period of time who then experience complete remission, such as those who have orthopaedic and other major surgery, or have an acute illness, which restricts their mobility for a relatively short period of time.

The broad range in need for preventative measures had implications for client access to services. For example, client groups who were perceived to be at greater risk for PI were targeted with greater levels of resources mainly within acute service settings. While clinicians felt that this was entirely appropriate, participants keenly identified the dilemma for them in addressing both greater demand for PI services from these client groups and also what they perceived was an unmet need for PI care amongst those whose risk was less overt.
From clinician descriptions of comprehensive assessment processes it appears that PI risk was seen as broad and individual, including psychosocial factors. The increasing attention directed toward understanding the role of psychosocial, behavioural and environmental factors in the development of PI highlights increasing recognition of the multifactorial nature of PI development (Clark et al., 2006; Rintala et al., 2008; Sheppard, Kennedy & Mackey, 2006). Further developments include greater understanding of the individualised susceptibility and tolerance for PI risk (Coleman et al., 2014).

The clients' environment also affected their risk. Current perceptions of levels of risk and approaches to PI care across client groups are influenced by the traditional organisation of services into health care settings, yet this approach does not account for changing PI needs. Characteristics of PI risk in community settings demonstrated that risks are different amongst those in receipt of care within community service settings. PI risk is complex, and this is being increasingly acknowledged (Coleman et al., 2014). Some examples of the conceptual frameworks that have been developed over time to illustrate possible relationships between risk factors are included in Appendix B.

Given that a previous PI increases the probability of further PI development, the findings suggest that a realistic way to address increasing PI needs may be to target this unique group of clients with interventions aimed at secondary prevention. In addition, primary prevention of secondary conditions such as diabetes, which are known to contribute to PI development, warrants on-going attention (Guihan et al., 2014). For this to be effective a location or clinician must be accessible for clients within these groups.
6.10.2 Client need

The findings suggested that the client group potentially in need of PI services was very broad. This was due to the natural history of PI and its multifactorial nature, as well as the intervening factors occurring at the individual level such as client knowledge and understanding of PI, and the group level such as the ability of clinicians and services to assist clients in their expression of PI need. In addition a clear picture of need may be inhibited by access to services. Difficulties for clients in accessing services will affect demand or expressed need and may create a misleading perception of lesser need for PI services (Duckett & Willcox, 2011). The expression of need or demand equates to the utilisation of services. The use of a service may result in a PI need being met either in part or in full (Donabedian, 1973; Dror et al., as cited in Duckett & Willcox, 2011, p. 8).

The findings suggested that more often than not client expression of need or demand was not successful and was associated with multiple system failures. For example, within community service settings PIs often tended to be dealt with once a client’s situation had reached a crisis point. Therefore, it is difficult to obtain a clear picture of PI need and therefore the need for PI services. This also highlights challenges in the identification and early expression of need by clients. Without support, clients are limited in addressing their own PI needs through seeking advice.

The findings demonstrated how community settings pose particular difficulty in assessing PI needs due to the ranges in client function and limited resources, often resulting in need not being expressed until it had reached a severe level. Equally, the findings also highlighted potential strengths of community based PI care. As discussed earlier at the system level the early detection of need is important in PI as it has the potential to decrease the amount of expenditure required to manage PI alongside improved client outcomes.

Many risk factors for PI also limit the ability of clients to express their need for services. These include functional limitations such as impaired movement and
sensation, as well as cognitive issues such as dementia and acquired brain damage. Additionally, the location of PI presented a barrier to the observation of the wound and therefore inhibited awareness of its presence and progression over time. Due to the nature of PI in that it is often ‘hidden,’ clinicians are required to be more inquisitive when searching for clues that could indicate PI. This was evident in the characteristics of PI presentation described by the case study participants as being a “moist patch”, an “itch” or a “sore of the bum”. This is where the importance of clinicians and support care in assisting clients to be able to express their need and also participate in PI management becomes evident.

The findings suggested that clinicians were experiencing greater demand for their skills in PI prevention and management from those with chronic complex care needs. The findings also demonstrated unmet need for follow-up care of longer term PI needs within community services and also during the transition from hospital based services to the client’s home. The findings suggested that the area in which clinicians appeared less well supported was in meeting longer-term needs including the management of low to moderate and fluctuating risk amongst client groups that are known to experience reduced mobility (Papanikolaou, 2014). The current organisation of services resulted in unmet need and it also impeded the expression of need as the findings indicated a lack of mechanisms for coordination of longer term PI needs as evident in Elizabeth’s case study. For instance, Elizabeth and her carers did not report that she had a chronic disease management plan through her GP. This was one mechanism, which could potentially have been used to coordinate on-going PI care needs to a certain extent.

Therefore we do not currently have a true picture of PI need, particularly for preventative services. This appears important given the way in which PI needs can fluctuate and restrictions on mobility can lead to individuals thought to be at relatively low risk, developing PI.
The findings suggested that a more active role for clients and support care in PI management was necessary in addressing increasing demand for services. For example, if a client is unaware of the early signs and symptoms, they may not present to a health service until the situation has reached a critical point. Given there is a relationship between the severity of a PI and the amount of resources required to manage them, early identification and expedited management is important (Bennett et al., 2004).

The two case studies clearly illustrated the broad range in client need for PI services and the corresponding range in demands on clinician’s skills. The range of client and environmental factors that contribute to PI development also meant that resource allocation, particularly in settings where there were fewer resources available is challenging. Lewin et al.’s (2007) study illustrated the problems inherent in trying to take a preventative approach to PI within a home care service setting. These included difficulties in determining how staff time and equipment resources should be allocated amongst clients due to the diverse range in client need within community home care services. As PI tends to be managed as a secondary issue it is likely that a significant increase in resources to address all PI need would be a poor use of limited resources (Lewin et al., 2007). In addition some studies have focused on secondary prevention of PI amongst those that have severe recurrent PI (Guihan & Bombardier, 2012; Guihan et al., 2014). Again, not all clients are likely to have access to this level of service.

6.10.3 Increasing client and support care participation

Increasing client participation in care presents a way forward in addressing PI need within community service settings, however clients require support to be able to recognise their own need and seek care. An existing approach to managing chronic care is through enhancing self-management (Battersby et al., 2010; Coleman et al., 2009; Lorig & Holman, 2003; Wagner et al., 1998). This
approach relies on supports to provide effective education for clinicians and support carers to meet needs of the client.

The increase in demand for services from those with longer-term health care needs and the challenges are well recognised. Policy is similarly encouraging client participation in care through consumer directed care initiatives and this is likely to support greater client involvement in PI management processes (ACSQHC, 2012; Commonwealth of Australia, 2015e, 2015f; KPMG, 2012). A key component in meeting chronic complex care needs into the future is the increased inclusion of clients and their supports in care processes (Commonwealth of Australia, 2010; WHO, 2012).

There are many existing examples of clients being active participants in their own care. For example, clients with chronic kidney disease have been trained to monitor aspects of their condition including early warning signs that could indicate a deterioration. They are also instructed in how to monitor and manage their own medications, as well as how to check their skin for signs of deterioration particularly in the feet (Brand, Musgrove, Jeffcoate, & Lincoln, 2015; Broersma, 2004; Giacoma, Ingersoll & Williams, 1999).

In the literature specific to PI in those with SCI, self-management has been suggested as a potentially useful model for PI management (Guihan & Bombardier, 2012; Rintala et al., 2008). In the closely related area of foot care the importance of patient education is recognised (Dorrestijn & Valk, 2011; Dorrestijn, Kriegsman, Assendelft & Valk, 2012; Sheriden, 2012). However the study findings suggested that achieving client participation poses significant challenges and the clinician participants raised many barriers to client participation in PI care.

Sadler, Wolfe and Mackevitt (2014) conducted a systematic review and narrative synthesis of studies exploring layperson and health care professionals’
understanding of self-management and found that a significant proportion of people with chronic conditions regarded collaborative partnerships with clinicians as an integral part of their self-management practice. A key recommendation from their study was the need to improve the quality of health professional-patient relationships in order to foster self-management. Others have similarly recognised the importance of productive client-provider relationships in achieving positive client outcomes in the management of chronic conditions (Wagner et al., 1998). The patient and clinician partnership embraces the components of collaborative care and self-management. According to Bodenheimer et al. (2002) collaborative care is ‘a description of the patient-physician relationship in which physicians and patients make health care decisions together’ (p. 2470).

According to Bodenheimer et al. (2002) self-management education ‘takes place in the realm of patient education and includes a plan that provides patients with problem solving skills to enhance their lives’ (p. 2470). This includes their involvement in the development of action plans. Clinician study participants noted that education and materials to support education were ad hoc and inconsistent. There are a range of educational brochures and pamphlets available, the majority of these tend to have been developed by individual services. It is difficult to know whether these brochures have been evaluated, as there are a very limited number of publications which document this process (Akkuzu et al., 2009; NSW Health CEC, 2012b).

Current evidence for the benefits of self-management programs remains unclear, however, this approach has been widely adopted. Comparisons across studies are difficult due to the various ways studies have been conducted and outcomes measured (Sadler et al., 2014). Additionally, it has been suggested that there has been limited attention directed toward understanding and addressing the social and structural factors that shape self-management practices, such as differences in access to services and the lack of integration of self-management programs in routine health care (Ong et al., 2014). This is important, as the studies, which
have incorporated self-management principles in PI management to date, have found access to services and resources to be a barrier to this approach. More specifically, access to equipment, multiple competing health needs and the high levels of PI risk experienced by clients with SCI, are known to influence the success of these approach amongst those with SCI (Ghaisas et al., 2015).

The reasons for delays in client access to services, skills and equipment were frequently occurring issues in the findings. For example, participants expressed frustration at wanting to provide preventative care to certain clients, yet being unable to meet their equipment needs in a timely enough fashion due to their clients’ diagnosis, policies around provision or being unable to provide funding to assist with access to nutritional supplements.

Access to PI services appeared to be influenced by a number of factors related to clients, clinicians and the characteristics of the health care system. Access to services has not been widely discussed in the PI literature, apart from socioeconomic factors that impact on access to services and equipment (Jackson et al., 2010; Oot-Giromini, 1993; Saunders, Krause & Acuna, 2012). As described in the literature there are a number of dimensions to access, these include, accessibility, affordability, accommodation and availability in relation to health services (Penchansky & Thomas, 1981). These concepts can be used to assist in understanding factors that are currently impacting on a client’s ability to participate in PI care. Clinicians noted that some clients did not always have access to PI care at the most appropriate time. Those with chronic illness may have access to care due to their primary health condition, however, they may not have access to PI services until the point where multiple failures have occurred. Equally they may not have access to follow-up care, which specifically addresses their PI needs, as their care is organised around the primary condition.

The findings uncovered strategies used by clinicians to address unmet need such as encouraging self-purchase of equipment and nutritional supplements. These
descriptions were more often than not accompanied by comments related to client unwillingness or inability to take recommendations on board and act upon them. This requires knowledge of what resources or concessions a client might be able to gain access to. Clinicians could be supported in this process further by another clinician who has been up-skilled with specific knowledge about policies of provision, and where equipment may be obtained at a reasonable price. While client autonomy is a key feature of community based care, it is possible that this situation may be improved by increasing clinicians’ understanding of client behaviour and providing them with the knowledge and strategies to work within the system to address client need in the best way possible.

6.10.4. Influences upon client behaviour in PI management

The findings suggested that clinicians were involved in trying to change client behaviour around PI prevention and management and wanted to encourage more client involvement in care. The findings indicated that client behaviour in relation to PI management and recommendations was variable. These examples were evident across data sources and related specifically to clients assessed as having the ability to participate in PI care. Participants hypothesised various reasons for poor participation in PI care. The findings suggested that patients did not always value PI prevention and whilst this was felt to be less of a concern in acute settings, where there was limited potential for client participation in care, it was a key concern for those involved in PI care within community settings. They also cited challenges in client understanding of PI and its relevance to them, particularly, when they had not had any prior experience of PI (Lewin et al., 2007).

Other studies have shown that even though clients may be aware of PI and the strategies they should implement, they often face many competing social and medical needs on a daily basis that they may choose to prioritise over PI management. Recent research has shown that those with complex chronic care needs are dealing with many issues, both social and health related (Dunn et al.,
2009; Guihan & Bombardier, 2012; White, 2004). Guihan and Bombardier (2012) in their study, which explored readiness to improve medical and behavioural risk factors among veterans with SCI and severe (Stage III/IV) PI, were surprised to observe a high degree of medical co-morbidity amongst participants. They described being ‘struck’ by the complex demands placed on participants to manage multiple chronic conditions in addition to their PIs.

The findings from the current study suggest that a greater understanding of how individual adults learn may be an important development in facilitating client and support care involvement in PI. The importance of understanding how adults learn has already been recognised in some early work again specific to SCI and PI (Basta, 1991; Carpenter, 1994). Carpenter, in her article exploring individual conceptions of the experience of SCI, used Mezirow’s theory of adult learning, to facilitate greater understanding of the processes individuals go through as they establish new post injury identities. This relates to PI care as clinicians should be the targets of educational programs to facilitate greater understanding and use of the skills necessary to assist their colleagues and clients to achieve the self-knowledge and critical reflection characteristic of ‘transformative learning’. Transformative learning is the final and most important stage in Mezirow’s theory of adult learning (Mezirow, 1981,1997)

The characteristics of adult learners outlined below highlight some important considerations in planning PI education (Ferriter, 1991; Hays & Veitch, 1999; Merriam, 1996).

i). Adult learners are motivated more by internal needs rather than external pressures;

ii). Adult learners recognise why they need to learn something before they undertake to learn it;

iii). Adult learners have an accumulation of experience that can act as a resource for learning;

iv). Adult learners learn most effectively if the new learning is presented in the context of; application to real-life scenarios e.g. problem-centred learning.
The principles of adult learning are central to successful chronic disease management, in which behaviour change is achieved (Beebe & Schmitt, 2011; Yunken, 2014). There are existing examples of the use of adult learning principles in wound care, for example, O'Shea (2001) who described teaching adults ostomy care. This was a complex process which involved consideration of many factors including the client and their support carer’s previous experiences, their ability to learn and their willingness to participate in care. Similarly adult learning principles, such as attending to the needs and desires of the patient, and combining a range of educational strategies and techniques have been used in the management of those with diabetes and end-stage renal disease (Sheridan, 2012; White, 2004).

Brown et al. (2011) argue that a key objective of patient education is to change behavior, not just to increase knowledge. Through education, patients learn to understand the reasoning as to why improved diet, exercise regime and compliance with medication is important and are, therefore, more likely to modify their behaviour (Brown et al., 2011). They also argue that this objective is consistent with adult learning theory; learning is the outcome of education and can be defined as, “a relatively permanent change in behaviour as a result of experience, training or practice” (Reece, 2007. as cited in Brown, 2011). Others have similarly defined learning as a change in behaviour (O'Shea, 2001).

A patient’s beliefs and perceptions have been found to be important determinants of health behaviour (Przybylski, 2010; Thomas & Penchansky, 1984; Yumang, Hammond, Filteau & Purden, 2009). A number of studies have explored how client behaviour influences PI development and also prevention and management strategies. While these studies have predominantly been conducted amongst those with SCI they demonstrate the importance of health professionals’ understanding of what may influence client behaviour and how this can impact on the patient provider relationship. Also demonstrated is how
clinicians might use knowledge and understanding of behavioural change theory to influence client behaviour in the context of PI management (Guihan & Bombardier, 2012). More research is needed to understand client perception of PI issues and how this may be used to inform educational components of mechanisms to improve participation in PI care.

The use of behavioural change as a mechanism for improving outcomes has been used widely in the management of other syndromic-like conditions such as Diabetes. A Cochrane review by Deakin, McShane, Cade and Williams (2005) concluded that training of adult patients with type 2 diabetes mellitus resulted in improved knowledge of diabetes and improved diabetes control, symptoms and the need for diabetes medication. Another systematic review also found that self-management training in people with type 2 diabetes was effective (Norris, 2001).

6.10.5. The place of education in PI management

Broader investigation of the educational needs of clients including those less at risk is necessary, as studies investigating approaches and educational strategies have been conducted predominantly in the SCI population. A number of educational models have recently been developed, however they are specific to the needs of very high-risk groups such as those with spinal cord dysfunction. Educational programs specific to PI in SCI have included the development of action plans for skin breakdown and alerting key individuals to assist in accessing health care services for equipment and treatment (Ghaisas et al., 2015; Guihan et al., 2014). The role of behaviour in the development and successful management of PI has been explored in several studies. All studies conducted to date have focused on those with spinal cord dysfunction (Ghaisas et al., 2015; Guihan & Bombardier, 2012; Rintala et al., 2008; Sheppard et al., 2006). This approach may also have application more generally in PI and in particular assisting to create a fresh approach to prevention.

A large randomised controlled trial (RCT) has been investigating the use of an educational program to achieve behaviour change and reduce PI occurrence
amongst community based clients with SCI. This project was developed from original qualitative investigations involving community based clients with SCI in the United States that explored lifestyle and daily living context on the development of PI (Clark et al., 2006; Jackson et al., 2010; Vaishampayan et al, 2011). The study protocol includes a manualised educational program incorporating the clinical method of Motivational Interviewing. Motivational Interviewing uses collaboration and patient autonomy to promote behaviour change and it is known to be effective in reducing at-risk behaviours (Hall, Gibbie & Lubman, 2012; Vaishampayan et al., 2011).

Ghaisas et al. (2015), using data collected during the RCT just described above, presented four case studies that indicated mixed results. In cases where participants' PIs did not improve despite participating in the intervention and making some positive lifestyle behaviour changes, the authors noted the presence of additional medical complications and fragile skin caused by previous PI. In cases where no positive lifestyle or behaviour changes could be noted, the authors commented that these individuals appeared to lack a sense of urgency with regard to PI, and had gaps in their knowledge in relation to PI. They also contend that these individuals tended to prioritise other issues ahead of PI and argue that this may be due to psychosocial issues, which constrained their ability to make lifestyle changes. A significant barrier to participants making more extensive lifestyle and behavioural changes reported by the authors was also socioeconomic disadvantage, which meant that participants lacked the necessary resources to change their behaviours.

Others have also demonstrated limited success with behaviour change strategies alone. For example, in a recent study conducted by Guihan et al. (2014) in which they incorporated Motivational Interviewing alongside self-management strategies for those with recurrent PI, this approach was found to be not much better than usual education. Guihan et al. (2014) concluded that systematic and ongoing education for clients with SCI and recurrent PI is necessary. Many other studies concur with these findings and recommended the need for follow-up support and ongoing education to ensure the success of individualised
educational strategies in those with SCI (Guihan & Bombardier, 2012; Sheppard et al., 2006; Shubart et al., 2008).

A recent systematic review of patient education for preventing diabetic foot ulceration found that educating people with diabetes about the need to look after their feet seemed to improve their foot care and behaviour in the short term and therefore helped to reduce foot ulcers and amputations. In this review a range of interventions were evaluated from brief patient education to intensive patient education which included 'hands on' teaching and it was suggested that investigation of more comprehensive and intensive educational programs was needed (Dorresteijn et al., 2012).

The shared characteristics of PI and diabetes and foot ulcer management makes it plausible to suggest that the approaches and success shown by education in diabetic patients and those with foot ulcers may have applications in PI management. For example, a range of psychosocial factors such as behaviour, emotions, cognitions and social factors are known to contribute to foot ulcers and are shared with PIs. Approaches which incorporate psychosocial interventions may have greater application in PI (Beattie, Campbell, & Vedhara, 2014; Sheppard et al., 2006). A recent study undertaken by Vedhara et al. (2012) demonstrated the benefits of a group-psychosocial intervention for achieving increases in foot-related knowledge and behaviour change in those that have had a previous foot ulcer. This RCT included 13 sessions run over 34 weeks and aimed to enable patients to achieve greater awareness and take responsibility for managing risk. The interventions drew on the principles of cognitive behavioural therapy, which incorporates a pragmatic approach to managing symptoms and adapting to illness. This type of approach involves enabling patients to change aspects of their behaviour and the way they think in order to bring about physiological and emotional changes and it has been used to assist in the management of a range of chronic diseases including diabetes (Ismail et al., 2008).
Vedhara et al’s. (2012) study also collected qualitative data related to acceptability of the interventions and found that participants perceived it was an appropriate and effective medium for delivering the intervention. The interview data also suggested that beneficial changes in cognitions and behaviour came about through increased knowledge, self-efficacy, risk awareness and perceived control. At interviews conducted nine months after the initial intervention had commenced participants perceived that changes had been sustained and consolidated.

The findings suggest that an important consideration in the delivery of PI prevention education is timing. King, Porter and Vertiz (2008) in their investigation of preventative skin care belief amongst those with SCI recommended capitalising on ‘incidental teaching opportunities’ as these provide additional contextual support for the relevance of PI management to individuals as well as helping them to see how and when it can be incorporated into everyday care. The importance of timing in education has also been described more generally. For example, Etzwiller (1980) in his commentary on teaching allied health professionals about diabetes self-management, notes the importance of identifying ‘golden’ educational moments for patient and family instruction. Given the nature of community services settings, where clinicians are in frequent contact with clients and their carers, education can be incorporated into daily care.

The findings suggested that in acute settings there is potentially more opportunity to educate due to the frequency of contact with participants, however there may be less opportunity for client participation as individuals within these service are usually acutely unwell, they often experience shorter stays and there was often a rapid resolution of an issue. In community settings there was greater client and carer involvement, which means that clients and carers are essential partners in the PI care process, making the community setting suited to enhancing client education. Etzwiller (1980) similarly suggests that around the time of diagnosis or acute hospitalisation, the patient and their
family members are anxious about the discovery of the disease and all of its implications and that this may not be the optimum time for education.

In order to support the delivery of education at the most appropriate time when it is likely to have greatest impact, it is necessary that clients have timely access to education and training when it is most relevant to the client and their support care. The strengthening of primary health care through the coordination of PI needs, including education within a primary health centre or GP practice and to support ongoing management of longer term PI needs within community service settings, represents the most viable way to address a range of PI needs.

Clinicians within this setting would also need to be equipped with the necessary skills and knowledge to partner with clients and carers. Clinicians could be further supported with some additional training in behaviour change theory and the practical application of these strategies. There are already several examples of attempts to address these skill gaps within the health workforce through the introduction of courses that incorporate the principles of behaviour change theory (Health Change Australia, 2012). While exposure to such educational opportunities may change approaches to PI practice more broadly, the findings in this study suggested that the actual translation of knowledge into practice is challenging, and this is now a well recognised phenomenon in the broad body of literature related to the provision of health care (KT clearing house, 2015; Woods & Magyary, 2010). Additional supports to assist clinicians to make the link specifically between behaviour change theory and practical strategies for improving client participation in PI management, such as coaching are necessary.

6.10.6. The importance of individualised PI assessment and interventions

Some clinicians discussed the importance of the consideration of individual needs and the tailoring of care to meet such needs was essential in achieving client participation in PI care. Participants felt that it was necessary to consider the context in which care was provided, as this had a significant impact on their
practice, by determining the extent to which they needed to individualise care, as well as the extent to which they were able to individualise care.

While the importance of individualisation in prevention strategies has been demonstrated, the clinicians in this study felt that achieving this within the current organisation of services and the general overarching approach to PI was difficult. Within acute settings there was limited time to achieve such an approach due to short admissions, limitations of clients to participate in care, and the challenges with providing adequate follow-up care, and these made effective discharge planning around PI needs difficult to achieve. The findings suggested that there were challenges for clinicians in implementing protocols and guidelines, particularly within community settings. It should also be noted that the literature described the need of clinicians to tailor education to the individual needs of their clients (Vaishampayan et al., 2011)

The findings suggested that PI care is further complicated by acceptability of interventions to clients and whether clinicians accommodate client preference as well as PI need (Penchansky & Thomas, 1981). Many participants explained how their clients did not like equipment as it was uncomfortable. For example, in Elizabeth's case equipment was removed because it was uncomfortable and it had a negative impact on her bed mobility. For Elizabeth the negatives associated with this equipment outweighed the benefits in terms of wound healing and skin protection. Additionally, clinicians frequently involved in the prescription of equipment described additional individual complexities that sat alongside PI effectiveness, such as client safety. The motion and noise created by some equipment could also influence a client's behaviour in the case of those with dementia.
6.10.7 Factors influencing client decisions to seek care

The findings also suggested that there are a number of interrelated reasons occurring at the system, clinician and client level that contribute to delays in the detection of PI issues. At the client level, consumers may at times not see the connection between early warning signs for skin damage and PI risk, nor comprehend the relevance of the issue to them.

Additionally the findings demonstrated that PI may not be a priority particularly amongst those at low risk living out in the community. Other studies have similarly found that clients may be managing competing needs (Guihan & Bombardier, 2012). PI may be seen to be time consuming and not essential resulting in clients attending to the need they perceive to be more important. Several studies have demonstrated how competing health care needs can lead to poor attendance to some issues, particularly those issues which are defined by clients as being of less importance. For those clients that are able to seek help independently or with assistance of support care, a range of factors have been identified as directly or indirectly influencing the time taken to seek help including: patient factors, provider or system factors, psychological factors, behavioural factors and social factors (Walter, Webster, Scott & Emery, 2012).

The findings suggested that PI tended to present when a crisis point had been reached. A contributing factor to this may be client reluctance to act on early signs and symptoms of PI. Other factors known to influence client action in seeking assistance for symptoms of disease and therefore potentially delaying treatment, particularly in the case of preventable conditions such as STI, include emotional responses such as embarrassment, shame and guilt. These types of emotional responses may similarly influence behaviour in realtion to PI, thereby delaying the seeking of care and therefore early detection and treatment (Anderson, Cacioppo & Roberts, 1995; Pitts, Wooliscroft, Cannon Johnson & Singh, 2000). The common locations where PI develop create a further barrier to identification of need and therefore prompt management. Pls tend to occur on
parts of the body that client’s would rather not show due to modesty and equally support care and clinicians hesitate to request viewing, particularly in the clients own home.

Dunn et al. (2009) using the same data set as the PUPPS study 2001-2005 found that those with SCI may not act on early signs of a stage 1 or 2 ulcer and instead procrastinate about help seeking due to emotions such as fear. In Dunn et al.’s study procrastination was reportedly due to trepidation at the prospect of medical treatment and extended periods of hospitalisation. Others have also noted that clients may experience a sense of blame and guilt when they develop a foot ulcer or have a history of foot ulceration and that this may in turn effect health seeking behaviour (Beattie et al., 2014).

Several models are available to assist in the identification of targets for interventions in order to encourage early detection, presentation and treatment of illness, therefore improving prognosis. The general model of total patient delay (Anderson et al., 1995) and more recent models such as that proposed by Scott et al. (2013) may provide useful frameworks for the exploration of client and support care appraisal of PI symptoms. Exploration of pathways to PI care, particularly within community settings, appears important in informing the development of strategies to assist in their early recognition, identification and expedited management (Scott et al., 2013; Walter et al., 2012). The use of theoretical models in understanding client access to PI care, including delays in care seeking, may provide the opportunity to build on existing knowledge, develop a platform for comparison across studies and in turn lead to more effective interventions to improve client access to PI services.

Client and service outcomes may be improved if there were supports to assist clients and support care with the early detection and expedited management of PI. Easily accessible information about the early signs and symptoms of PI, the importance of skin integrity and strategies for its maintenance, as well as basic skills to manage small incidents and know when and where to seek help may be
beneficial in supporting enhanced preventative efforts, earlier detection and expedited management of PI. This approach requires the client and their support care to be assisted to develop and apply their knowledge and skill in PI management through both access to written information and educational material and one-on-one support from a clinicians. Existing examples of potential supports include websites such as that provided by National Health Service (NHS) choices, which offer a symptom checker and advice about seeking care (National Health Service, 2014). The findings of the current study also suggested that the greater use of the services provided by pharmacists may present another way to improve client and support care access to products and advice related to PI management.

6.10.8. Improving client access to care

Given the characteristics of community based PI care it is even more important that support care are aware of early signs and symptoms as well as the cues indicating potential PI issues such as soreness and discomfort whilst a client is seated or lying in bed. Early recognition of signs and symptoms creates the opportunity to address PI needs with less expensive interventions, such as improving mobility through equipment and environmental adjustment. Also, as there are modesty issues, clients may be more inclined to address early concerns about skin integrity by purchasing products from a pharmacy. As the findings indicated that some products that are currently available within a pharmacy are contraindicated with the PI guidelines there is a need to support pharmacies and their staff to develop product knowledge. Pharmacy staff also need to be attuned to clues indicative of PI issues, and know when a client needs to seek advice from a specialised health professional.

The way in which services are organised and delivered can present barriers to access, but through careful consideration and design, may be used to increase client access to health care. The findings also suggested that there were some barriers to timely client access to GP services, due to waiting times for appointments and also challenges with community mobility. If greater client and
Carer participation in PI care is to be achieved, it is important that the necessary infrastructure is in place to enable clients to easily seek advice about early signs and symptoms and also be able to purchase safe and effective PI equipment.

The strengthening of community-based PI care through an enhanced approach that builds on the existing platform of primary health care would better support the integration of PI management within this setting. The establishment of pathways between the diverse range of providers that comprise primary health care are an important mechanism in this approach. Pathways can both assist clients and their support care to access appropriate and timely care by identifying and linking with a range of community-based services, and supporting transitions between these services by providing established processes for referral and ongoing communication. Additionally, pathways between primary health care and acute services, which occur through a primary health care hub, around GP services, may enhance PI management by reducing the prevalence of high-risk situations and improving transitions between acute and community services.

6.10.9. A new role to support client participation in care

The findings suggested that client education is more challenging than first thought and therefore clinicians may benefit from additional supports to assist them in this aspect of care. The needs of clients can vary greatly, for example, the needs of clients with SCI are very different to the needs of elderly individuals living at home with declining mobility, and the needs of acutely ill individuals that are immobile in acute service settings. In the literature to date, there has been limited attention directed towards understanding client education in PI aside from those with SCI. Given the increasing emphasis on including clients and informal support care in PI care, greater consideration of the way information related to PI prevention and management is imparted to laypersons is an important area for future research (Akkuzu et al., 2009; Gillespie et al., 2013; Hartigan et al., 2011).
Additionally, the current study has developed understanding of the range of educational knowledge and skills that are potentially of benefit to those involved in the prevention and management of PI. Given the diversity in client need for PI care, and the competing demands on clients and services, an individual with specialist educational skills that is readily accessible and able to act as an educative resource in relation to PI would be of benefit. While clinicians described accessing specialist advice about wound care and equipment, they did not describe accessing specialist advice in relation to educational strategies that could be used to increase client participation in their own care. This might be because this role is not currently available, or it may simply reflect a lack of awareness regarding how to access such skills, as well as the under-utilisation of existing skills within the workforce.

A similar type of approach has already been utilised to support clients with diabetes in the management of their condition. Diabetes educators (DE) are a well-recognised part of a team based approach to the management of diabetes that operate across a range of health care settings. The DE approach enables the up-skilling of individuals from a range of backgrounds including allied health such as podiatrists, pharmacists and exercise physiologists along with nurses and medical professionals (Australian Diabetes Educators Association, 2012; Diabetes Australia, 2012).

Diabetes educators are known for their skills in dealing with complexity as well as screening for and managing complications in care. They also assist in the provision of ongoing self-management education support that includes problem-solving and shared decision-making skills, thereby partnering with clients and carers to achieve long-term behaviour change (Drab, 2013; Martin & Lipman, 2013; Speight, 2013). They also have knowledge of products and technologies utilised in diabetes care and are able to support clients in their use through education. As DEs have knowledge of educational theory, including adult learning theories, they are also able to adapt their educational strategies to meet a range of needs and can provide education in different formats, such as
individual counselling and group sessions to suit individual need. This type of approach has been recognised as important in the management of diabetes as well as more broadly as part of future approaches to addressing complex chronic care needs (Beebe & Schmitt, 2011; Dorresteijn et al., 2012; Nancarrow, 2015; Vermeire et al., 2009). Further applications of this tried and tested model within PI care could be effective in addressing PI need.

6.11 SUMMARY

The findings suggested that longer-term PI needs were unmet as levels of support for PI needs vary depending on the client group and characteristics of the individual. To help alleviate this unmet need, clients require better access to PI services. Access to PI prevention and treatment early in the development of PI appeared restricted by the dominance of the biomedical model in organising services. Providing PI services was more challenging for clients from less well recognised PI risk groups.

The findings uncovered a range in client abilities and also willingness to participate in PI care. This highlights the importance of educational opportunities to enable clinicians to partner with clients in their own care. The importance of clinician skills in assessment of PI needs and skilled use of what is available within the client’s environment was also evident. As supporting clients and support care to participate in PI care may increase demand for client and support care education, it is important that services are actually able to meet the demand for these services. There is a need to consider the supports necessary for the creation of a ‘hub’ for PI needs within primary health care, and this is likely to include making sure that education and training models are available for clinicians to meet clients and support care needs.

Equally, resource allocation in community service settings appeared to be complicated by varying levels of client function. Participants noted the increased
role of OT within community settings due to the complexity of the environment, the need to source equipment in various ways and the need to use the environment to provide PI care in an under-resourced setting. This lends weight to the need to support team based approaches to care and the necessity of looking to clients and support care as additional resources in PI care.

The findings illuminated the individual needs of clients. As clients encounter different health care environments their potential level of risk alters regardless of their diagnosis. Community participants in particular spoke of the way in which the environment impacts upon PI practice and the interplay between environmental factors and the fluctuating functional abilities of individual clients. The findings demonstrated some gaps between the ideal of clients self-managing their own PI care, and the capacity of the health system to support clients and their support carers to undertake the tasks required.

The numerous examples of adverse events described by clinicians and clients illustrated the complexity of PI scenarios. Given the complexity in PI development that has emerged from the findings, it would be prudent to explore ways to further support clinicians and clients in the early recognition and expedited management of PIs.
CHAPTER SEVEN

FINDINGS AND DISCUSSION

CLINICIAN LEVEL

7.0 INTRODUCTION

In this chapter the various influences on individual clinician behaviour, decisions and experiences are described and discussed. The findings originated from the same data sources as the system and client levels, but in this chapter any data related directly to the clinicians is presented. Findings suggested that clinicians experienced a sense of frustration as general approaches to PI intervention overlooked the complexity of the situation facing them in determining need for PI services and also being able to act upon PI needs. The various factors at the health clinician level influencing current practice as described by participants, has enabled the identification of some potential supports that may assist clinicians to enhance PI management to better meet client and system need. It is important to note that many of the factors that influence health clinician behaviour have origins at the system level and the client level, and therefore the relevant sections in previous chapters will be highlighted throughout this chapter, as this will enhance understanding of clinician level issues impacting on current PI practice by clinicians.

Participants described their current practice in PI prevention and management, including the various influences on how they utilised skills in PI prevention and management. Participants also discussed the strengths and weakness of current mechanisms designed to assist them to meet client and system need for PI. As a result of these discussions participants also debated ideas to enhance current practice.
7.1 KEY INFLUENCES ON CLINICIAN PRACTICE

Participants described a range of influences on the how they used skills in PI prevention and management. These included the setting and its traditional practices, organisation of health service settings and the availability of other health professionals, as well as role traditions and culture. Many of these factors have their origins at the system level as described earlier. The role of clinicians in PI management was also shaped by their individual knowledge and skills developed through aspects of their education and training, their caseload and prior experience with PI which influenced interest in PI, as well as their awareness of their own and the contributions of other clinicians.

The findings suggested that the natural history of PI and changes in population need for health services was actually pushing the boundaries regarding traditional clinician roles in PI management. The essential role of personal care and hygiene in PI management was becoming more important and some participants felt that basic care had been overlooked in recent years in the context of technological advances and the medicalisation of PI management. Most skills were shared across professional groups and in some cases across levels of training and qualification. This was deemed necessary to effectively use existing resources, both human and physical, to better meet client and system need for PI management. This was possible by considering the actual tasks required for PI care and the associated knowledge and skills needed for these tasks.

7.1.1 Clinician understanding of PI

Participants felt that understanding the causes of PI influenced the commitment to its management, in particular PI prevention, by clinicians, managers and clients. Participant opinions regarding the science supporting causation of PI varied. Some participants believed that the science behind PI care was well established while others were keen to point out the multifactorial and complex nature of PI development, the limitations of current evidence to support clinical
decision making in PI care, and how this was influential upon health professional’s commitment to guideline-base care.

“While there is some evidence for risk assessment tools and prevention studies, generally the evidence at a high level is very limited for pressure area management and so that is a huge challenge because there is individual anecdotal stuff but systematic reviews certainly point to the fact that there is no evidence for a lot of this.” (Libby, CNC, hospital based services, GD1)

7.1.2 Previous experience with PI

Previous experience with PI was felt to be very important to stimulate knowledge and skills development, including the desire to undertake further education and training. Previous experience was also an essential component in converting knowledge into behaviour change for clinicians in PI.

“So the education per se is a component, but the experience and then the exposure. I think it is the awareness that is just as important, because without the awareness to change your behaviour, it won’t happen.” (Libby, CNC, hospital based service, I1).

The geriatrician that participated in group discussion 4 believed that she had developed her awareness and in-depth knowledge of wounds through her time working in a specialist wound clinic and working with patients with spinal cord injuries. This geriatrician also felt that her particular clinical experiences contributed toward her being more vigilant regarding the importance of PI prevention and management than her colleagues. It is also evident in the quote below that previous experience assisted clinicians to observe changes in the skin and recognise this as a potential PI issue with serious consequences for clients and services.

“.if you see it you don’t forget it, and you know how horrible it is and what a problem it was and it’s something in the back of your mind. Whereas if you
have never seen it, you’ve seen a nasty one, and you see it and say “oh it’s a little blister on their foot”, which is actually a grade two but no one ever gets that that’s, that could well move onto something else or what’s going on underneath. I think some of it is that knowledge, that knowledge and awareness, and knowing what the implications are.” (Liz, Geriatrician, hospital, GD4)

7.1.3. Valuing basic care

Many participants from acute settings particularly those in management or specialist wound care roles described how poor attendance of nurses to basic care such as personal care, hygiene and skin maintenance led to missed opportunities to implement preventative measures and also contributed to the delayed detection of PI. They perceived that skills in basic care were undervalued and as a result had been lost amongst their acute care staff. Whilst some participants included time pressure and workload as an influencing factor, they did not believe that this was the primary cause, believing instead that the devaluing of basic skills both by individual staff and those involved in their training such as mentors, supervisors and managers was contributing to poor standards in personal care.

“I think it comes down to mentors. If you’re not shown what’s good practice, then you just do what you think. I strongly believe that there’s been a big shift away from basic care. Patients don’t get good basic care anymore, I don’t think. Basic care means that the patient’s personal hygiene is looked after, that they get their hair combed, they get their teeth brushed, they get good mouth care, they have their TEDs stockings taken off and their legs washed and their feet washed, and they have their proper hygiene attended to”.
(Carol, CNC, hospital based service, I7).

All participants across clinical settings suggested that incidental opportunities to observe the skin were essential to detect potential risk and presence of PI early. These opportunities were often described as coinciding with personal care tasks.
Such ‘intimate’ observations during personal care were felt to be easier to achieve within acute settings where there were more legitimate opportunities to observe the skin. Clinicians working in community settings were far more reliant on self-report or carer reports of skin problems, due to greater client autonomy in their own homes and less frequent clinician visits. Participants clearly indicated that there can be many reasons for the delayed detection of PI and expedited management of PI. The quote presented below demonstrates how PI may be overlooked in the context of care. Although it is not possible to know exactly why the nurse was not aware of the presence of the wound, it is possible to hypothesise several scenarios. For example, perhaps this nurse did not do the assessment as described by the CNS below. Potentially she was careless and did not carefully attend to personal care and observe the skin, or perhaps she chose to overlook the wound in the business of the care context and other competing needs. Maybe she was concerned about being blamed for the development of the PI and therefore chose not to acknowledge the presence of the PI.

“People tend not to do the assessment, and I had a classic example - went to see a patient that had been reported to have a pressure area. The nurse said, oh no, I’ve washed that patient, and when we actually looked there was a huge pressure area, and she’d washed it and not found the pressure areas at all. So being aware, and looking at the skin integrity in their daily hygiene is obviously something that hadn’t been - isn’t [being] done on a regular basis.” (Marie, CNS, FG4)

7.1.4. Awareness and recognition of roles in PI care

Some participants believed that despite PI being defined by policy as an all of services responsibility, there were many reasons why contributions were not being made to PI management by all clinicians, such as problems around awareness and recognition of roles in PI care.

“Allied health - at the moment, we haven’t really - I don’t think we’ve got buy-in from allied health. We might have it in terms of individuals, but not as a
profession, at this stage, I don’t think, personally. Because I don’t see it in at the bedside, that they are proactive in taking responsibility for identifying patients at risk. They will get patients out, but they won’t initiate, like, making sure that the patient has an air cushion to sit on, even though they know that they’re on an air mattress when they’re in bed. They don’t ensure that they’re in the correct chair. They don’t assess patients in terms of their skin. They’re not really incorporating the risk assessment tool into their practice. So, that’s something that I think we’ve got a way to go with, getting them on board.” (Libby, CNC, hospital based service, 11).

Whilst participants described their current practice, there was some uncertainty regarding how they should use their skills toward PI management. Participants expressed a desire for greater guidance from managers and services about expectations of their role and how they should contribute to PI care within their setting. It was the nursing participants who tended to raise the issue of other professional groups not contributing to PI management as they could.

In general it was the OT participants that most often raised uncertainty regarding their role in PI care. This related to both their own awareness about how they can fit in, as well as the knowledge of other clinicians about the potential contributions of OT. Several OT participants felt that there was a lack of understanding from other professionals about the potential contribution of OT in PI prevention and management.

“I don’t know how much GPs understand our role, like an OT role in pressure care. Probably not at all. I don’t, can’t remember getting a referral from a practice nurse about pressure care.” (Elle, clinical specialist, OT, community service, 18)

The quote below from a clinical nurse consultant in wound care confirms some uncertainty regarding the use of OT in PI management within acute services settings.
“I think it’s more OT that do that side of things. So, they’ll organise the equipment they probably liaise with physio to see what they need, but I think it seems to be more OT that organise it all. They’d do their home assessments if necessary, and organise what equipment is needed. Yes, I think - I don’t really know, because they just ask me if they need a cushion or a mattress, and I just say yes or no, and I leave it up to them to organise.” (Carol, CNC, hospital based service, 17)

There was some uncertainty about the degree to which OT should be involved in PI care in acute service settings. The OT participant’s use of the term boundaries suggests that she is concerned about crossing over into what another discipline may see as their role. This quote highlights existing gaps in the area of education and training and other supports for interdisciplinarity practice such as a consideration of the organisation of PI skills within services, as well as support mechanisms such as job descriptions.

“Well it is a question of where the OT fits in the inpatient versus outpatient scenario. We’re seen to have some sort of expertise in pressure care but it’s purely seen to be, in this hospital, as an outpatient point of view in the community. So getting them ready to go home and then once they go home. So we don’t have to do those initial phases at all in hospital.....The system of us just being involved in outpatients may not be a bad thing. It’s just good to know the boundaries exactly so people can actually... [Participant did not complete her sentence].” (Jamie, OT, GD5)

A dietician from a community based service also expressed similar concerns, as illustrated in the presented quote below. She describes how a lack of awareness regarding the importance of nutrition in prevention of PI impacts on the quality of PI care provided. This participant believed that greater awareness of the dietician role would assist in facilitating team based approaches in the most appropriate circumstances. She goes on to suggest the need for greater awareness amongst clinicians regarding the role of dietetics in PI.
“I guess the major challenges that I find that we face every day is probably the lack of understanding from clients, carers and other allied professionals about how important nutrition is in the prevention of wounds and ulcers.”
(Annette, DT, community service, GD3)

7.1.5. Local cultural factors impacting on the use of skills in PI care

Workplace culture was felt to influence the degree to which some clinicians involved themselves in PI management. For example, nurses with lower levels of training, and also some clinicians outside of nursing, particularly OTs, expressed some hesitation about stepping on others toes and taking on task that were not traditionally within their scope of practice. The role of management in shaping a workplace culture in which clinicians were enabled to work to their full scope of practice was important.

“Even though the EN might have that knowledge and the skill to do the dressings, because they’re an EN, sometimes their skills aren’t acknowledged by the registered nurses. So, they’re not respected for what they can do. I guess that’s something that they say also - they might put in place a regime, what they think is best for that wound, but because they’ve implemented it, the registered nurse might not necessarily follow it through, because of that professional difference. So, they may not be respected for what they actually know, and so sometimes they found it difficult to be taken seriously” (Carol, CNC, hospital based service, 17).

A frequently raised barrier to the participation of all clinicians in PI care was the general perception that “PIs are a nursing issue” (Cynthia, GD5). Participants believed that these perceptions were influential on practice, particularly on non-nursing clinicians willingness to become involved in PI. Most participants believed there was a need to change perceptions of PI as a nursing issue. Cynthia, the CNC from FG 5 discussed her plan to encourage allied health involvement by
creating a new committee solely devoted to PI care. As outlined in the quote below, the association of PI with wound care does create some barriers to broader participation in this area of practice. For example, some individuals may not wish to be exposed to, let alone participate in, the somewhat gruesome aspects of wound management.

“Well what we used to do, we used to have a combined group. It was called the wound advisory group. Just last year we decided, we got the idea off XXX Hospital, that we needed to have a wound group but we should have a breakaway PI group because there were a lot of people that aren’t interested to the same level in wounds. So we’ve now got a much broader, we basically have asked for representation for more clinical areas and we want to go interdisciplinary as well, so that everybody has responsibility, like it’s not just those core people driving activities around PI prevention and management”. (Cynthia, CNC, hospital based service, GD5).

7.1.6. Individual clinician knowledge, skill and confidence

Participants from acute service settings spent a significant amount of time discussing clinician’s behaviour in relation to PI care. Participants believed that there was variability in terms of confidence to practice in PI care and that this may influence their level of involvement in PI management. Confidence in PI management was felt to be influenced by access to and the type of education and training received. As participants perceived that the existing workforce was not being used adequately in PI management, there may be a lack of support for certain clinicians to use their skill towards PI. The broad approach to education did not necessarily support all to undertake a role in PI care.

“We have had requests from other disciplines to go and do education, not so much just around pressure injuries, but around wound management, which will include pressure. So, from hand therapists, we’ve got involved in there. I
know it’s not pressure, but pressure comes up within their workshops, because they get a lot of iatrogenic skin injury from splints and other devices. Also, some of us are involved in medical education as well. But the bottom line is, most doctors think that pressure injuries are totally the domain of nurses, which is not true. So, we’re trying to encourage that, for here, pressure injuries are everybody’s business. But I think, historically, people expect nurses to do it. But I think definitely allied health has a really big role to play.” (Cynthia, CNC, hospital based service, 17).

7.1.7. Education and training

Opportunities for skill development varied across health services, and included continuing professional development linked to professional bodies and associations, health service based staff development as well as supervision from more senior staff or with recognised specialist skills. The data indicated that acute service settings have greatest access to support that assisted in the provision of PI management including skill development opportunities. Participants noted on-line education modules, in-services with locally specific policy content, and resources such as nurse educators and wound CNCs located on-site and able to provide supervision and assist in the translation of education into practice.

In contrast, the workforce within community settings was felt to have limited access to supervision including opportunities for observation of clinical practice for both feedback and skills development. Participants from the community noted that they did have access to some on-line learning modules, but modules did not always have the content necessary to assist those working with PI in the community context. The limited application of existing educational formats for community based care was evident in the development of an educational package by two community based OTs.
One participant identified the need for accessible leadership on PI skills:

“More clinical leaders, I think. They need to have someone that they can pick up the phone and say, look, I’m not sure what I’m doing, or I’ve got a really hard case, what do you think about this? (Cynthia, CNC, hospital based service, I6).

7.1.8. Interest in PI care

The data clearly demonstrated that not all clinicians were interested in PI care to the same degree. One CNC commented that it was hard to get clinicians to attend some education sessions related to wounds and that they were also looking to develop on-line compulsory education. Some of the factors that appeared to influence a clinician’s interest in PI were their previous experience and their exposure to PI need, including the frequency with which they were required to use their skills toward this issue amongst their own individual caseload. A relationship between a clinician’s caseload and their interest in PI was also evident and influenced if they sought to further develop their skills in PI care. Both interest and need appeared to be important to seek additional education and training in PI care.

“I guess you might have a particular interest in pressure care whereas other OTs mightn’t be that tuned into it.” (Sally, OT, hospital based service, GD5)

“as a group of nurses, we have skilled ourselves up. Rather than just having one nurse who is a specialist in wounds and that is all she does, we all do a little bit of it as part of our jobs. Because all of the children that we see, at some point or another, may need pressure care or wound care. So it is broadly spread out through our department. It means that team members like physios, OTs, doctors can probably approach any one of us about it, but I have a particular interest in it.” (Libby, CNC, hospital based service, I1)
7.1.9. Support for developing skills

Participants described how local level supports such as collaboration with specialists, mentoring and positive relationships with nurses allowing shared learning to take place were important in individual skill development in PI management. Several nursing participants from hospitals settings described their role in training medical staff to consider PI prevention and management as part of their care plan at all points in a patient’s care including admission and discharge procedures. When the CNC from group discussion four was interviewed she identified wound care as a traditional nursing skill and that all nurses should be able to deal with wound assessment and treatment confidently. She was of the opinion that there was a need to review the way specialist skills were being used, as an overreliance on these skills was creating delays in timely access to wound care for some clients. This participant felt that a reawakening of the vital role of generalist skills was necessary in meeting in PI chronic complex care needs.

“It’s too much of a burden for isolated clinicians to take it on and I’ve actually put my foot down in neuro [the neurological ward] where they always ring me about their cases and, I know they ring Sonia as well, and I’ve just said no, I’m a vascular nurse consultant, I’m interested in PIs but it’s your responsibility, you need to find someone that’s prepared to develop expertise. And they have finally, after quite a number of years, made a decision and they’ve now got a CNC that’s interested and she’s doing their own caseload.” (Cynthia, CNC, hospital based service, GD5).

A different perspective regarding the application/role of specialist skills can be seen in the quote below. This participant, also a CNC, describes how she utilised her expert knowledge to develop wound care skills within her team. These skills included being able to observe changes in the wound, and knowing when and how to seek support. The quotes presented below demonstrate the importance of tailoring educational approaches to the specific circumstances at particular
points in the care process, and supporting clinicians through the timely delivery of education. The second quote demonstrates how a critical incident such as the development of a PI can be used to draw a clinician’s attention to this issue, provide the opportunity to assist them to reflect on their practice, and therefore maximise learning.

“I would talk to nursing staff about it and educate them, but not necessarily go and do the dressing all the time with the nursing staff. So, try to get the nursing staff on the ward to take the initiative to do the dressing; to ring me if they are concerned it had changed, or something like that.” (Libby, CNC, hospital based service, I1)

“I do blame in a good way to get people to reflect. Blame isn’t bad. Maybe I’m harsh using that word. But with the physio, I would go back and actually say something, would you do it different next time, that kind of reflection stuff, as opposed to saying, this is your fault. I would actually use the opportunity to educate and raise awareness.” (Libby, CNC, hospital based service, I1)

7.2. ORGANISATION OF PI SKILLS

In addition to clinical aspects of PI care, clinicians also discussed issues relating to how their PI skills could be delivered across the setting they represented.

7.2.1. Interdisciplinary practice in PI care

Participants from hospital settings felt that collaboration between professional groups around PI was limited and this was mainly due to the role of nursing. In acute settings, as long as the need for a interdisciplinary approach was identified, such an approach could be initiated more readily in the acute setting where most disciplines are co-located. Participants from community settings identified a number of reasons why multiple professional groups may work together in community settings around PI care, often to address broader issues and more
complex processes to account for a client’s autonomy, function and their home and community environments.

“It is a much broader more complex process [in the community] which means that OTs do need to be involved in the community whereas perhaps they don’t need to be so involved [in the hospital]. They may not have even seen an OT with regards to the pressure issues in hospital, but as soon as they come out of hospital they are being referred. So it’s not a collaborative process necessarily with allied health in hospital, but it definitely is once you get to the community.” (Elle, OT, community service, GD3)

The participants described how working in teams to address PI management was essential in the treatment of PI. It was also felt to be beneficial in PI prevention. In the discussion below, OTs from a community based service discuss how the division of some tasks and ownership of some skills by particular health professions, meant that teamwork was a necessity in community based PI care. However, sometimes clinicians, particularly OTs, were not able to use their skills to their maximum effect in PI care. For example, an OT who needed to observe a wound to assist in clinical decision-making around OT interventions would have to coordinate to attend a home visit with a nurse. If a nurse was not immediately available, this could result in delays for clients in getting an OT service that could improve outcomes and sometimes use resources more effectively. The degree to which the division of skills amongst clinicians impacted on the care received by the client was also influenced by the client’s diagnosis. Team function was at times affected by the availability of a particular skill set located within certain services.

**Facilitator:** So how do OTs get around not being able to remove a dressing and look at a wound? As a rural OT, what do you do?

**Elle (OT):** You just go out with the nurse, or you look at the nursing notes. You ring the nurse, communicate with the nurse.

*(Extract from discussions GD3)*

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Issues around the division of skills and the resulting effects on access to services were also reflected in the area of equipment prescription. Nursing participants from community service settings described a similar scenario when it came to obtaining equipment, particularly longer-term equipment. This issue was clearly illustrated in the case studies and was described at the client level. For instance, the use of a low cost portable device as an interim measure while the client waited to be assessed by the OT for equipment to meet longer term needs.

In the case of hospital based services, OTs from hospital settings described a less active role within acute service settings. This may be related to the uncertainty around roles and lack of awareness of OTs' contributions as described earlier, or it may reflect the traditional role of nursing within acute services. The majority of participants believed that nurses were best positioned to lead PI management within hospital based services. As described at the system level, dieticians and physiotherapists had a more active role in PI management within acute-services settings, while OT tended to become involved in complex scenarios and processes around discharge planning. While the majority of participants believed that PI care was an all of service responsibility, they also felt that having everyone involved all of the time was unnecessary and not a good use of limited health resources. This was a particularly pertinent issue for those participants that worked in hospital based services, with many participants questioning the need for an increase in multidisciplinary approaches within this setting.

Other participants from community settings also believed that a stronger presence of allied health on PI prevention committees, which were responsible for driving local policy, would create a more inclusive approach. They believed that greater allied health involvement could enhance preventative capacity within existing community services. Interestingly, the CNC from group discussion 4, the one group that actually consisted entirely of a multidisciplinary committee, with representatives from allied health professions and medicine, did not feel there was a need to increase interdisciplinary practice within the hospitals for which she had responsibility. Participants from the group believed that within acute service settings, PI was predominantly a nursing responsibility.
with medicine and allied health playing supporting roles in prevention and management. It was clear that in certain settings it was more of a necessity than in other settings.

7.2.2. Changing skill-mix PI care

Participants described how the changing needs of the population also appeared to be influencing how different health professions were contributing. For example, some OT participants described changes in their level of involvement and the way they utilised their skills toward PI management over time due to increasing demands for services. Difficulties with accessing skills in certain circumstances promoted skill development amongst individuals, and at times beyond their traditional scope of practice in PI. In the quote presented below the ability of OT to enhance care by assisting community nursing and support care was described by both nursing and occupational therapy participants. It is important to note that a key facilitator of this process appeared to be the successful team environment in which these participants worked. They appeared to develop their roles in consultation, negotiation and shared learning. This group of participants attributed their successful collaboration to the community health centre model in which they shared multi-professional offices and mutual respect for one another’s contributions developed through formal and informal education between professions.

*Elle:* That it wasn’t that we had any specific skills, we were just getting more and more referrals...

*Not identifiable:* We had to find them.

*Not identifiable:* ...to look at equipment solutions to help.

*Cassie:* More collaborative too.

*Elle:* Yeah, and that was a collaborative process and so it always has been from the beginning. We really access the nurses a lot to learn what we know about pressure care, because you know
like in terms of wounds and how wounds develop and how they are managed and that has sort of been a growing...

Jo:

Team effort.

(Extract from discussion, community nurses and OTs, FG3)

In the community greater skill flexibility was felt to be a necessity. The OT participants demonstrated how a professional group with a range of generalist skills, and in particular their knowledge about client centred approaches (including fit between the client, their occupation and their environment), has the potential to expand their role in particular areas in response to client demand for services. In a peer validation interview two OT participants were asked to consider whether they felt it would be possible to expand their skill set further, to potentially take on certain aspects of wound care if they have the necessary skills and supports including opportunities for education and training. The quote presented below illustrates some potential for the enhancement of skills amongst OT as well as the associated challenges in blurring of traditional role boundaries. It also highlights the important role of interest in skill development.

Facilitator: Do you think that there is scope for allied health to have training in wound management?

Helen: I’m quite happy not to.

Elle: It’s personal preference. There is definitely scope, I think that you, well it’s a skill like any other skill, isn’t it, to be able to understand...

Helen: Even if I wasn’t actually doing it, even now, I would like to learn more about what it is they’re doing. What is in those little plastic wrappers, why does it do what it does, or why, how does that happen and what are they trying to do with it? I mean we try and pick the nurses brains, but - you know, why are you putting that one on, why do you do that or whatever.
Elle: I had a conversation about slough (a mass of dead tissue) yesterday. So I think, even if - the opportunity to gain some of that knowledge would be good. I don’t know if it would be classed as stepping on toes and how well it would be perceived by the nursing profession if allied health started to try and do wound management. It’d be like if they were trying to do home mods or something, we’d be like that’s our role. So I think it could get a bit political.

(Extract from discussions, clinical specialist, OTs, I8).

7.2.3. Supervision

The quote below highlights the important role that supervision and support from specialists can play within workforce development, and it demonstrates how supervision can be used to maximise the contribution of individual staff members, by supporting them to work to the full extent of their capabilities. Peer education also helped to change culture and empower non-professional clinicians to take on a larger role in PI care. It can be seen in the quote below that the CNC valued the contribution of the EN in their clinic, and developed her role in PI care through further education.

In the outpatient clinic, there is an enrolled nurse that works with us as well. She has probably taken a more active role because she is on the floor in the outpatient clinic a lot more and will often see things that grab her as well. So, I have found that it was actually more useful to educate her about wounds and products and things like that. So, she actually is doing a little bit more of some of that care that I would have done, because she is also now skilled up in pressure management. (Libby, CNC, Hospital based service, I2).
7.3 MECHANISMS TO MANAGE PI

Participants spoke about many aspects of PI practice including what mechanisms they felt reduced the occurrence of PI, as well as the factors which they believed exacerbated PI. These factors included the characteristics of PI as well as the specific mechanisms for their prevention, identification and management and their fit with health service settings. Participants debated the strengths and shortfalls of current practice and in doing so explored ways to enhance future practice. A range of mechanisms used to influence clinician practice in PI care, have already been touched upon in various sections. In this section, the strengths and weaknesses in the application of these mechanisms are explored using participants’ experiences. A prominent theme in the data, related to the use of mechanisms, was that in spite of the many observed benefits of the successful application of many of these mechanisms within acute-service settings, these approaches did not translate well into community based care, and as a consequence offered limited support to clinicians working in this setting.

The degree to which mechanisms were felt to be successful varied between individual participants and group discussions. The data suggested that some factors, which appeared crucial at the local level, included: local coordination through well-resourced committees; awareness of roles and responsibility; management supportive of the issue’s importance within individual wards and services.

7.3.1. Pathways and protocols

All participants noted that there were formal structures and processes developed to assist clinicians in their decision making around PI, and that these were often supported by tools such as pathways and protocols. These processes assisted staff to escalate issues and make referrals to other health professionals. All protocols discussed by participants incorporated risk assessment tools.
“What we also have developed is a recording sheet which then lists some recommendations and contact numbers. My contact is on there, the OT’s number is on there, the physio’s number is on there, who to contact if you need further advice. There is an algorithm, having set the scores [risk assessment tool scores] what mattresses are available because we are bound by a contract as well. XXX have most contracts in XXX health service and this determines what mattresses are available.” (Brenda, CNC, hospital based service, FG1)

Participants believed that most staff were aware of protocols and the need to carry out skin inspections, yet they described many situations in which protocols were not adhered to as part of everyday practice. While some participants from hospital settings highlighted what they felt were well known criticisms of protocol based care, most were of the opinion that they formed an essential part of PI prevention.

“New South Wales has just rolled out something called Between the Flags, where there’s now standardised observation charts across the state. On these observation charts, it is the old red, yellow, amber stoplight scenario. So if a child enters the red zone, which is the danger zone, they have to follow a particular protocol. If the child enters the yellow zone, they have to - it’s all about trying to identify the deteriorating child before the child actually gets so sick, they end up in ICU or die.

One of the criticisms about that kind of system, is it takes away the clinical reasoning skills of nurses. But the reason it came in, is because the clinical reasoning skills of nurses weren’t good enough to identify very sick children. I think, whilst not at the same level as a deteriorating, acutely sick child, it is the same principle. Clinical reasoning skills have always been there and nurses haven’t been able to act on them all the time, with regards to pressure care. So having a tool, as a way of prompting them to make those clinical decisions, hopefully, will have a purpose. But it is the back end of that now that we don’t have the knowledge about how to prevent things happening to
Kids that are known to be at risk. I think nurses are better at seeing which kids are at risk, but they still don’t know what to do about it.” (Libby, CNC, hospital based service, I1)

One participant from hospital settings identified that the limited range of products linked to risk assessment tool pathway made it easier for clinicians, particularly those with less experience and knowledge, to make sound clinical decisions. Those from community settings believed that equipment prescription in community settings was far more complex and that similar systems based on an approach predominantly shaped by risk assessment score would never be as successful in their setting.

“When a client is in a hospital they can be prescribed one of three mattresses or one of two cushions because it works in that very static prescribed environment. Often other, like from an OT perspective again, OTs are not being consulted necessarily in the hospital because the nurses can go, okay well they are this score so they get this mattress. It’s a no-brainer.” (Elle, clinical specialist OT, community service, GD3)

Participants from community settings were aware of local PI policy and the protocols that could be used to assist with prevention however, few discussed state level policy and those from disability services did not really discuss policy guiding their practice in this area apart from its absence.

7.3.2. Assessment tools and processes

A range of mechanisms to detect the need for preventative measures were raised including screening for risk using risk assessment scales, observation for known risk factors and clinical reasoning. The mechanisms used to identify those in need of preventative services were influenced by the setting in which the assessment was being undertaken. For example, screening for risk was a very prominent aspect of practice for those participants from hospital settings, with opportunities to do so during personal care, or when conducting full skin
inspections on admission as required by hospital policy. Risk assessment scales were one element of the clinical decision-making process identified by participants and the extent to which they were influential varied between settings.

Participants from community settings, whilst acknowledging their awareness of the Waterlow risk assessment, did not describe the same protocol based approaches to screening for risk. The community based participants believed that their capacity to screen was hindered by the infrequent nature of service provision in their setting. In addition to this, those from community settings did not describe having the same incidental and legitimate opportunities to view the skin and assess its general health and integrity as those in hospital settings.

Limitations of existing protocol-based approaches were uncovered in community settings. A participant who worked in a sub-acute service reported that traditional risk assessment scales are not sufficient in that setting because of the nature of her client group, who have complex and ongoing care needs. Successful protocol application was more characteristic of acute services where the environmental context was more structured, equipment was rapidly accessible and linked to hospital contracts and a range of clinicians were easily available. Participants from community settings described their own informal strategies, which they used in the absence of supporting mechanisms. They described trying to locate someone with appropriate knowledge to assist in the management of someone with a PI. Risk assessment based approaches were felt to have limited application within community services. All OT participants, particularly those from community and sub-acute settings, discussed the limitations of risk assessment scales in PI care.

“The number doesn’t mean much because I find that most of the patients that I see all go into the high-risk categories. It’s not necessarily that sensitive. I do a lot of other assessments, especially observing the patient’s skin type to supplement that. Just use the number for what works when I’m ordering
equipment. I’ll use it for PADP application but I won’t necessarily use it to do interventions”. (Jamie, OT, hospital based service, GD5)

“The risk assessment in some ways is a bit insignificant. But it’s just something that has to be there. It’s another form that has to be filled out. I think realistically it’s better for people to do a clinical assessment as opposed to these risk assessments, because the numbers that you’re pulling out of them aren’t really that reliable.” (Vanessa, OT, hospital based service, sub-acute, I5)

“More concerning is not just that they’re using different scales but the fact that people are modifying scales and using them in a way that they weren’t intended, so adapting to new department policy. That if you’re using a tool it has to be used in the way that it is intended. You can’t just use a bit of it. I don’t think the variety of tools is so much a problem if that makes sense, it is how they’re used.” (Libby, CNC, hospital based service, GD1)

7.3.3. Complexity in decision-making

Many participants expressed a degree of uncertainty regarding selection of equipment interventions. Some put this down to gaps or doubts regarding their own skills and knowledge in the area and perceived a degree of complexity. Other participants attributed a lack of certainty to the lack of evidence available to support clinical decisions in this area of practice, particularly within complex community environments. They identified that they did not really have the evidence to recommended one piece of equipment over another.

“There are so many products available out there and knowing which ones are best for which clients is a huge one for us (Jess, OT, Disability services, GD1).
As described earlier OTs and PTs in aged care settings and OTs in hospital and community settings, where equipment prescription involved more than mattresses, tended not to rely on risk assessment based pathways but on their own clinical assessment. These were the two groups of professionals who identified equipment prescription as a challenging and technical area of practice in which a number of different factors including the client, their environment and their activities must be taken into consideration. Variety increased the complexity in decision making, however, it was recognised as being necessary for management of PI issues in community settings due to the diverse nature of this environment.

“The three main ones as an OT, knowing what equipment is available, what support services are available, basically the cost, the evidence associated with it, when each item should be used. There’s not any continuity about that really. It’s up to your own discretion a lot of the time. I find that a little bit daunting especially as whatever item you provide it’s going to be expensive, so you really want to be confident that you’re providing the most appropriate one.” (Jamie, OT, hospital based service, GD5)

Participants with specialist skills in PI management and wound care believed that confidence in the prescription and implementation of equipment was important in the sustainable use of health resources. Participants believed that a clinician who does not have sufficient knowledge of PI prevention and treatment interventions may sometimes choose to prescribe a more expensive piece of equipment or dressing than what is necessary due to a lack of confidence in their decision making. The importance of sound clinical decision-making for clients and for the health system were discussed at both the client and system levels where issues of sustainability were described.

“Because it seems to be that a lot of people just think if they get a product and put on a wound, things magically improve. But, it was interesting to actually see and hear from other nurses that there really is just a basic stock of products that you need. There are hundreds and probably even thousands of...
products around, but education, for me, to staff has been about what it is you are trying to achieve. You can usually do that with two or three products, instead of having a cupboard full of everything that opens and shuts” (Libby, CNC, Hospital based service, I1).

As described earlier at the system level there were changes to policy that had helped to improve collaboration, consultations and interdisciplinary practice, and this had ultimately improved practice and decision-making around expensive PI management equipment and seating equipment. In spite of these improvements participants felt that there was a need for additional education and training around prescription of equipment. Many participants highlighted limitations in existing educational opportunities to support clinicians in PI practice. This was particularly evident in the case of OT with many OT participants describing a gap in their education and training needs. The quote below described the limitations of the existing on-line education package that had been developed by one area health service.

“There is a new online education package too that XXX health has developed through the [PUP] programme and it actually covers assessment and looks at strategies, you know, possible strategies to implement to prevent risk. I don’t know if everybody else has used... it is very detailed, but not detailed enough in the area of equipment. It doesn’t really comprehensively provide enough information for OTs.” (Elle, OT, community setting, GD3).

Two clinical specialist OT participants from community services within this area health service described that they had developed their own education package comprising a one day course to address a gap in education for OTs. Their course included instruction in how to use a comprehensive pressure care assessment tool, which they had developed for use by OTs. They reported that this education was being provided through Occupational Therapy Australia, and that it had been well attended during the previous two years. The need for this work demonstrates a perception that therapists need support in their clinical decision making in PI care. In the quote presented below they outline the complexities of
PI assessment, the important role of education in supporting sound clinical
decision making, and the necessity of being able to tailor interventions to client’s
individual needs through a sound understanding of the underlying principles of
PI aetiology.

Elle: “[pressure care] is really broad, which means that again we’re
trying to give them the principles. So it’s not about in your
setting with these clients you do X, Y and Z. It’s like think
through the issues, think about what’s going on. Understand
physiologically what’s happening for the person. Think about
your broad overall assessment and then tailor it to your client
who’s an individual and is going to have individual needs.

Helen: I would say the aim of it [the education program] is to just give
them the knowledge and skills, so that then they’ve got the
confidence to go out and do the assessment. Or even to think
about pressure where they may not have thought about
pressure issues beforehand.

Elle: I mean give them tools that they can use. So like we go through
how to use the Waterlow risk assessment, which again is a tool
to guide your clinical reasoning. There’s an OT assessment form
that takes you through everything that you need to consider,
from their bed, their chair, their transfers, their social support.
Looks at everything so that they’re gathering all that
information.”

(Extract discussions, clinical specialist OTs, community service, I8)

7.3.4. Tailored strategies for groups at high risk of PI

Many participants raised concern that they may not be addressing need
adequately. Allocating the best interventions to the right person was challenging.
Basing this process on risk assessment scales and protocols appeared to work
well in some instances however, not all. As described in earlier sections some
participants were uncertain regarding the levels of existing evidence to support their decision-making in PI. Others expressed the opinion that it would never be possible to provide an exact formula for who should receive which piece of equipment as the processes underlying PI risk, addressing PI issues and tailoring equipment to each individual’s needs was very multifactorial. Some participants described the development of specific strategies tailored to a ward. The success of this strategy appeared to be linked to ready access to resources and again supportive management that championed this issue. Some strategies included the development of a PI week or numbers of PI that were noted on the ward whiteboard.

“So here, they do have the specialties, like orthopaedics and vascular, so they’re really the high risk groups for pressure injuries. We have different strategies in those wards than perhaps strategies for medical patients”. (Carol, CNC, hospital based service, I7)

“It officially started two years ago in regards to PI prevention. We had high incidences of PIIs occurring on our ward for various reasons, and we looked at strategies to try and improve that, and several strategies were implemented earlier on, but they tend to drop off, and then eventually we sat down and had several meetings and implemented a major focus group to set up a new structure to be implemented on the ward involving air bootees, hand over, new care plans, recording, audits, questionnaires, education, and to the extent now that we’ve no longer had a grade three or four PI on our ward since probably seven months - which is good.” (John, RN, hospital-based service, GD4).

7.3.5. Structures for accountability

Participants described monitoring mechanisms that were used as either a “carrot” or “stick” (Carol, CNC, I7). These included audits of patient files, the conduct of prevalence studies and then the subsequent feedback to staff. Creating a culture of accountability was important in enabling adverse incidents
such as PI to also be learning opportunities. For example, staff at the FG4 facility were held to account for the development of PIs. There were management and peer reviews of critical incidents and clear structures in place for peer support and sharing of clinical expertise. That facility’s approach demonstrated a willingness to learn from an incident and to see what could be done better, rather than simply apportioning blame.

“And that’s gone on a step further now that, me from a ward perspective, I have to report my grade 3 and 4s to a board (the committee) and I have to explain prevention strategies that we have put in place, were they put in place, if they weren’t why, and develop the strategies to try and reduce the likelihood of them occurring again. So I need to present that to the board and I’m in a PI committee about that, and every month we get a report on how many incidences in PIs on the ward.” (John, RN, hospital based service, GD4)

[Presenting to the steering committee] is a learning opportunity and it’s a bit like a stick too. It [the plan] had to get the approval of the committee, so the committee was in the position where if they felt that the Nurse Unit Manager hadn’t made enough of an effort or that the strategies they were putting in place weren’t adequate, then they would make recommendations, and they would have to re-present. If we weren’t happy with the outcomes they had to come back in another three months’ time”. (Carol, CNC, hospital based service, I7).

7.3.6. Leadership roles and committees

The three CNCs were all responsible for the local implementation of national guidelines and state-level policy into practice. This position involved an overarching consultant and education role, which was available to all staff, across all wards and all facilities. The consultant role incorporated policy and program development for the prevention, monitoring and management of PIs. Audits of medical record documentation and PI surveillance, including prevalence studies, were also part of this role. The area-wide PI program
appeared to promote consistency across the sector and also by nature of funding a dedicated role, elevated the status of PIs to being a key quality and safety concern for the sector.

“I do wound care across Western Health, and a part of my role is being responsible for the PI prevention program. So I’m involved working with a multi-disciplinary team to develop a strategy for Western Health, and then responsible for assisting with the implementation across the three campuses, and that involves education of predominantly nursing staff, but some allied health. Also helping to assist with the identification of the high-risk patients, and then ensuring that the appropriate strategies have been put in place, and then the end point is managing the PIs when they occur.” (Carol, CNC, hospital based service, GD4)

It was evident in the data that formalised mechanisms involving peer support and access to expertise, reviews of critical incidents were important. Participants felt that the presence of support structures assisted clinicians in acute settings. More informal mechanisms were reported by clinical leaders within community settings. Skill-mix was different and supports in the community setting are different

“I think we do need clinical leadership. I think that’s what’s missing sometimes, in community. I think a lot of good clinical leaders tend to gravitate towards the hospital system, because it is a lot more social and there’s a lot more networking that happens. Sometimes, what I find in community - they don’t have the same networking there, and they don’t have nearly as many people in clinical leadership roles. So, the career pathway - I just think, from nursing - I’m not sure about allied health” (Cynthia, CNC, hospital based service, 16)
7.3.7. Prioritising health needs in practice

Participants frequently presented scenarios in which they had to prioritise other care needs over PI. PI was rarely the sole issue that they were trying to address, it was usually a secondary issue that emerged alongside multiple concerns, system failures and competing needs.

Participant descriptions of PI prevention and management suggested that they are a secondary issue as clinicians were already addressing a number of other complex and at times life-threatening problems. This was particularly evident in hospital settings, yet prioritising certain aspects of care was also a common issue for clinicians, clients and support care in community settings. The need to prioritise complicated both the prevention and subsequent care of PI in all settings. Clinicians had to balance PI prevention and management carefully. As evident in the participant quote below, PI prevention must take a back seat to more pressing concerns such as when a patient is in an Intensive Care Unit (ICU) and their airway is compromised, or they are haemodynamically unstable.

“In the intensive care unit they see the main problem with airway and that’s it. If he is on a ventilator, that is much more important than thinking about them getting a PI in their occiput. ... again, it is just the risk of losing that airway or somebody dying as opposed to getting PIs. It is a challenge.” (Mel, CNC, hospital based service, GD1).

“I can think of a couple of kids where the plasters had to go back on even with a PI because the surgical correction is the priority. So, orthopaedic physiotherapists in particular, I think get a bit caught in that as well. On the one hand they know what they are trying to do from a correctional point of view but they also know the risks of a child rubbing inside a cast and causing a PI there as well. It is sometimes a no-win situation.” (Libby, CNC, hospital based service, I1)
Participants explained the challenges they experienced in meeting the standards set for them in policy and guidelines, due to the natural history of PI. There was a general consensus amongst participants that whilst PI were generally preventable, that not all PI could be prevented. Participants perceived that it was important to understand this as setting what was perceived to be unachievable standard for clinicians, clients and support care could lead to emotions such as guilt and blame and failure when PI did occur.

“Facilities must stop the blame game. Nurses have always been charged with the responsibility of preventing PIs, and they do get blamed when patients develop them. They get blamed by staff, by doctors, by families, and by their nursing colleagues. And it’s because people don’t understand the physiology of PI development or how quickly they can develop. We know that they can develop in 20 minutes, deep PIs, even though you might not be able to see anything, a big hole, for a couple of days or up to three weeks.” (Philippa, RN, private wound service, GD2).

Some felt that it was important to acknowledge that not all PI may be prevented, particularly in those that were frail aged with multiple comorbidities and organ failure. In the quote below a participant highlights advances in understanding PI and improvements in prevention and management, but felt that due to their multifactorial nature, not all PIs are preventable. Both participants felt that understanding PI was important in establishing achievable goals for clinicians and services.

“...particularly around pressure injuries, we’re seeing really, really elderly, frail people. I think we do have to accept that skin failure, for that group of people, is a manifestation of their declining bodily function. So, I think we need to pick the patients where we can make a difference, and in those patients where it is end-stage, we need to facilitate really good palliative type stuff. I think that’s where we’re not doing that well”. (Cynthia, CNC, hospital based service, I5)
“maybe it is just old age and cynicism but I think it is less frustrating now than it used to be, because I appreciate the problem is big. We have too many, I agree, but I think my message would be it is never going to go away. We can do things better, but there is too many reasons why pressure areas occur and they are not all preventable, I don't think. Sometimes, it’s a balance of the underlying condition and the health and condition of the child with the risk factors. Something has got to give.” (Libby, CNC, hospital based service, I1)

7.3.8. Access to long term PI care

Participants expressed frustration at recognising a skin integrity issue and not being able to meet longer term PI needs. This was related to competing priorities, and an absence of mechanisms to facilitate coordination of follow-up care post discharge from acute services.

“The challenge I suppose is actually to get a community nurse to go and review the patient for the skin integrity because a lot of times they’ll just say we’re too busy, we haven’t got time for that. That’s a problem I think on the ward. It’s highlighted to us often enough, this has been a problem in hospital so you can do a referral for that way as well.” (Alison, RN, hospital based service, FG5)

Dietetics services and OT services in community settings identified similar problems for clients in accessing their services in a timely fashion due to waiting lists. Limited access to services meant that their ability to provide prevention to all of those potentially at risk was constrained.

“Even GPs though, you see clients that you see for the first time. They’ve got a pressure area and the doctor’s doing the dressing or whatever, they might not have even been referred to the nurse, definitely not to the OT. Maybe educating some of the other clinicians on what our role is and how we can help. That might be useful. But then we’ll get more referrals and we haven’t
Access to people with PI skills within community service settings was identified by participants as being a barrier to ongoing PI care. This meant that community services failed to appropriately address PI need as outlined in policy and this also went against participants’ own standards of care. Participants clearly recognised the importance of follow-up care in managing PI issues post discharge from hospital. They expressed frustration that poor access to skills led to poor continuity of care. Participants felt that this was particularly problematic within community settings as they did not have clear pathways and protocols to assist with referrals. Some participants in acute settings expressed concern about variable knowledge regarding PI care and skill level related to PI care amongst community based clinicians.

“Definitely continuity of care, adequate follow up I always get concerned about, making sure that the client’s going to have adequate follow up long term in the community, not just for my inpatient time. You don’t know what level of skill they have in this area because we were referring to OT’s, they’ve got a range of skills, they don’t necessarily just specialise in pressure care so it is a bit concerning that you’re just sending them out not knowing where they are, what they can do.” (Jamie, OT, hospital based service, FG5)

7.4. SPECIFIC PI ISSUES IN COMMUNITY SETTINGS

7.4.1. Access to resources

While participants from acute service settings discussed clinician behaviour extensively, those from aged care and community based settings described far more fundamental problems around access to services and resources. Participants from community services, transitional services, disability services and those occupational therapists involved in discharge planning from hospital
services did not discuss protocol based care as a significant part of their practice. They believed that the environments in which they provided services or follow-up care dictated more comprehensive assessment. Despite the perceived need for comprehensive assessment they were of the opinion that they did not necessarily have the resources and all of the skills they needed to provide this level of assessment.

7.4.2. Facilitating client and support care participation

Participants from community based services also spent significantly more time discussing the role of clients and their support care in PI care, and how these interactions could be both barriers to and facilitators of PI care. While recognising that greater participation of clients in PI care was an important aspect of their role, participants felt hampered in their ability to achieve this for a number of reasons. Many participants identified that educating clients about pressure care was challenging.

Given the range of individuals that could potentially develop PI and the multifactorial nature of PI, participants identified that they used a range of educational strategies. Description of educational processes provided by participants appeared fairly ad hoc and tended to comprise verbal communication alongside the provision of a pamphlet. Some participants believed that in order to be effective educators they needed additional education and training to better understand the natural history of PI. This is illustrated in the following quote.

“So if we’re wanting OTs to educate their clients as well, OTs need to know that you’re compressing blood vessels and therefore the tissue is going to suffer from lack of nutrients and oxygen and the tissue is going to die. It’s not just that the tissue will always break down from the surface, even though that’s where we often see it first. But often the greatest pressure and the damage actually is occurring closer to the bone.
So I mean I think those things are important for the OT to understand so that they can explain to their client, you might just be seeing a red area there that’s not going away and the skin mightn’t be broken. But there can be damage much closer to the bone. If the OT doesn’t know that, then they can’t pass that information on. They can’t sort of put that red area - match it with the other intrinsic factors that are going on for that person and say well, they’ve only got a red area at the moment, but they’ve got all these other factors that are putting them at really high risk. So we need to get something high level in place to address that person’s pressure risk.” (Elle, clinical specialist OT, community service, I3)

7.4.3. Other educational roles in PI care

As PI was identified as a whole of service responsibility, the range of educational approaches that clinicians needed to use were varied across different educational needs. The OT in the quote presented below talks about the need to be innovative in educating staff. This was because of diverse educational and cultural backgrounds of staff and issues related to the organisation itself such as levels of casual staffing, shift work and backfilling that could impact on the availability of staff to attend training. The best way to organise education for some groups of staff was uncertain.

“The staff we’ve got in group homes can have certificates in disability support work but you don’t have to have any formal qualifications to work in our group homes. So you’ll get a range of backgrounds. We also have a lot of staff and English is their second language and also lots of people working shift work. We’ve got lots of casual agency staff which is a challenge for us as well so any sort of training that we’re doing for people that are working in that sector we have to be quite innovative about how we can meet their needs in order to get them aware of what’s happening. Also them getting time off their duties to come to training that’s been a challenge as well because we have to look at paying for them and also backfilling” (Jess, OT, disability services, I2).

In community settings, clients and support care were responsible for delivery of PI care. Some participants expressed frustration and uncertainty regarding how
to engage clients around PI issues perhaps reflecting limited knowledge regarding ways to engage clients in the process.

7.4.4. Working with limited resources

The effect of poor access to resources on the delivery of care was heightened or lessened by the setting in which the service was located, the skill of the clinicians involved and the degree to which protocols could be successfully integrated into practice. Participants believed that effective management of longer-term PI issues required comprehensive assessment processes including reassessment of client’s PI needs over time. Participants believed there were a number of aspects of assessment that could be enhanced in order to achieve better outcomes for clients and health services. Participants from community settings described the need to adapt care plans related to PI management due to limitations of access to resources.

“You have to be really mindful of the regime you can send them out on depending on where they’re going, because of the cost of dressings. Here in Victoria, the patients have to buy their own dressings, so that's a really big limiting factor on providing best practice wound care. In hospital there's no limitations on the type of dressings that you can use on them. You can use the most expensive dressing or the most advanced one ever, because it's available to you, but once they go home, you have to downgrade your care plan to take into account what the patient can afford.

“Sometimes what they can afford is not really best management, but you have to go within their financial constraints. That also applies when you send them back to residential facilities also, because they don’t always have the range of dressings, or they’re not prepared to fund them. Again, sometimes they don’t have the staff resources or the skill or expertise to manage them, so at times patients are kept in hospital longer because their discharge destination can’t manage the wound” (Carol, CNC, hospital based service, 17).
Whilst most participants felt that improved access to equipment would assist them to better address PI needs, they were all very aware of the competing demands for health care resources, and therefore the importance of the sustainable use of existing resources. Skills to work around resource limitations and achieve maximum benefit of low cost intervention was thought to be essential in addressing future PI need across health services. The ability to maximise resources within the client environment (both human and physical) was thought to be an essential component in addressing PI needs within community services settings.

“As an OT, you would know that just changing some really simple stuff for a lot of people protects them from so many things - not just pressure injuries, but also falls and other stuff. That’s where I think a lot of initiatives need to go, but they need to make sure the structure to support those people is really good. Sometimes, I wonder - they’ve got all different people involved, but there’s no coordination”. (Cynthia, CNC, hospital based service, 16).

7.4.5. Knowledge of resources clients may be able to access

Lack of awareness of the services available to assist clients living in the community also impacted upon the care they received. This included limited awareness of the nature of community practice, and awareness of what is available to support clients as they transition into the community with PI care needs.

“There are packages available, like community packages, but I don’t really understand how that works, because often we’ll be told that they’ve got what they call a CAPS package - and I think that’s Community Assistance Package. So there must be an amount of money allocated that would allow them to have community go in and help with the day-to-day living things. There might be money for equipment, like a mattress or something, and then there’s
nothing left over for dressings. As I said, I don't know how that works, but there are packages around that patients can access, but I think it's also determined on their financial situation too. I'm not really sure because I don't normally deal with it.” (Carol, CNC, Hospital based service, I7).

7.5. SUMMARY

A range of factors impacted on PI practice at the clinician level. Structural factors implicit in the health system and individual factors at the client and clinician level influence the role, behaviour and decision-making of clinicians in PI management. Some of these factors include knowledge, skills, attitudes and of clinicians understanding of PI. Other factors included access to resources for PI management such as equipment for prevention. These factors and their relevance in determining supports for those practicing thin community services settings will be discussed further in the discussion section that follows.
7.6. DISCUSSION

The findings highlighted a significant range of influences on clinician behaviour in PI management. These influences tended to fall into separate, yet related groups such as factors related to the individual and the internal factors that influenced their ability to undertake the tasks of PI management as part of daily practice. There were also a range of external factors including interactions with clients, carers and other clinicians, and the characteristics of the health service context in which clinicians were working. The complexity of factors influencing clinician practice in PI management is not a new finding. Attitudes, values and the way in which they interact with contextual factors to shape clinicians’ behaviour has been well researched over recent years (Beeckman et al., 2011; Moore & Price, 2004; Samuriwo, 2010a, 2010b; Sving et al., 2012). This thesis has contributed to the debate by providing a deeper understanding of the clinician experience of providing community based PI care, and the particular demands it places on clinicians from a range of health service settings.

7.7 DISEMPOWERMENT OF COMMUNITY PI CLINICIANS

The findings suggested that the difficulty for clinicians was that in situations where they detected need for PI services, they were not always able to act upon need as they wanted to, and in a way that they perceived that they were expected to, as informed by policies, guidelines and management expectations. There was a gap between the standard set for clinicians by experts, who were not involved in direct care on a daily basis, and the realities of practice across various health service settings. Bradshaw (1972) suggests that need that has been determined by experts, whether that is guideline panels, senior management and other health professionals, is often charged with paternalism. It is important to consider how the clinical setting affected health clinician behaviour, and how the clinical outcomes expected of clinicians were perceived as an unachievable standard.

Difficulties meeting policy expectations of PI management occurred for a number of reasons including delays for clinicians in finding where to seek help, as well as
delays in accessing skills and resources in a timely fashion to assist clients with an identified need. This was described by clinicians working in community services and those involved in the transition from hospital to home. Based on the findings, this appeared to contribute to a sense of frustration and resignation. Policy expectations appeared to contribute to a sense of frustration because of a lack of structures, skills and resources to enable clinicians to meet the perceived need for services as determined by the current general approach to PI and actual client demand. It is important to consider the effect of a perceived unachievable standard on clinician behaviour, when being faced with the challenges of implementing standards on a daily basis.

Barriers to the implementation of guidelines and local policy raised by participants were similar to those identified within the substantial body of literature on research and guideline implementation. Known barriers relate to the individual clinician such as their skills, knowledge, attitudes and beliefs, the context in which they work including organisational characteristics, workplace culture, management practices as well as characteristics of the guidelines themselves which are often lengthy and do not always provide specific information on how to implement individual items into practice. Additionally, workload pressures affected the implementation of standards in practice such as reductions in face-to-face time with patients, the need to manage multiple conditions within the one individual and limited assistance with prioritising client needs (Barnett et al., 2012; Boyd et al., 2005; Lutenburg, Zegers-van Schaick, Westert & Burgers, 2009).

There is an increasing recognition of the need to support clinicians in their implementation of guidelines, and this is evident in the inclusion of information related to the specific needs of special populations, such as older adults, bariatric clients, and those with SCI within the latest version of guidelines (NPUAP/EWMA/PPPUA, 2014). In addition to this, the inclusion of recommendations around strategies to implement guidelines indicates an existing gap in knowledge related to this area and the importance of supporting those responsible for guideline implementation. The study findings also
indicated variable opinions about the capacity of guidelines to change practice, without an implementation process (Eccles, Grimshaw, Walker, Johnston & Pitts, 2005; Grimshaw, Eccles, Lavis, Hill & Squires, 2012; Sanson-Fisher, Grimshaw & Eccles, 2004). It is clear that more supports are required to assist clinicians to implement best practice PI care (Moore 2001, 2010). This has also been recognised more broadly within the body of knowledge that focuses on changing clinicians’ behaviour (Grol & Wensing, 2004; Presseau et al., 2015), including knowledge translation.

While more work is required to support health professionals, this recognition is a significant step forward in addressing the challenges faced by clinicians in the implementation of guidelines specific to PI care. While support is needed, continued unrealistic expectations around PI care has the potential to impact on clinician behaviour.

7.8 THE REALITY OF PI PRACTICE FOR CLINICIANS IN COMMUNITY SETTINGS

Clinic participants described PI practice within the community as typically requiring crisis management of a number of health issues following multiple service failures. Examples include poor communication around the discharge of patients with an existing PI or patients at high-risk for PI following a hospital admission. Clinicians believed that PI care was a central focus of everyday practice in acute settings, where acute illness and significant reductions in mobility placed most patients at elevated risk. Consequently PI prevention was more of a priority in acute care, however once discharged, PI issues were not communicated to community clinicians, forcing them to be inquisitive about the potential for a PI issue with a client.

To a similar extent, those participants employed in management positions, which involved developing mechanisms to encourage staff compliance with policy, also expressed frustration. They were in the situation of needing staff to do more PI
prevention and intervention to adhere to the guidelines, yet they understood the scale of the problem and the multiple challenges facing staff at the coalface.

The findings suggested that the range in need for PI services in the community presents challenges to clinicians, as they must decide what issues to prioritise within the limited resources available to them. In spite of mechanisms to assist in PI care such as risk assessment tools, determining risk and therefore the allocation of resources, this remained challenging due to the natural history of PI and competing needs. The allocation of and availability of resources was influenced by factors at both the system and the service level, not least the tendency for funding to be allocated toward acute and episodic care within a biomedically-oriented system.

While client groups in community settings are generally accepted to be less at risk of PI, it is the factors unique to this setting that actually complicate PI care and translate as different demands on community clinicians. The broad range in client need within community settings was evident in the case studies. With only a limited window with which to observe clients functioning at home (for instance in a time limited home visit), determining the allocation of resources can be challenging, and strong skills in assessment, as well as the use of the resources within the environment are essential in this setting. The application of more generic, non-clinical skills such as communication and negotiation was considered essential in community based service settings. For example, the findings demonstrated the essential role of clients and their support care in the successful delivery of PI care within community service settings. Further to this, the role of the clinician in imparting the necessary knowledge and skills to enable clients and their support care to use the information provided and translate it into positive PI management behaviours, indicative of participation in their own care is clear. Here, the essential role of clinicians in being able to partner with clients and their supports in their own care is clearly evident, and the findings demonstrated that clinicians require some additional supports to assist them to effectively partner with clients.
The study findings highlighted the unique barriers to PI care presented by practice within community service settings. Most of the existing studies that have explored community based PI practice have described inappropriate PI prevention and low adherence to guidelines. Barriers to the use of guidelines within community service settings, noted within the literature include limited equipment resources, the role of client and carers in ensuring provision and lack of continuity of care due to the limited presence of clinicians (Paquay et al., 2008; Paquay et al., 2010). A prominent limitation of these studies is their failure to fully describe what it is about community based care that makes PI care so challenging, and the utilisation of this knowledge toward the development of mechanisms to support clinicians working in this setting. This includes a lack of consideration of the role of other service providers that may be involved such as allied health professionals and paid support care workers.

The findings indicated difficulty in changing clinician behaviour in relation to the implementation of guidelines especially in the community setting. Studies that have attempted to change PI practice within community services have focused on the implementation of existing guidelines. However, these guidelines were mainly developed according to the needs of high-risk acute patients and are therefore not appropriate to apply in community services settings. A limitation of community PI studies is that they recommend the provision of further education, yet provide little detail regarding the best type of educational approach within community service settings (Paquay et al., 2008; Paquay et al., 2010). Given the current emphasis on the importance of understanding the practice context in achieving changes in practice, there is little to inform the development of strategies specific to community service settings (Harvey & Kitson, 2015).

Greater participation in PI care by clinicians could be achieved if education and training was better tailored to real clinician need in the community. According to the findings from clinicians, some of their educational needs were context dependent. Strategies that are tailored to the context for community based clinicians may be needed to develop clinician confidence in working within the
client’s environment, by paying attention to the role of the physical home and community environment, as well as understanding the roles of the range of individuals, clinicians and community services available.

One role of community based clinicians in PI care is to facilitate access for clients to the care they need. This strategy may help to support clients to clearly express their PI needs. The findings suggest that there are challenges for clinicians in assisting clients to access PI care promptly. As access to PI care is generally determined by the client’s primary diagnosis, this in turn influences the management of PI, which can become a secondary issue to the primary problem being treated.

Clinicians in the community have the potential to offer responsive individual services that can overcome limitations of the biomedical and acute orientation of the AHCS. To achieve this, clinicians need the necessary training and system supports to promote greater client participation in their own care. However, not all clinicians are involved in PI care to the same degree, and this has implications for the type of educational models that could be used to develop PI management skills.

If clinicians did not have the required PI management skills they had to be able to link well with those that had the skills that they needed. This required the clinicians to be able to identify the skills that they required and locate them in a timely fashion. There were also barriers to clinicians being able to gain access to these skills including service availability and whether the client actually met the criteria to attend the service. Clinicians were responsible for recognising the need for PI care and taking action, which often involved identifying who else should be involved in care. While there were some mechanisms to assist with this, clinicians did not appear to be as well supported when it came to accessing PI services within community settings due to both the range of skill levels and the way in which skills were organised. All of these factors contributed towards fragmentation of services and poor continuity of care for PI, and therefore
impeded the ability of clinicians to meet need as outlined in guidelines consistent with their own professional values.

As described at the system level there are many characteristics of the system that influenced clinician practice in PI management, yet what seemed far more influential and demonstrated greatest potential for generating change were factors operating at the clinician level. Changing practice behaviour and enabling clinicians to apply their skills in PI management in the community is a complex process. For instance, a focus on staff-mix as opposed to the necessary skill-mix to effectively meet real client need for PI management may be counter-productive, as clinicians may not have the skills they need. One solution would be to consider how the necessary PI skills can best be developed to complement and utilise the strengths within each service setting, and plan to develop them further.

7.9 VARIATION IN INDIVIDUAL CLINICIAN’S PI SKILLS

Another important finding from the current study was that despite PI being perceived as an “all of service” responsibility, as defined by the need for PI prevention across services and intervention trajectories, most participants expressed some frustration that not all services were working in this way. There may be several reasons for this. Some clinicians may not be using their skills because they are either unaware of how to use their skills to address PI issues or they are not supported to use the skills around them in effective ways, amidst competing health needs also requiring their attention. Participants also described differences in skill levels, interest and willingness to get involved in PI management amongst clinicians. This is to be expected given the range of competing issues clinicians must attend to in community settings, and the characteristics of the task of PI care involving quite personal aspects of care such as basic skin care and hygiene, as well as the somewhat gruesome aspects of wound care in established PIs. Clearly, changing practice behaviour is a key aspect of these findings, however, this is known to be a complex process in practice. Participants also discussed that clinician behaviour appeared to be
influenced by their perceived ability to do something about a PI need. This was in turn shaped by individual skills and knowledge, the context in which they worked, as well as their understanding of research and their confidence in the application of research findings to have an impact on the prevention and management of PI.

The poor focus on PI issues reported by some participants suggests that some clinicians are perhaps not as well supported as they could be to use their skills in PI management. Those that were involved in educating others may not have all the knowledge and skills that they need to maximise the skills of all clinicians toward PI in effective ways. For example, a community based clinician who knows that they are unable to provide short-term preventative equipment rapidly may not discuss the option of PI equipment with the client. Alternatively, they may be more likely to act if they are aware of low cost alternatives and pathways to obtaining it and are confident to use the resources within the client’s environment (both the physical attributes of the environment and the individuals within it) in innovative ways.

Understanding and acknowledging the dilemmas faced by clinicians in meeting standards and developing context specific mechanisms to support clinicians to manage PI alongside other health needs, may provide clinicians with more opportunities for success in PI care. The findings suggested that the development of more achievable strategies may encourage clinician participation in PI prevention and management (Kroll et al., 2008).

The findings suggested that all clinicians require some basic knowledge and awareness of PI, while others require opportunities for specialist training, based on their interest and caseload demands. Currently, educational opportunities are mainly framed around the skills required for wound management and while not limited to nursing, these courses are mainly designed around traditional nursing roles, therefore limiting other professional groups to develop their skills in PI management (AWMA, 2013; Monash University, 2014). However, there are some examples of discipline specific training provided by professional associations.
(OTA, 2015a). This will require further behavioural change from clinicians for real change to take place in practice.

In order to facilitate better clinical intentions, education and the development of knowledge and skills have to address both the behavioural beliefs and control beliefs of clinicians. Cognitive theories inform the role of knowledge and attitudes in relation to an individual's behaviour. According to Azjen (2005) as cited in Demarre et al. (2011) 'behaviour is affected by intentions, derived from attitudes, subjective norms and perceived behavioural control and beliefs. These beliefs are in turn, affected by background factors such as education, knowledge and experience' (p. 1426). Demarre et al. (2011) suggest that implementation strategies focusing on improving the attitude of nurses and nursing assistants could potentially be effective in increasing the application of prevention ‘fully compliant with the guidelines’ (p. 1432). Nevertheless, they also acknowledge the need to address other individual components such as routines and organisational, administrative and economic factors related to behaviour when attempting to improve the quality of the application of PI prevention.

Some authors have used theories from the behavioural sciences to enhance the findings of their studies exploring the influence of clinician's knowledge, attitudes, and values upon their practice in PI (Beeckman et al., 2011; Beeckman, DeFloor, Demarre, Van Hecke & Vanderwee, 2010a; Maylor & Torrance, 1999; Moore & Price, 2004; Samuriwo, 2010b; Strand & Lindgren, 2010). While many theories differ in terms of their conceptualisation of various constructs, many authors describe the term “perceived control”. Moore and Price (2004) used Ajzen and Madden’s (1986) work to understand the role of PI knowledge, skills, resources and social interaction in shaping PI practice. Moore and Price (1994) argue that as “perceived control” is known to be influenced by an individuals' knowledge and skills that PI education has a very important role to play in shaping clinicians’ intentions to perform PI management. Maylor and Torrance (1999) similarly considered factors influencing individual practice behaviour in PI management and compared internal factors influencing 'locus of control' such as attitudes and values with external factors such as senior management and
availability of equipment. One of the conclusions Maylor and Torrance (1999) reached was that education may only influence knowledge levels to a certain extent and that this is strongly influenced by individual clinician's attitudes and values related to PI. However, Moore and Price (2004) made an additional important observation that readiness to change and timing of education were important factors in changing PI practice.

There are relatively few studies to date that have applied this knowledge in the development of educational programs for clinicians and evaluated their outcomes. These studies confirm the need for greater attention to behavioural theory in educational programs and also the benefit of the 'broker' having sound knowledge of and ability to apply behaviour change theory in locally developed education, mentoring and supervision. There are now a number of models, taxonomies and consensus documents that have been developed to assist researchers working with managers involved in changing clinician behaviours and more specifically in working towards guideline implementation (Michie et al., 2005; Michie et al., 2011; Presseau et al., 2015). Knowledge of such models and the practical use of behaviour change interventions is likely to be beneficial to those involved in changing PI practice through the implementation of various strategies relevant to community services settings (Porcheret et al., 2014).

The findings suggested that another factor influencing clinician involvement in PI was their interest in PI care. This appeared to be related to a clinician's caseload and therefore how involved they were in PI care on a daily basis, and also their previous experience with PI. Educational theories such as adult learning theory can assist in understanding why some individuals do not attend to PI management, and additionally what factors drive clinicians to consider further education in PI management.

A barrier to this is that as clinicians face competing needs, not all can be interested in PI management to the same degree. Recent work has also highlighted the role of education in shaping clinicians' knowledge, values, attitudes and PI practice behaviour (Lewin et al., 2007; Murray, 2012). A number
of recent initiatives in the United Kingdom have sought to raise the profile of PI and encourage both acute and community based clinicians to give more priority to PI management (Donagh, 2013; McIntyre et al., 2012; Whitlock, 2013). The type of approach here reflects a marketing style approach to changing clinician and also consumer behaviour with the development of attractive products and messages delivered using a range of different media such as board games, Apps, Twitter, and posters. While some successes have been noted, the long term benefit of such significant expense is difficult to measure, particularly within community services settings where risks for PI are more variable and PI occurrence more logistically challenging to measure (McIntyre, 2013).

There has been a significant amount of research exploring the relationship between clinician’s knowledge, attitude, values and beliefs in relation to PI and PI practice (Athlin et al., 2009; Beeckman et al., 2010a; Beeckman et al., 2011; Florin, Baath, Gunnigburg & Martensson, 2014; Kallman & Suserud, 2009; Maylor & Torrance, 1999; Moore & Price, 2004; Moore, 2010; Pancorbo- Hidalgo et al., 2007; Samuriwo, 2010a, 2010b; Strand & Lindgren, 2010). Studies have reported varied levels of knowledge about PI prevention in nurses, ranging from adequate levels of knowledge (Kallman & Suserud, 2009; Maylor & Torrance, 1999; Zulkowski, Ayello & Wexler, 2007) to inadequate levels of knowledge (Hulselboom, Bours & Halfens, 2007; Lawrence et al., 2015). There are a number of limitations to the interpretation of studies exploring knowledge such as the differences in the sample populations including the health service setting, the level of training received by professional groups, and the way in which knowledge and attitude were measured.

Finally, another variation in clinician skills in PI care highlighted by the findings were the level of clinical decision making skills in the detection of need for PI interventions and allocation of resources. While systems by which clients may be prioritised in terms of need are essential, what this does highlight is the importance of individual clinician skill in clinical decision making as part of this process. Clinicians were essential in meeting clients PI needs by being able to
work both within and around the existing system, and how they achieved this influenced the degree to which they able to attend to PI care.

7.10 WORKING WITH CLIENTS AND SUPPORT CARERS

One unique aspect of PI care in the community is the opportunity to work closely with the client and their support carers and informal carers. The findings suggested that clinicians generally identify PI need according to the level of service use by clients, which may not be an accurate way to determine PI need. Client access to responsive PI management could be enhanced further if clinicians regularly involved in PI were up-skilled in collaborating with and imparting information to clients and their support carers – both formal and informal.

One issue in the community setting in particular, is the capacity for a clinician to intervene early if a skin integrity issue can be identified. This is very much influenced by the relationship a client has with a clinician as a client has to be willing and/or able to express a need, and self-report is often the first indication of a potential problem. However, clinicians identified they encountered significant problems in achieving client participation in their own PI care. The findings demonstrated that carers were an important asset in community based PI care and highlighted their potential role in improving timely access to care.

To assist in PI care, and to improve client access to services, clients and carers need appropriate education and support to be assisted to take on a more active role. The findings suggested that increasing client participation in PI care was a challenging aspect of practice for clinicians and one that they felt was currently an aspirational goal. While they perceived a real need for client participation in their own PI management, their experience of inconsistent access to education and resources and delays in providing equipment, in particular, made client participation more difficult. Such issues can cause delays for clients in seeking assistance and accessing the best care which can result in further tissue damage especially for client groups with conditions such as myocardial infarction, and
diabetic foot ulcers, which can lead to worse client outcomes if PIs develop further.

One RCT has examined the efficacy of a self-management education program and a telephone counselling intervention to prevent PI recurrence in those with SCI (Guihan & Bombardier, 2012). Researchers found a high degree of medical co-morbidity and complex demands placed on clients with SCI, as they managed PI risk along with many other medical and social issues. They suggested that this finding pointed to the need for health systems research on how best to support knowledge and self-management of multiple chronic illness conditions simultaneously.

Many studies have used theory to inform and understand approaches to achieve behaviour change for clients, this includes people with diabetes (Reaney, Eichorst & Gorman, 2012) and diabetic foot ulcers (Przybylski, 2010; Sheridan, 2012). There are also some examples of behavioural theory being used to understand skin care beliefs and PI prevention in those with SCI (Guihan & Bombardier, 2012; King et al., 2008). The results of these studies to date have been mixed, with most highlighting the need for further education of clinicians in order to improve the likelihood of success in changing client behaviour. A number of studies focusing on the management of those with SCI and previous PI have raised the need to improve clinician knowledge of educational strategies to ensure success in client behaviour change, and one strategy recommended is the development of educational programs (Clark et al., 2006; Vaishampayan et al., 2011).

The findings also suggested that the way in which educational interventions are delivered to clients can influence their success. There are challenges in client education related to PI, however, clinicians can facilitate greater client participation in PI care by a better understanding of client behaviour and its influence on PI self-management. A number of recent initiatives in clinician education are already capitalising on the knowledge base of behaviour change and assisting clinicians to develop skills in the application of behaviour change
strategies such as motivational interviewing and coaching (Hall, Gibbie & Lubman, 2012; Health Change Australia, 2012; Kessler & Graham, 2015). Providing clinicians who are regularly involved in PI management with the skills to partner with and assist clients to participate in their own PI management, is important, especially for those working in the community. This can be achieved by developing clinician knowledge about behaviour change theory, as well as the skills to develop practical strategies that can be tailored to individual client need.

The findings suggested that additional skills to support clinicians to facilitate client participation in care are necessary. A mechanism to achieve this would be to up-skill those that are involved in direct PI management about how to share health information to clients and carers in a format a layperson could act on. This would include developing skills to create supports for the overall service and individual staff members, including knowledge of theory to understand both client and staff behaviour and to promote behaviour change.

Some opportunities are already available due to the recent inclusion of PI prevention within the National Safety Standards Framework (ACSQHC, 2012a, 2012b) and many existing guidelines and educational programs have included the need to include clients in the care process, provide education and individualise assessment processes. However, this may not be happening in practice. Based on existing literature it is difficult to gauge the success of current educational strategies in PI management. If clinicians are to be effectively supported in their PI education and facilitation of self-management role, further research investigating client education is essential.

The benefits of specialist skills in educating clients is clearly evident in the existing role of diabetes educators. Recognition of the role of educator is an important one for clinicians (Drab, 2013; Martin & Lipman, 2013; Nolan, Nolan & Booth, 2001). Other examples include the role of nurse educators in rehabilitation. These often have a dual role in applying their skills in the education of their fellow clinicians, as well as clients. However in PI management, less is known about how clinicians engage and support individuals.
in the care process (Akkuzu et al., 2009; Tsai et al., 2012; Yamamoto et al., 2010). Therefore, further research in this area is necessary to inform strategies to enable clinicians involved in regular PI management to acquire skills in training clients, carers and other laypersons to take on more active roles in PI.

7.11 STRATEGIES TO ENHANCE CLINICIAN PRACTICE IN PI CARE

The findings confirmed the presence of multiple strategies that were already being used to influence clinician practice including education, protocols, case reviews and reporting systems. These mechanisms were successful to varying degrees depending on the context in which they were being used, and whether there were additional supports to assist clinicians to use these structures, such as education and training. More structured processes tended to suit acute services settings, such as protocols and pathways, and were somewhat beneficial in changing clinician practice in PI management in the acute environment. A large proportion of the PI literature outlines various health service attempts at implementing a range of strategies to improve PI prevention and management. These studies often demonstrate some improvement however, this is often variable and it is challenging to make comparisons across health services and apply these findings to other services.

7.11.1 Education and training

The findings suggested that the level of clinician involvement in PI management determined their desire to develop their knowledge and learn new skills in PI care. Prior exposure to PI was also influential on practice, particularly commitment to preventative care efforts. While these findings are constrained by originating from the perceptions of participants about the interplay of education and clinical experience on their own and their colleagues’ behaviour in relation to PI care, they are strengthened by being consistent with previous research (Samuriwo, 2010a).
The findings suggested that most participants perceived a real need for additional education and training opportunities, especially for those involved in the delivery of PI care within community service settings. This could take place through the development of interdisciplinary learning opportunities specific to PI management at a postgraduate level. Adult learning theories suggest that adults learn best when they identify that they need to learn, rather than as a response to external pressure. Therefore, education that incorporates the principles of adult learning theory will be useful in providing clinicians with a framework for understanding the behaviour of their clients and colleagues, as well as facilitating their own self-reflection about their practice behaviour. The relevance of adult learning principles for both the training of clinicians and laypersons is well documented (Hays & Veitch, 1999; Merriam, 1996; Murray, 2012).

Murray (2012) described the successful application of adult learning theory in PI education for AINs. In this study, the development and evaluation of an educational program to meet the needs of assistants in nursing resulted in them reporting that their knowledge in skin care and PI prevention had increased, alongside their communication around these issues with the RNs and ENs working in their team. AINs also reported an increased understanding of their role in the prevention and management of PI.

While some studies have demonstrated benefits of clinician education and training in terms of changes in practice, there are difficulties with sustaining change. Many studies of education and training do not explore and describe educational content nor the application of educational theory in sufficient depth (Moore, 2010). Given that determining the type of and the timing of such interventions has been identified as an important factor in general behavioural studies, these issues require further consideration in relation to PI. The recent establishment of a Cochrane protocol to investigate clinician education for preventing PI and therefore enhance our understanding of how these intervention might work, further supports the role of education in changing
practice behaviour (Moore, 2010; Porter-Armstrong et al., 2015; Sanson-Fisher et al., 2004).

In addition to post graduate education opportunities, greater exposure to generic interdisciplinary learning about PI management during professional entry programs may develop foundational skills that would assist clinicians to engage in team-based approaches to PI management upon graduation. Early exposure to PI management whilst on clinical placements would also assist students to link their learning with real practice senarios and therefore assist in the translation of their knowledge and skills into positive practice behaviours.

7.11.2 PI management champions

The study findings suggested that positive changes in PI practice occurred when there were influential individuals available to provide timely education and support to clinicians. Participants indicated that this type of support was readily available within acute service settings and less accessible within community settings.

The findings suggested that many clinicians are engaged in educating each other around PI management. In addition to this these clinicians also have skills that are important at the service level such as program management and workforce skill development. This includes the development and delivery of training that can enable access to specialist skills as an educational resource, and provide advice and supervision for skill development in PI care.

Bero et al. (1998) in their review of strategies for promoting the implementation of research findings, suggest that face-to-face exchanges with influential and trusted role models, particularly those that hold membership within the community targeted for change, is the most effective communication strategy. Various terms are used in the literature to refer to individuals that are involved in knowledge exchange in order to influence practice. These include academic detailers and educational outreach. Some of the core techniques used by
individuals in these roles include; determining baseline knowledge and motivations for current practice, defining clear educational and behavioural objectives, directing education to the change champions, tailoring approaches to the characteristics of the clinicians, stimulating active participation, using concise graphic education materials, repeating the essential message, and providing positive reinforcement (Grimshaw et al., 2012; Soumerai & Avorn, 1990).

Clinician champions and ‘facilitators’ have been found to be successful in changing practice in relation to PI within acute and residential aged care settings (Sving et al., 2015; Xakellis, 2001). This approach may also be useful in supporting PI practice within community service settings, however, as demonstrated in the current thesis, PI management in this context presents unique challenges to clinicians and it is imperative that any approach is tailored to the specific needs of clinicians working in this setting. Further research will be required to determine the best way to support knowledge and skill development related to PI within community service settings using intervention studies.

7.11.3 Tailored approaches to changing clinician behaviour in PI care

Carefully tailored approaches to changing clinician behaviour are outlined in the literature related to guideline implementation and changing practice. In line with the study findings, there are variable results in the capacity of guideline implementation activities to change practice (Eccles et al., 2005; Sanson-Fisher et al., 2004).

While some of these strategies were being used in community service settings, most of the participants from this setting tended to discuss their lack of fit with community based PI management. The findings suggested that while some implementation strategies may be of benefit within community settings, their success is dependent upon how well they can be tailored to the needs of clinicians. Given that the findings demonstrated limited fit between current PI approaches and the needs of community services settings, the current emphasis
on guideline implementation as the main method to influence practice is of concern, as it may not represent the most effective way to influence clinician practice in PI.

Achieving and sustaining changes in clinician practice are challenging. The PI literature has tended to focus on the development, use of guidelines and identification of strategies to support their implementation. The participants in the current study were connected mainly with acute, and to a lesser degree with home nursing services and disability services (Kapp, 2012; Lewin et al., 2007). Mechanisms demonstrated to be successful in assisting health services to achieve a reduction in PI occurrence include those which direct personnel toward the issue such as clinical leaders and champions (De Laat et al., 2006; Sendelbach, Zink & Peterson, 2011), interprofessional teams (Sendelbach et al., 2011) and support from senior management (Asimus et al., 2011a; De Laat et al., 2006). Additional organisational supports include staff education and awareness campaigns (Asimus et al., 2011a; De Laat et al., 2006; Sendelbach et al, 2011). Facilitating access to appropriate resources and assisting staff to make cost effective and clinically sound decision-making through the use of an algorithm has also been found to be successful (Asimus et al., 2011b). The use of processes to support documentation such as incorporation into workflow were also described as being beneficial (Barker et al., 2012; Sendelbach et al., 2011). Sendelbach et al. (2011) also described the use of 'point-of-care resources' including a dedicated intranet site and clear placement of the email address of the skin integrity workgroup to enable staff to easily seek information about PI as another successful strategy.

Xakellis et al. (2001) described implementing guideline-based PI prevention as presenting a major leadership challenge and being more difficult than it sounds. In their study they found that implementation of education and protocols at a long term residential care facility demonstrated an initial reduction in the incidence of PIs however, these reductions were not sustained over time. They also identified the role of a 'skin care champion' who took responsibility for encouraging and rewarding staff as crucial to the success of implementing PI
prevention methods.

While some studies have demonstrated short to medium term benefits and successes, pragmatic issues such as the cost of prevention strategies and resources in relation to PI management within community settings cannot be overlooked. The diversity of community services, the contexts in which they are provided and the range of client needs are clear, highlight the importance of supports for the local implementation of evidence by clinicians. Individual contextual needs for particular PI issues must be considered, and a careful analysis of what is required in a particular circumstance is necessary (Harvey & Kitson, 2015).

7.11.4 Additional supports for practice change

Clinician education used in combination with coordinated systemic approaches including pathways and supportive management, has been demonstrated to have some positive effects on guideline implementation (Soban et al., 2011). However, despite some gains, sustaining changes in practice is problematic for many reasons including workforce issues such as staff turnover, and maintaining sustainable and accessible expertise to support both individuals and PI programs (Lutenburg et al., 2009; Thomas, 2006; Xakellis et al., 2001). Education and training can alter attitude, knowledge and perceived competence, and in turn influence practice behaviour in relation to the implementation of guideline based care. However, education alone is not sufficient to change PI practice, and ongoing support is needed.

The study findings indicated that the health contexts where clinicians practice influences their behaviour, and this finding underpins the necessity to tailor approaches for specific services (Sving et al., 2015). The PI literature investigating practice change supports the use of a PI ‘facilitator’ in achieving greater success (Sving et al., 2015). The findings also suggest that the introduction of the broker role may assist in facilitating PI practice change in a sustainable way.
7.11.5 Team based care and skills mix

Findings suggested a way forward may be to support interdisciplinary practice as well as provide mechanisms such as funding incentives which reward team based care. The strong boundaries between professional groups at the clinician level may even act to slow the spread of innovation in PI management (Ferlie et al., 2005).

The findings suggested that developing supports to facilitate team based approaches may help to enable the best mix of skills to address PI needs. This would involve looking closely at the way a mixture of professional skills are integrated into a health service. One example of successful changes to care in another area of practice is the recent up-skilling of practice nurses to enhance diabetes management within primary care settings. The training package made available through the Australian Diabetes Educators Association included online modules, written assessments and interactive case studies (APNA, 2013; Diabetes Australia, 2012). This example of up-skilling in a related area, provides an educational model that can be used to inform the up-skilling of practice nurses in addition to other clinicians in PI management (APNA, 2013). This type of educational model may be a useful approach in developing PN skills in PI care, particularly around the specific management of individual PI needs and daily delivery of care.

In the primary care environment in the community setting, the GP role in team coordination appears unlikely to change as system level funding through the MBS and the Team Care Arrangements items within the CDM program maintain this role. GPs need a greater awareness of the importance of team based care for PI needs. However, because of competing demands on their caseload and coordination roles, as identified in the findings, it is unlikely that GPs would seek opportunities to up-skill to a significant degree in PI management. Therefore, it may be more appropriate to have an individual attuned to PI needs and the local context to assist GPs to up-skill in PI management in a way that is tailored to GPs individual learning needs and goals, as well as the needs of their service context.
Locally based education, delivered alongside the development of pathways of care would be needed. Care pathways could include triggers for the GP to consider PI needs, such as a previous or existing PI, especially for high-risk groups. Some client groups would particularly benefit from this approach such as people recently discharged from hospital with low mobility, aged clients with reduced mobility, or those with specific diagnoses such as neurological disorders, or other diagnoses that affect perfusion such as diabetes. Information about PI risk and management could be incorporated into electronic medical records, to encourage ease of referral for comprehensive assessment through electronic pathways to service providers. The routine incorporation of PI care needs into electronic medical records would also enable the collection of data related to PI management outcomes.

The findings demonstrated that significant support is required to enhance team based care within community service settings. To be effective, a team for PI management needs to include the right mix of skills amongst clinicians, not just a representation of each profession. Team based care presents significant challenges to clinicians on a daily basis, and as suggested by participants, clinicians are currently not adequately supported to take a team based approach to PI care. This was exemplified in participant comments about knowledge of roles and delays in accessing skills. For instance, not knowing where to locate clinicians with the necessary skills, and delays due to waiting lists. A significant barrier to effective team-based care raised in the findings, was the way in which the health system funds services, as this placed the GP in the role of gate-keeper and care co-ordinator, in spite of the fact that they were not typically active in PI management. As well as system level factors influencing team dynamics and processes, the traditional hierarchical relationships that have shaped ways of working in community based health care persist, such as GPs being “in charge” and these shape the potential for interdisciplinary approaches (Jackson Bowers, 2010; Nancarrow et al., 2013a).
Again, there is a gap between policy recommending the need for team based care and the actual application of the combined skills of clinicians. Developing greater awareness of the potential contributions of various clinicians based on their full scope of practice is needed. Clinicians need assistance in how to make the best use of the available skills within the local context of team based care, through mechanisms such as the safe and effective delegation of tasks to others, alongside developing mutual respect and a shared vision for care.

Several authors have discussed the difficulties inherent in team care within the primary health setting and have suggested that more flexible team based approaches may be more appropriate. Thus, it is essential that inter-disciplinary education supports the development of PI skills required to tailor approaches to the context in which they will be applied. What this requires is the development of individual core competencies including skills in team based care to meet client and service needs. Further to this, the development of local infrastructure to support implementation of team based care to meet local conditions within primary health care networks is necessary (Saltman et al., 2006). Community service settings are highly variable, therefore it is important to determine locally available skills and interest that could be used to address PI care needs. Enabling the best organisation of skills in community settings, through team based approaches, may represent the best way forward.

7.11.6 Better access to sustained PI care

A particular finding of this study was the importance of attention to longer-term management of PI needs. This was evident in participants’ descriptions of the natural history of PI and their experiences of increasing demand for PI services from clients with complex chronic care needs. Participants believed that better management of PIs requires improvement to the continuity of care offered to clients. Based on the findings, fragmentation of care had the potential to contribute to PI development and could also impede clinicians in their early identification and expedited management of PI. For example, the absence of a
coordinating mechanism for community based management of PI needs meant that clinicians and support services could not easily address PI issues.

Enhancing access to PI clinicians means that basic advice about PI care is quickly and easily available, and referrals to clinicians with expert skills can be made when necessary. One of the mechanisms that may underpin sustained PI care is supervision for clinicians by telephone and teleconferencing. This has already been utilised in chronic disease management and wound management more broadly to improve access to care. This would also offer greater opportunities for skill development and supervision from a clinician that has been up-skilled to provide local support for PI issues within community-service settings. For example, having access to skills required for PI care amongst clinicians providing services within the community, would support enhanced access to specialist advice and support needed for early recognition and expedited management of PI (Chanussot-Deprez & Contras-Ruiz, 2013; Stern et al., 2014).

While many PI issues may be managed within primary care alone, pathways of communication and shared models of care between acute and community services would be essential in best managing the ongoing PI needs of people requiring chronic complex care. Due to the diversity of services available within community settings, primary health services could provide the best platform for the coordination of services to meet an individual client’s PI needs. Providing support to primary health services to develop clear, localised pathways could potentially be led by an up-skilled individual working within Primary Health Care Networks. There is widespread recognition of the need to improve discharge planning and achieve better integration between primary and acute care, as well as ambulatory and transitional services. It is felt that this is necessary in enhancing continuity of care and thereby improving both system and client outcomes (Bywood et al., 2011; Sheppard et al., 2006).

The introduction of clear flow diagrams and pathways for PI risk assessment and referral, as well as clinically relevant screening instruments to prompt risk assessment are needed, similar to those developed for foot ulceration.
management (Doresteijn et al, 2011). More recent examples are the expansion of foot ulcer intervention pathways to include community service settings such as primary health care in the United Kingdom (Diabetes United Kingdom, 2013). In foot care, team based care with community links, supported by risk assessment, risk stratification and pathways has been shown to result in improved patient outcomes and health service savings. Lamont, Franklyn, Rayman and Boulton (2012) reported that the incorporation of these mechanisms in two UK health care trusts resulted in a reduction in annual amputations and significant cost savings.

The application of similar strategies undertaken in foot care to PI management, which shares similarities in the mechanisms underlying development and management, may also lead to similar improvements in quality and efficiency across health service settings. Some examples of pathways for PI care already exist. These have tended to be designed for use by clinicians in acute care (Asimus & Li, 2011; AWMA, 2012). Further investigation of care may inform pathways for PI care in community based services that could assist clinicians to improve client access to PI services including PI experts and specialised wound clinics.

The findings suggested that the need for PI management, including addressing unmet need for prevention amongst community based clients at risk, was about enabling clients to access services when they are most needed. Improving the availability of services so that clients could potentially initiate these services when they identify a PI need, would also be important.

7.12 PROFESSIONAL ROLES AND CLINICIAN SKILLS IN PI CARE

The findings demonstrated that a range of clinicians have skills which can contribute toward the prevention and management of PI. The extent to which these skills were used was influenced by a number of elements. These were related to both the individual clinician and the environments in which they were delivering care, as well as the interactions between these elements. Clinicians’
ability to organise PI interventions and provide a consistent level of service is constrained by what resources, both human and physical, are readily accessible and appropriate for the patient’s needs and the care environment (Dorresteijn, et al., 2010).

The findings suggest that while nursing appears well placed to continue its lead role in PI practice, there are opportunities to enhance care through skill-mix by including other disciplines and organising services accordingly. While most skills were shared across disciplines, some areas required specialist disciplinary skills such as wound management, prescribing medications and dressings, complex equipment prescription such as seating, and some nutritional interventions. Currently within community service settings, participants indicated that there were implications for PI management with delays in accessing appropriately skilled clinicians. This contributed to poor continuity of care.

The findings illustrated that circumstances allowed some professional groups to commandeer certain PI tasks and roles. For instance, workplace culture, job descriptions and individual clinician awareness of roles, affected PI care. The delays caused by CNs not being allowed to prescribe certain dressings and medications, such as antibiotics during PI management, demonstrates how the ownership of tasks by some professional groups may work against the best organisation of skills to meet client and system needs (Nancarrow, 2015; Romaro-Collado et al., 2013). While issues of client safety are a very important concern, therapeutic partitioning (or the professional ownership of tasks) might itself contribute toward poorer outcomes for clients with PI issues, as access to timely care may be dependent on negotiations between different health professionals. The PI literature is already recognising the importance of greater inter-professional collaboration through team base care in meeting increasing demands for chronic complex care. This includes the importance of making optimal use of the available workforce including associate professionals and paid and unpaid support care (HWA, 2011a, 2011b; Moore et al., 2014; Samuriwo, 2012). However, further research is necessary to support the creation of greater skills flexibility within PI management.
Based on the findings, interdisciplinary practice was ad hoc and influenced by the nature of the client group and the service context, as well as individual client need. Even though acute services had greatest access to interdisciplinary services, it was described as having the least interdisciplinary approach. This appeared to be due to the role of nursing within this setting, the generally high-risk nature of the client group, along with the development of protocols, which linked risk assessment to a readily available range of selected equipment. While guidelines have promoted interdisciplinary approaches, the current project suggests that clinicians require support to develop this approach in the most appropriate way and make the best use of workforce resources.

The findings also demonstrated the necessity of interdisciplinary approaches in community service settings. For instance, OTs may need to evaluate a client’s wound to assist with determining interventions, as well as re-evaluating existing interventions. The changing status of the wound, specific client needs and the systems needed for sustainable use of equipment resources may make an evaluation of the wound necessary. In order to achieve this, OTs would need to co-ordinate home visits with nurses to observe the wound during a dressing change, or alternatively communicate with nurses about the characteristics of the wound and its progress.

7.13 BEST USE OF THE SKILLS OF ALLIED HEALTH PRACTITIONERS

To enable allied health practitioners to work to their full scope of existing skills in PI care would mean an enlarged role for allied health in this area. The findings suggested that it is worth exploring mechanisms to support enhanced skill-flexibility in enabling the workforce to meet changing demands in community practice. Accessing skills for PI management can be difficult in community settings. For instance, the absence of nurses employed in some community disability services, and the need for up-skilling of OT and PT in wound management are strategies that may be of benefit in community settings.
Currently there are many barriers to this approach at both the system and clinician levels. Regulation of the scope of practice for many health professionals, and traditional perceptions of clinician roles, all contribute to preventing change and flexibility in the delivery of PI care.

While the substantial advances in wound care technology are clear, many authors contend that the core principles of wound care have remained the same since Egyptian times (Levine, 2000). As the scope of practice for some health professions is expanding, there may be potential for other allied health groups such as PT and OT to gain further skills in wound care. For instance, the role of PT in wound care in the United States is well established, and there are examples of both OT and PT involvement in skin protection, management of skin injury and post-surgical wound management in areas such as burns and hand therapy (Dimick, Caro, Kasch & Muenzen 2009; Guihan et al., 2009; Kash, Greenburg & Muenzen, 2003). This provides some support for enlarging allied health roles within wound care for PI. Additionally, expanded roles for Podiatry in wound care have already occurred.

Expanded roles for allied health professionals are now recognised as a core component in enhancing client access to services within the AHCS (Department of Health, 2014a; HWA, 2011b). Recent legislative changes at the state level in Queensland enable allied health professionals to prescribe antibiotics, provided that they have undertaken the appropriate postgraduate training (Department of Health, 2014b).

Similarly, PT and nursing could gain additional skills in equipment prescription. OTs currently have greater expertise in equipment provision, and could be better supported to use these skills towards enhancing PI care. Further research is also required to inform the integration of assistant level roles in supporting specialist and advanced roles within allied health and nursing in PI management. Additionally, changes in how tasks related to wound care and equipment prescription are regulated would need to take place. The role of professional
associations in the regulation of scope of practice for different professions is also relevant.

The development of supports to enable clinicians to work to the full scope of their skills requires a greater focus on the skills of individual clinicians rather than simply generalising skills assumed by their profession. While changes to the scope of practice for different professions require attention at the system level, an important factor influencing skill use in PI management is the knowledge clinicians have of their own and other roles.

7.14 PROFESSIONAL ROLES IN PI MANAGEMENT

The findings demonstrated that skills used in PI management were already changing, and this was evident in the evolving role of OT. While further support for nurses is important, there were also opportunities to enhance current approaches by making better use of the skills other clinicians can direct toward PI management. The necessity of an approach that enables enhanced flexibility in the use of clinician skill appeared to be most evident within community service settings, where access to a range of clinician skills is limited. As greater client and support care involvement is also essential in meeting PI needs, the home and community environment must be assessed and manipulated to minimise risk and maximise client participation in activity. Based on the findings, OT is the professional group that has the most appropriate skill set to add to existing nursing practice within community settings. OTs have the necessary skills to facilitate client and support care involvement in PI care, through their approach to assessment and intervention that incorporates the client, the task and their environment, alongside skills in safe and effective equipment prescription. A number of studies have already described the potential contribution of OT to PI care in more detail, and have found that occupational therapy skills in PI care are predominantly used in community services settings (Macens et al., 2011; Rose & Mackenzie, 2010).
While increasing the use of OT skills can address the increasing need for PI services within community settings, a barrier to this was identified in the findings in that OTs were having significant difficulty meeting current demand as evident in the waiting times for services. It was also noted by study participants that there was significant variability in the existing PI intervention skills of OT. Not all OTs are interested in PI care to the same extent, and there are limited educational opportunities open to OTs through the professional association (Occupational Therapy Australia, 2015). Even though findings have demonstrated that OTs have a flexible generalist skill set, which can be adapted to meet a range of health issues, and is particularly well suited to personal care issues that are closely linked to PI management, it is unlikely that there will be a significant increase in the numbers of OTs undertaking PI roles. Regardless of whether a decision is made to increase the training of a particular profession, there will always be significant delays in seeing changes to PI practice as new graduates would still need to be made ready for practice in the PI arena (Duckett & Willcox, 2011).

An alternative option may be to increase PI skills amongst a range of professional groups. The findings suggested that this approach is necessary due to the natural history of PI itself in that damage to the skin occurs quickly, clinician interventions and some equipment can cause PI and the fact that intervening early provides the opportunity to improve client outcomes and reduce health expenditure. Further to this, approaches that regulate tasks (competencies) rather than professional groups may assist in improving client access to services and therefore better address client need. Some authors argue that adapting core professional competencies to specific contexts, would better support clinicians and services to provide person-centred care (Duckett & Willcox, 2011; Frenk et al., 2010; Nancarrow, 2015). The current project has demonstrated that the consideration of greater flexibility around the competencies required for PI is worthy of further investigation. These suggestions to enhance current practice in PI management may help to create a better fit between skill-mix, organisation of services and education and training. For example, environmental assessment skills and the ability to use what was
available within the environment well appeared to be of greatest importance for those involved in delivering care within community based service settings.

The development of the role of OT in PI provides evidence of capacity to use existing skills in new ways in PI prevention and management. The flexible generalist skills and client centred approach typical of OT presents a good fit with community based PI management. As outlined by Hand, Law and McColl (2011) in their scoping review of OT interventions in community settings for those with chronic conditions, many intervention approaches are common across chronic diseases including peer support, education and coping strategies. Outcomes of OT interventions for chronic disease in community settings include improvements in productivity, self-care and leisure (Hand et al., 2011).

The findings suggested that OTs were already having difficulty meet demands for services within community services settings. This highlights the essential need for careful planning of pathways and supports for the development of the OT workforce at the local level. Some examples of pathways tailored to community needs are in existence, and have assisted in the greater referral to and utilisation of OT services (Asimus et al., 2011b). This approach appears limited in making the best use of the available skills in community settings, as simply increasing referrals through the development of pathways, without supports to assist clinicians to make the best judgements about referrals, may not address PI needs effectively.

7.15 CLINICIAN CONTRIBUTIONS TO DESIGNING SERVICES TO ADDRESS PI CARE

Clinician involvement in the development of service agreements, referral criteria and appropriate pathways was raised by some participants as a beneficial process, although they were not always invited to contribute particularly at the intersection between acute and community services. It is here that inter-professional collaboration between clinicians is critical to designing specific strategies to manage PI.
Involving clinicians in the development of strategies to address challenges in practice, such as attending to PI needs amidst other competing health needs, is important in increasing the likelihood of success. Clinicians developing their own strategies to address quality and safety issues in practice is a cornerstone of the well-cited “clinical microsystems” approach (Nelson et al., 2008). This type of inter-disciplinary approach enables clinicians to solve problems rather than being told how to solve them. The PI literature to date has tended to focus on PI prevention and management with less consideration of the underlying complexity for clinicians, support care and consumers in managing competing health needs (Guihan & Bombardier, 2012; WHO, 2010).

The need to up-skill clinicians to manage the increasing demands of multimorbidity and complex chronic care has been recognised more broadly (Barnett et al., 2012; Boyd et al., 2005). The incorporation of triggers for the assessment of PI within existing assessment tools and structures may be a useful strategy. Before this can take place, further research is necessary in order to establish what tools are currently being used across primary health care settings, and the potential for an item related to skin integrity and previous PI being incorporated into an existing assessment process, supported by existing policy. An example is the over 75 health assessment, for which there is an existing Medicare item (Commonwealth of Australia, 2015c).

According to participants, the potential contribution of allied health to PI was constrained by limited education and training opportunities, as well as a limited evidence base supporting their involvement in the delivery of a range of PI services. Confidence and awareness of an enlarged role for allied health professionals, in particular PT, OT, nutrition and dietetics and pharmacy, alongside PN, requires the development of a knowledge base to inform their interventions and support the growth of their role, especially within community settings. This will require development of research capacity within community services settings, in particular primary health care. The development of research capacity also requires knowledge and infrastructure development, commitment
from staff and management to the allocation of time specifically for research, alongside support from institutions such as universities (Cooke et al., 2008).

7.16 SUMMARY

A range of factors include knowledge, skills, attitudes and of clinicians understanding of PI. Other factors included access to resources for PI management such as equipment for prevention. The clinician's caseload and their interest in PI were also influential on their involvement in PI management and their seeking of additional skills in this area of practice. The relevance of this knowledge in informing new education and training initiatives in PI management has been articulated in this chapter.

The importance of ‘fit’ between education and training and PI policy goals, the skill-mix within the organisation of services, and education and training needs was emphasised. Within this chapter it was evident that PI management within community services setting is unique, and it places different demands on the clinicians who work within this setting. The importance of a range of supports, including new education and training opportunities for those working within community service settings is evident. In the next chapter, the three levels that influence PI management, system, client and clinician, discussed over the last three chapters will be summarised. Following, this some suggestions for future practice and research will be described.
CHAPTER EIGHT

SUMMARY AND CONCLUSIONS

8.1 INTRODUCTION

In this chapter a summary of the preceding system, client and clinician chapters is used to bring the various elements considered at each level together for greater understanding of current practice in PI management. This will provide a platform for the consideration of some suggestions for future practice and research. These suggestions include additional opportunities for education and training, and the introduction of a model of care to support PI management within community service settings, as well as the introduction of a new role that is necessary to support the optimum use of existing resources toward PI management within community services settings.

8.2 A PICTURE OF CURRENT PI PRACTICE WITHIN THE AHCS

The present thesis confirms PI as a multifactorial issue, which presents many challenges in all health service settings. A unique contribution of the present thesis is the way in which current practice was explored through descriptions of care across health service settings. The inclusion of participants from acute and residential aged care settings, enabled greater understanding of what community based PI care actually entails for the system, clients and clinicians, and this was the first step in understanding real need for PI services.

The participants described what current practice was and this in turn provided evidence regarding who they provided care to and what client need actually was based on expressed need (client use of a service that equates to demand), normative need (policy, management, and system expectations) and what they perceived as unmet need for PI management to be, based on their experience in everyday practice. These considerations uncovered a gap between system need
for PI management and client need for PI management based on the perception and experiences of participants regarding PI management. This gap will now be articulated further in the following sections. The gap between system goals, existing supports for PI management, and the reality of practice, meant a picture began to emerge of what unmet need for PI management was, based on the experiences of participants.

The findings suggested that participants were not convinced that general approaches to PI are meeting the needs of all clients and services, and that as a result there were unmet needs for PI services. These unmet needs occurred for several reasons relating to the characteristics of the system, the skills of clinicians and the poor fit between existing approaches to PI management, the natural history of PI and community based PI practice. Availability of resources was also an issue, although this was less of an issue within acute service settings where PI was seen as an issue worthy of considerable resources.

Participants discussed health system, clinician and client behaviour at length. The findings suggested that client, carer and clinician behaviour is influenced by many factors including their ability to identify and act on PI need, as well as potentially their willingness and ability to act. These included their ability to be confident of their own skills and knowledge, and have awareness of the knowledge and skills of those around them. Whether or not individual clinicians and groups actively promoted their role in PI management to others was also influential on clinician behaviour. It was interesting to note the degree of irony present when some of the OT participants claimed that other clinicians did not understand the role of OT, whilst simultaneously expressing some uncertainty regarding their own role and what it should be. Here the importance of developing a greater understanding of and support for skill management, as it relates to PI practice, is highlighted. Supports, such as education, training and mentoring, to assist clinicians to understand and promote their skills and knowledge to others are necessary. Additionally, OTs and other clinicians need to actively pursue their own professional development in areas of PI practice in
which they have an interest and desire to expand their own skills, once these opportunities become more available.

Participants expressed some frustration about meeting the standards set for them in clinical practice guidelines. Health services and leading professional groups have created a desirable standard by suggesting in guidelines and policy that clinicians should be able to detect all patients requiring PI prevention and implement appropriate strategies in order to prevent PI occurrence. This approach fails to take account of the significant barriers faced by clinicians in addressing such standards. For instance, the findings of the current project suggested that certain characteristics of the AHCS made this difficult, such as its biomedical orientation, limited ability to support proactive care due to competing needs and challenges in changing the health system. Fragmentation of care was also a significant concern amongst participants, occurring due to both the organisation of services within the ACHS, and the traditional use of skills within current PI practice.

Participants clearly demonstrated that addressing many clients’ PI needs, particularly those requiring chronic care, required some ongoing monitoring of PI need and follow-up assessment if the goal of prevention was to be met. Both policy goals and the natural history of PI led participants to recognise the need to address longer term PI needs. Yet participants highlighted the challenges they faced in providing the follow-up care necessary to address longer term needs.

These frustrations were mainly voiced by those involved in the transition from hospital to home and those involved in providing community based PI care. For instance, the absence of a central coordinating mechanism within the community caused delays in finding services with adequate PI skills and capacity to meet PI needs. These processes proved time consuming, as the services were not readily available. Participants from acute settings were concerned about the quality of PI management provided to clients once they were discharged. They highlighted how even in cases where they could identify the need to provide on-going care and follow-up of PI needs, they felt restricted in their ability to do so and that at
times this resulted in PI needs not being adequately addressed. In some circumstances due to the diversity of client needs, more broadly and in relation to PI, the diversity of community services and variability in client access to services, clinicians experienced challenges locating advice and also skills to assist them in the management of a client. Participants expressed frustration as they knew what they should do based on their own training and awareness of guidelines, but they could not always provide this care in the timely fashion that PI required. The findings suggested that participants’ experienced significant frustration in meeting normative need, or goals set in system level policy.

Based on their clinical experience participants identified the need to increase client and support care involvement in order to better address PI need. This was felt to be particularly important within community service settings, as this was where clients generally had greater ability to participate in care. The potential for enhanced participation of clients in PI management was felt to be a strength of community services settings that could be exploited if the right resources and supports were made available.

The picture of the natural history of PI gathered over the course of this project highlights further complexities which again make it difficult for clinicians to meet PI need as informed by policy and guidelines. For instance, the syndromic-like characteristics in the preclinical manifestation of PI, combined with the fact that clinicians have difficulty observing PIs due to their ‘hidden’ nature, occurring on parts of the body that are difficult to observe due to modesty reasons, meant that clinicians were reliant on clients and their support care to monitor the skin and alert clinicians to any issues. As the findings identified that clinicians usually convert PI need into demand (services use) once they are aware of PI, this therefore highlights the essential role of clients and support care in both the detection of PI need, the expression of need and the management of PI need. Nevertheless, the fact that PI tended to present due to multiple failures and ‘crisis situations’ suggests that problems occur in the detection of need and in the processes involved in seeking PI management.
The findings also demonstrated how important informal support care, both formal home care services and informal carers, were in the identification of PI and the delivery of PI management as the locations on the body where PIs tended to develop made self-management challenging for clients. Additionally, as demonstrated in both of the case studies, informal support care was found to be very important in influencing client behaviour and assisting clients to promptly seek care.

The findings articulated the importance of developing supports to maximise the existing and underutilised resources that are clients and their informal support care. It is particularly necessary and in fact crucial in successful PI management within community service settings, given the natural history of PI, the essential role of informal support care in the early identification, recognition and expedited management of PI, and the reliance on informal support care to deliver a significant proportion of care within community service settings.

Increasing client and support care participation is now also a key policy directive both nationally and internationally (ACSQHC, 2012; HWA, 2011a). Based on the current project, however, many of the supports necessary for this type of approach were not available at the time the data was collected. Clinician participants experienced significant challenges in achieving client participation in PI management, and this was evident in the many examples in which clients were reportedly provided with education about PI yet did not follow these recommendations.

The findings of the current project suggested that there are currently a number of barriers to client participation in PI management. These related to the characteristics of the system, such as differences in access across client groups, the finite resources with which to deliver care and the policies of provision that prioritised treatment. There were also limited supports for self-funding and purchase of equipment. Where self-purchase or carer purchase did occur, as in James’s case study, some equipment purchased from a pharmacy was in fact contraindicated in clinical practice guidelines.
Client access to PI management also appeared to be influenced by characteristics of clinicians and the services they worked within. For example, there were criteria, usually a client’s primary diagnoses, which influenced the services to which a client had access. Once a client gained access to a service, their PI management was influenced by the available skills and the way in which these skills were organised toward PI within that particular service. If a particular skill was not available within a service, the PI management of the client could potentially become fragmented due to delays in locating the skills necessary to address their need. This was particularly evident in disability services where nurses were not available on their teams.

Additionally, even if the need for PI management was recognised and initiated there were delays for clients in accessing services due to waiting lists and competing priorities amongst community based clinicians. This was evident in Elizabeth’s extensive wait for OT services to address her longer-term PI needs, through equipment prescription and environmental assessment. Issues of access also affected the quality of the transitions between acute and community services as skill levels in PI management amongst community based clinicians were reportedly vary variable. Furthermore, existing service platforms such as general practice and multi-purpose services were not being used to their full potential, in improving client and support care access to PI services and assisting with the coordination and ongoing monitoring of PI needs, within the community service settings.

The findings also demonstrated challenges with client acceptance of recommendations around PI management such as equipment, as was evident in Elizabeth’s case. In the case study Elizabeth’s bed mobility was negatively affected by the pressure relieving mattress that was provided, both Elizabeth and her carer reported that this had a significant impact on her ability to sleep. A comprehensive and client centred assessment process may have been better able to meet PI need and client preferences, alongside her other competing health and social needs. An approach such as this was evident amongst the findings in the
cases where OTs worked closely with nurses, and this mainly occurred within community services settings. Additional benefits of these interactions were the more effective and efficient use of equipment, which participants felt occurred as a result of the careful downgrading of equipment as a wound healed or as levels of risk abated. Further to this, if a comprehensive analysis of the client functioning within their own environment occurred alongside other interventions associated with allied health, such as improving mobility and teaching compensatory strategies that overcome barriers and enable participation in ADL, improvements in overall client health and daily functioning, as well as reductions in the use of expensive equipment may occur. Unfortunately, in the current project, this type of approach incorporating various groups of clinicians was the exception rather than the rule in PI management.

The findings of the current study illustrated a gap between the skills necessary for PI management within community service settings, and the skills, knowledge and attributes of clinicians within the current organisation of services within the AHCS. This in turn, had implications not only for care the client received but also the effective and efficient use of resources across the AHCS. For instance, if PI could be recognised earlier and expeditiously managed within community based care, this may reduce overall costs and avoid expensive hospital admissions. It was evident in the descriptions of the contexts in which clinicians worked that participants were acutely aware of the finite resources of the system and the challenges the AHCS faced in addressing many competing health needs (Bradshaw, 1972; Donabedian 1973; Duckett & Willcox, 2011). Participants were also aware of their own role in making the best use of limited health care resources, and this was particularly evident amongst those within community service settings.

Participants described care processes, giving us insight into what they actually did, and how these actions were influenced by their professional backgrounds, education and training, skills and confidence, as well as their context, both immediate and within the broader health system. The findings demonstrated that more could be done to support clinicians to address longer term PI needs by
creating a better fit between the mechanisms used to support practice and the environment in which they are to be used. Existing mechanisms, designed predominantly with acute services and their respective patient needs in mind did not appear to present the best fit for health service settings, such as community based care, where risk is less overt, resources are limited and the workforce is variable in terms of skill level and availability. An understanding of how the poor ‘fit’ between clinicians’ skills, the task of PI management and the health care context influenced clinician behaviour is an important component in informing a fresh approach to PI management. Knowledge of this kind can be used to better inform the development of contextually specific strategies that would enable the workforce to be better supported to direct their skills toward PI, as well as ensuring that the best use is made of limited resources.

As illustrated in Figure 8.1, based on the perceptions and experiences of participants there is currently insufficient overlap between PI need and client need. As described in the current project, a range of unmet needs related to PI management exist, and these arise for many reasons including issues of access.

**Figure 8.1: Current PI management within the AHCS**
Gaining a greater understanding of what PI need is, based on the experiences and perceptions of participants, has enabled articulation of the fit between current approaches to PI management, with real client and system need. It also therefore enabled consideration of how appropriate current approaches are and what supports might be necessary to better address current and potential future PI need. Some suggestions to enhance future practice will be described in the next section.

8.3. SUGGESTIONS FOR PRACTICE AND RESEARCH

The findings of the current project have resulted in a number of suggestions for future practice and research and these will now be outlined.

8.3.1. A community based model for PI management.

The findings suggested that current mechanisms failed to assist in promoting continuity of care between services and therefore clinicians were unable to address the longer-term needs of clients. The findings highlighted challenges in communication between various service providers, as well as problems in locating the right skills due to the range in skill levels related to PI, and the current organisation of services. In order to enhance continuity of PI management it appears necessary to create a central location or ‘hub’ in which the PI needs of clients may be better met and co-ordinated.

Numerous articles highlight the challenges for clinicians in identifying all clients at PI risk and acting to address this risk amidst competing needs and limited resources. The creation of a ‘hub’ within primary health care would enable clinicians to easily refer clients for ongoing monitoring post PI and for further follow-up. The direction of clients to primary health care, where this new model can best be coordinated may provide a way forward for increasing continuity of care and enhanced access for clients within the AHCS.

As clients themselves have competing needs and may only be ready to take on-board information about PI at critical learning moments, and the fact that
Clinicians must prioritise care needs, additional support for a central ‘hub’ for the coordination of PI care needs within primary health care may provide the best way to improve access and continuity of care. This would provide timely access to advice for clients and support care, as well as for the clinicians involved in their care.

The findings indicated that common health system challenges such as fragmentation of care also affected PI care and that further consideration of system level interventions to improve continuity of care may be of merit in developing fresh approaches to PI care. The platform of primary health care already exists and all clients with PI will have access to a GP within the primary health care system. A community based model for PI management presented in Figure 8.2 will now be described.

**Figure 8.2: A community based model for PI management**
The community based model for PI management proposed above could function in the following ways to enhance existing approaches to PI management within community service settings.

As demonstrated in the model the interactions between general practice and community based support services form primary health care. General practice is central in facilitating enhanced continuity of care as it is the one service provider, which can enable communication between all stakeholders.

The follow-up and peer validation phases highlighted the competing demands on GPs and the need for team care to be coordinated by another health professional, with oversight from the GP. The already expanding role of the PN makes them a likely candidate for leading PI care within community services settings. PNs with some additional opportunities, such as an on-line course in PI management or up-skilling in the new role of ‘broker’, would be well-placed to take the lead role in the community based model of PI management. The role of the GP in PI care may be limited, but would be important in providing oversight and assistance with funding for additional services – such as using chronic disease management care plans.

The findings suggested that if PI management was going to be addressed in primary health care, organisational elements would be necessary, including the development of infrastructure such as the creation of pathways and referral mechanisms to enable the best use of local skills, amongst a range of service providers. For example, as suggested in the findings, OT is best placed to enhance nursing care within community service settings, as they tend to be responsible for equipment prescription due to factors at the system and local level. An OT may be employed and located within the general practice, multipurpose service or primary health care centre or they may be located externally as a private provider. PI management skills amongst local service providers would need to be identified and pathways to these skills established.
Using a community based ‘hub’ also presents a way to improve client access to PI services. It also allows for timely access to education, when clients and carers are ready for this information. An ideal model of care will involve partnering with clients to develop self-management skills including problem solving and developing action plans for seeking care in a timely manner.

As someone who has had a PI will always remain at greater risk of a future PI, it is essential that these clients are identified and monitored. This involves clinicians being able to target these clients and initiate team based approaches when necessary. Given limited resources and the diffuse levels of risk within community service settings, team based approaches for PI management should be carefully initiated for those most in need of PI management. In order to do this effectively, within primary health care, supports would be required to develop the necessary infrastructure such as a note included in a patient’s file that alerts clinicians to previous PI. Additional supports will be needed due to the heavy workload of GPs and an absence of the necessary clinical knowledge amongst administrative staff to develop effective strategies for PI care.

It was evident in the findings that supports would be necessary to enable this model to function satisfactorily within primary health care, and this could potentially be addressed through the introduction of a new role supported through a specialist interdisciplinary educational model. This new ‘broker’ role will now be described.

**8.3.2. A new PI role: ‘broker’**

The role of clinicians in training others to up-skill in PI care was perceived to be an important yet challenging role and one which could be further enhanced, through additional opportunities for education and training. Supporting those that are involved in facilitating practice change in PI with some additional knowledge and skills is important, and could be a central role of a broker of PI care. For instance, applying skills to assist in creating supports for services and clinical staff, including knowledge of theory to understand clinician behaviour.
and use a range of strategies to influence clinician behaviour. The tried and tested model of DE provides an example of a multifaceted multiprofessional role that has been demonstrated to successfully support both clients and clinicians in changing behaviours around diabetes care. Similarly, the PI ‘broker’ would be a multifaceted role open to a range of clinicians. The ‘broker’ role would help to facilitate greater client and support care participation in PI management, yet would assist in the coordination of a client’s PI management, as needed.

The core elements of the ‘broker’ role could include those outlined in Table 8.1. In order to undertake these tasks, an effective PI ‘broker’ must have a sound level of knowledge about the mechanisms and interventions for PI management, as well as practical skills in evaluation and quality assurance. Ideally a ‘broker’ would also have competencies in at least one of the following clinical skills: basic wound management, equipment prescription, task analysis and environmental assessment. These skills would not necessarily be to the level of a specialist in any of the above competencies, but brokers need to be able to determine when a specialist is required, or alternatively when others can safely perform the task required.

What was evident from the findings of the current study and existing research both within PI, and more broadly, is that existing education and training alone are not sufficient to change individual clinician behaviour, and that there is a need for a new ‘broker’ role to tailor education to individual need within community service contexts. An approach such as this would need to include promoting PI management to clients, to colleagues and the external service providers that could be used to support increased client access to services. A ‘broker’ would need to understand a variety of behaviour change theories to assist in identifying the incentives and barriers to the adoption of best practice.

Additionally, the presence of the ‘broker’ as an educative resource may assist clinicians to strengthen their own skills in the delivery of education through timely access to advice, feedback and support at the local service level. This may include the development of educational materials specifically tailored to service
needs as well as individual client’s needs as necessary. The tailoring of education and training to individual staff and services needs, as well as developing supports such as protocols to assist clinicians to apply their learning in practice is often identified as an essential component in successful PI programs that report a reduction in PI prevalence over a specified period of time within acute and long term care setting (Soban et al., 2011; Sving et al., 2014;).

A PI ‘broker’ could also have a role as a PI intermediary, or ‘a go between’ acting as a mediator. This is a new role, allowing the ‘broker’ the ability to act as an intermediary between different groups, such as the client and health services, as well as those who are able to conduct research, such as university based research groups.

The findings suggested that mentors, local leaders and processes such as supervision were successful in changing PI practice, and a broker could contribute to these roles. Many study participants were engaged in educating and influencing others, for example, support care workers, informal carers, and clinicians. The broker could also maximise the skill of clinicians in these activities.

**Table 8.1: The potential roles and skills of a ‘broker’**

<table>
<thead>
<tr>
<th>Partnering with clients</th>
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<tbody>
<tr>
<td>- Awareness of the Chronic Care Model and its core concepts.</td>
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<tr>
<td>- Able to facilitate self-management through education and the development of problem-solving skills. This would include the ability to develop client supports such as action plans that assist in the development of timely pathways to care.</td>
</tr>
<tr>
<td>- Would have knowledge of behaviour change theory and the ability to apply this knowledge to partner with clients.</td>
</tr>
<tr>
<td>- Able to act as an educative resource for clinicians to assist them in partnering with clients.</td>
</tr>
<tr>
<td>- Able to impart information to both clinicians and lay-persons such informal support care</td>
</tr>
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</table>
- Must have the ability to assess and meet the learning needs of a range of clinicians and levels within the workforce.
- Has an awareness of funding systems and which clients can gain access to various types of funding.

**Organisational design and support**

- Ensures clinicians have the resources they need to perform the tasks asked of them such as documentation, care plans, decision support tools.
- Able to develop infrastructure to support clinical information systems required for the sharing of information between internal and external service providers.
- Is able to develop pathways between local service providers with the necessary skills and services for effective PI management.
- Can initiate PI data collection, which would enable follow-up care of those with an existing PI. Collection of this data would also enable preventative efforts to be targeted to those who would benefit the most i.e. those with a history of PI.
- Ability to assist in the development of defined goals of the organisation/service
- Has an awareness of policies impacting on practice and how these can influence or be used to fund new and existing services.

**Research capacity building**

- The broker would have skills in the conduct of research in particular the evaluation of health services.
- The broker would collaborate with external agencies such as universities to assist in the conduct of research.
- The role could also assist in the translation of research into practice, through combined knowledge across clinical practice, research and education and training.

**Skill management** (Dubois & Singh, 2009)

- Can support the optimum use of skills by organisation of skills appropriate to the task, the context and the skills available.
- Has an awareness of the skills necessary to address a particular health
issue such as PI and the appropriate skill-mix to meet system and client outcomes. Can locate these skills or assist a staff member to find out how to develop these skills if they have the interest.

- Has knowledge and awareness of the various clinician competencies and therefore what task particular groups and individuals can undertake legally.
- Is able to determine and develop the supports required to enable clinicians to work to the full scope of practice. This would include the development of job descriptions that support working to the full scope of practice as well as the identification of any education and training needs.
- Can assist in the development of clearly defined tasks amongst team members. Is able to assist with change management both in terms of roles and changes to procedures.
- Is able to support professional development amongst the workforce through knowledge of the education and training available, and awareness of the supports that can enhance access to these opportunities, such as funding schemes that target certain elements of the workforce e.g. paid support care workers.
- Can also provide supervision and one-on-one education to staff.
- Is able to develop the necessary supports for team based care including systems of referral, and methods of communication including sharing of medical information and other supports to routinise care.
- Can support the development of leadership across the team.
- Would have sound skills in communication, conflict resolution and negotiation, and be able to develop these skills amongst the workforce.

The new PI ‘broker’ role may offer a mechanism to maximise strengths and minimise weaknesses within community settings, in particular they can foster greater client and support care participation in PI management and can reduce fragmentation of care by supporting a ‘hub’ for the management of PI issues within primary health care. The ‘broker’ role may assist in moving beyond care
coordination and management of clients, to approaches that imbue a culture of client and support care participation in their own care.

The 'broker' role may assist clinicians to create a better fit between PI need and client need within the AHCS. The skills necessary for building a body of knowledge to support community based PI care are also necessary and will involve the evaluation of interventions and models of service delivery through infrastructure development for the conduct of research as well as the facilitation of clinician engagement in the process.

While the 'broker' role incorporates aspects of case management such as acting as an advocate for PI needs of the client and assisting clients to access the system, in deciding on a name for the 'broker' role, further consideration was given to the nature of community based health care and community based PI management more specifically. This resulted in a decision that the term case manager appeared quite paternalistic and did not appear to reflect the importance of respecting client autonomy and the necessity of partnering with the client in their own care. The term 'care coordinator' was considered and it was decided that this did not account for the skill management aspect of the role nor the organisational design and support aspect, which appeared crucial in developing community based PI management. A 'facilitator' role accounted for the role of intermediary and change agent acting within the system to bring about changes in clinician behaviour in relation to PI, as well as involvement in the conduct of research. However, it did not account for the clinical aspects of care in which the broker could engage, such as partnering with clients. The term 'broker' appeared to represent the skills and knowledge required to bring client need and PI need closer together and therefore create a better fit within the AHCS.

A search was conducted to identify where and how the term 'broker' had been used previously in the literature. Most references were found in the area of business where a broker has been described as someone who acts as an agent or intermediary and usually has specialised knowledge to support this role. The other references referred to the role of a 'knowledge broker' (Lomas, 2007;
Meyer, 2010). The role of a ‘health broker’ has also been described in the context of creating cross-sector collaboration, citizen involvement and political and administrative support for effective health promotion within Dutch communities. (Krebbekx, Harting, & Stronks, 2012; Harting, Kunst, Kwan & Stronks, 2010). The definition used in this thesis is that described by Bruhn (1987) who proposed this definition as part of the development of a new role enabling the clinical application of sociology in health service settings. According to Bruhn a broker is ‘an agent or middleman, an essential third party in an interaction in which some type of change, involving two or more parties, is planned’ (p. 168, 1987). A diagram developed by Bruhn (1987) to represent the main role of the ‘broker’ is presented in Figure 8.3. As evident in the diagram there are some similarities between Bruhn’s ‘broker’ role and the one presented in this thesis such as acting as an advocate for clients, and working within health services to facilitate the changes required to achieve better outcomes for clients. The ‘broker’ role as presented in this thesis would also engage in processes that would involve negotiation, consultancy and innovation. Additional roles of the ‘broker’ that have been informed by the present project and are included in the Figure 8.3 are that of skill management, organisational design and support, and research capacity building.

Figure 8.3: Description of a broker role in health care (Bruhn, 1987)
Bruhn (1987) similarly envisaged his ‘broker’ as being able to work across different levels, although they are described as being over the different levels of social interaction nominated as the individual, group, organisation, community and social institution levels. Given the substantial body of literature around systems thinking, the new ‘broker’ role has been combined with a well-referenced diagram that outlines how the different levels of health systems interact to produce care, as part of the ‘clinical microsystems’ approach to improving health services. This process resulted in Figure 8.4 which represents the ‘broker’ role as presented in the current thesis, working across the key levels identified within the clinical microsystems body of knowledge developed by the Dartmouth Institute (2004).

**Figure 8.4: The ‘broker’ role across levels of the health system.**

(Adapted from a diagram contained within the “Clinical Microsystems Action Guide: improving health care by improving your microsystem” created by the Trustees of the Dartmouth Institute, 2004).

**8.3.3. Financial incentives**

To enable and incentivise team based approaches for PI within primary health care, the creation of a Medical Benefits Scheme (MBS) item number for PI care is necessary as this would enable GPs and other clinicians to be adequately
remunerated for PI management. This would overcome the limitations of existing funding models such as the CDM programs, which currently could not provide adequate access to services for the effective management of longer term PI needs as described in the present thesis. The ability for general practices or other health practices to generate income through the provision of PI management services would be necessary to justify the consultancy services of the broker or to support their employment within larger primary health centres (Flodgren et al., 2011).

8.3.4. Additional education and training opportunities

In order to support the new community based model of PI several other education and training opportunities appear necessary. They are necessary in order to facilitate the participation of clients and support care in PI management as well as the best use of the existing clinical workforce toward PI. These suggestions for education and training opportunities will now be outlined.

8.3.4.1 General PI education and training

The inclusion of competencies around partnering with clients and imparting information to lay persons such as informal support care should be included with all existing and new educational models directly related to PI management. In addition to these competencies it would be necessary to include those which would support interdisciplinary practice by enhancing understanding of a variety of roles within PI management whilst developing awareness of role interdependence and the necessity of respecting individual roles and autonomy. Other competencies may include communication skills that promote effective team function and collaborative decision-making (Nancarrow, 2013a). These recommendations apply to the training of all staff in hospital based and community based health services.

Based on participants’ descriptions most clinicians would be exposed to some PI education as part of induction training and continuing professional development
programs. It is essential that such educational opportunities continue to be provided across both the public and private health service sectors (ACSQHC, 2012a, 2012b; NSW Health CEC, 2014). At the time of the current study those outside of ‘health’ such as those working as support carers within non-government organisations, and within private primary care providers did not have access to such education training and required alternative ways of accessing PI education. The inclusion of criteria for PI prevention in the leading accreditation program in Australia has probably increased access to education around prevention of PI and may have gone some way to address this education need (ACHCS, 2015; HWA, 2011a).

**8.3.4.2. Additional opportunities for allied health**

It is important to address the limited opportunities for allied health as they were identified in the current study as an aspect of the workforce where there was latent reserve capacity which could be utilised more effectively toward PI management. This is also very important as some allied health interventions such as equipment, splints, position, and transferring can contribute towards skin damage. Pharmacists, PTs and OTs were involved in recommendations around equipment purchase and use. As self purchase of equipment would hopefully increase as a result of the community based model of PI, it is essential that clients can purchase safe, effective and low cost equipment for prevention and comfort.

Amongst the findings it was evident that there was already an existing role for allied health in PI care, further to this there also appeared to be scope to expand the existing use of allied health skills through additional educational and training opportunities. For example, OT appeared to be best placed to enhance nursing led approaches with community settings. OT articulated their generalist and flexible skills set that lends itself well to the demands of chronic disease and community settings. Enabling access to additional education and training for those OTs interested in specialising in this area is important in growing this emerging area of practice and establishing the role of OT within the field of PI management.
Fragmentation of skills did cause delays for patients and clinicians, this was particularly evident when the OT required the assistance of nursing to observe the wound and tailor their interventions to the clients PI needs. In order to reduce fragmentation and improve continuity of care those allied health personnel that are interested could potentially develop skills in wound care. As demonstrated in Chapter Seven wound care is not an entirely new skill to allied health, suggesting that there is scope for greater involvement for allied health in wound care, and this is an area for further investigation. Greater inclusion of allied health requires careful attention to scopes of practice for the various clinician groups at the system level to ensure that allied health can undertake wound care legally and safely. The recognition and appropriate use of skills for PI management at the service and clinician level through job descriptions and change management will ensure new allied health roles are accepted and integrated into the workplace environment.

Currently allied health has less opportunities for postgraduate education with most education being provided within individual professional associations. This can have an impact on opportunities to develop interdisciplinary skills as well as the translation of this into practice (Ferlie et al., 2005). The development of some additional postgraduate opportunities that are similar to those already available for nursing and medicine would better support interprofessional approaches to PI management and also more broadly. There are a range of existing mechanisms to obtain additional qualifications such as graduate certificates through either the VET sector or other organisations that offer postgraduate education, for example the Association for Medical Education in Europe (Association for Medical Education in Europe, 2012). The training of allied health could potentially exploit either of these types of models to develop further opportunities for postgraduate training.
8.3.4.3. Developing skills that could enhance community based PI care

The findings of the current study also highlighted the importance of opportunities to develop some community specific skills. These education and training opportunities could be directly related to PI management within community settings. Alternatively, PI management could be included within some generic courses that cover core skills for community practice, including content about a range of secondary conditions, whose management can be enhanced through greater client and support care participation in care.

Given the natural history of PI and the affect it has on the ability of clinicians to address PI need within community service settings, all clinicians working in this setting must have the ability to partner with clients in their own care. Additionally, working with informal support care in community service settings is imperative due to the infrequent attendance of clinicians, and it is likely to become increasingly important as more care is delivered within community service settings into the future. Based on the findings of the current thesis, with support and supervision most tasks including basic wound care can be delivered by informal support care. Therefore those working within the community who are involved in PI often, would benefit from the skills to assess the willingness and ability of informal support care to take part in PI management. What this also requires is up-skilling in imparting information to clients and informal support care so that they can have a more direct role in the monitoring of skin care, and recognising when and how it is best to seek help, as well as their direct involvement in wound care.

The findings highlighted that there are a diverse range of educational needs amongst clients and support care. It is therefore important to enhance understanding of the potential learning needs and strategies that could be employed when working with various groups and individuals with PI needs. And this represents an important area for future research.
The other key aspect of PI practice within the community service setting was the ability to maximise the limited resources available to address PI needs. Important skills necessary for maximising the ability of the client and their support care to participate in PI care was the assessment of the way in which they functioned within their own environment. This type of approach appears necessary in enabling the safe and effective use of low cost interventions for PI prevention and client comfort, and it requires knowledge of what can be used from the clients’ environment such as cushions and alterations to chair heights, as well as knowledge of where other low cost interventions such as pressure relieving equipment can be purchased or hired. It is essential that clinicians who undertake this type of course also know where and how to seek specialist skills in the area of person-environment assessment and equipment prescription such as through an OT that has links with or works within a community based model of PI management within a primary health care centre.

These courses which include the core community PI skills described above would be available to clinicians, both health professionals and associate professionals such as TAs and AINs. These courses could be delivered through professional associations or within the VET sector or other postgraduate opportunities as they develop for allied health.

8.4. A VISION OF FUTURE PI PRACTICE

If additional education and training opportunities are created and the community based model has been implemented and supported through the new ‘broker’ role future practice in PI management may look very different.

Team based approaches within primary health care may enable best practice PI management to be realised. Strengthening community practice may be achieved by enhancing the coordination and continuity of care for people with PIs and decreasing the fragmentation experienced by clinicians and clients, and also maximising the potential participation of clients and support. Remembering that there is a range in need for PI services and that some clients and informal
support care are limited in their ability to participate in care for a variety of reasons. An up-skilled workforce equipped with the necessary skills may make better use of limited resources through their enhanced ability to determine the need for services, and the ability to tailor interventions to their clients within the contexts in which they provide care.

The development of PI management pathways is likely to assist in enabling better access to a range of services. Further exploratory research within community settings could support the development of pathways for greater client access and links within a range of community based services. The limitations in access to certain skills, as illustrated in the case studies, highlighted underutilisation of certain skills and the importance of improving the management of existing skills within health services. With the appropriate supports to enhance skill use toward PI care in place, such as pathways and referral criteria, the most effective use of existing resources is more likely to occur.

The ‘broker’ model may increase the effectiveness of care as clients and clinicians can be directed to a central location for advice and also the management of PI needs. This may be in the form of advice or knowing whom to contact amongst a range of available and appropriately skilled clinicians in order to initiate PI care, and thereby improve access to care.

The ‘broker’ role may assist with the development of a range of supports to assist with the best use of skills and resources toward PI care as they are able to work across and within different levels of the systems. Consideration of how the different levels of the system impact on team care has been identified as important in developing approaches to improve the quality and safety of care. For instance, in order to meet client and support cares’ future demand for advice regarding the purchase and hire of PI equipment to support PI care and advice regarding basic wound care, it is important to make use of other health care resources such as pharmacies and their staff.
The findings suggested that it was important for a ‘broker’ to have a sound understanding of the different strengths and weaknesses that each health service setting presents to PI practice. This would enable the development of appropriate and context specific strategies to support the workforce as well as ensuring that the best use is made of limited resources. Multi-component interventions targeting clients, informal support care and clinicians, which are tailored to community service settings, may enhance preventative efforts, as well as assist in the earlier recognition and management of PI.

The model introduced in the current thesis provides ease of access for GPs to delegate responsibility for the management of PI to a practice nurse or individual ‘broker’, who has received additional education and training in PI management. The community based model of PI management also allows other clinicians and community resources to be more effectively organised and coordinated. By creating a ‘hub’ for PI management within the current organsiation of services within the AHCS and the existing platforms for reform within primary health care, this model has the potential to enhance client and support care access to PI services. In particular, the model enables clients to be educated in their own management of PI issues by the clinician from whom they will receive the most contact, and at the time they need it the most. The community based model for PI management creates a clearly identified point of access for clients and their support care, through which they can initiate contact with a range of clinicians up-skilled and supported to address PI needs. Figure 8.5 below illustrates a better fit between PI management and the AHCS as facilitated by the community based model of PI management which includes the ‘broker’ role.
8.5. LIMITATIONS OF THE CURRENT PROJECT

The current project is strengthened by its use of three complementary phases of research that provided multiple opportunities for participant feedback on findings. A limitation in the peer validation phase was that two nursing participants did not respond to the email invitation and one OT participant declined to participate due to time limitations and workload pressure. These limitations were addressed to a certain extent by the presentation of the project findings to a range of clinician and research peers at a both a national and international wound care conference.

Another notable limitation of this study was that there were no participants representing primary care services. Even though participation was sought from GPs no representatives came forward and therefore they could not be recruited into the study. Due to the absence of these participants it was difficult to gauge GP involvement in the management of PI issues. Other professional groups not represented in the current project include those from social care and podiatry.
Additionally, associate professionals such as TAs and AINs were not represented and so the involvement of these groups had to be gathered from those that described working with these clinicians. A strength of the current study was the strong representation from leaders in the field that had significant levels of experience and specialist qualifications and therefore extensive involvement in the development of policy and education and training, as well as the delivery of clinical care.

It is important to note that politicians and senior health service managers were also not represented in data collection. Therefore, discussions around policy development were based on the perspective of health care workers only. Policy documents provided some additional information, and the opportunity for triangulation with clinicians’ experiences related to the system level issues, and therefore countered the absence of these perspectives.

There were a number of logistical challenges encountered in conducting the community based case studies as described in chapter four. Unfortunately, this meant that less data than had been intended was collected in this phase. While only limited data was collected from the perspective of individual clients (n=2) and informal carers (n=1), their inclusion was another strength in the current project, helping to enhance understanding of current practice in PI management within community service settings.

8.6. CONCLUSION

The present thesis has enhanced our understanding of current practice in PI management within the context of the AHCS. The experiences of clinicians from a variety of professional groups and a range of health services settings across New South Wales and Victoria have been used to collate this picture. The findings suggested that the context in which PI management is provided is very influential on the types of supports required to more effectively address PI need.
The unique characteristics of PI management within community settings suggest that it is necessary to develop education and training that supports and enhances the ability of clinicians to practice within this context. Due to the natural history of PI and the challenges in detection of need as well as the importance of effective and sustainable allocation of resources, the necessary skills include the ability to partner with clients and their informal support care and to maximise their participation in PI management, through careful consideration and assessment of the fit between the client, their environment and the task of PI management.

A consideration of the key issues at the system, client and clinician levels of the AHCS suggested that longer term PI need may be best met through the use of team based approaches within primary health care. The community based model for PI management will create a hub for the management of PI needs within primary health care. Enhancing approaches to PI management within primary health care may help to facilitate improved continuity of care and better use of health care resources. As the findings of the current project demonstrated that limited infrastructure currently exists to support PI management within primary health care, the introduction of a new role, the 'broker', is a necessary support for the new community based model of PI care. The 'broker' role works to create the infrastructure and supports necessary to address the 'gaps' and organisational boundaries that influence clinician practice in PI management. The 'broker' role may also enhance client access to PI management, by assisting clinicians to partner with clients and their support care in their own care, and ensuring the best use of local resources through skill management, organisational design and support and research capacity building. By enhancing access to PI management within community service settings, the community based model of PI management will enhance PI prevention, assist in their earlier recognition, and expedite PI management.
REFERENCES


Apelqvist, J., & Larsson, J. (2000). What is the most effective way to reduce incidence of amputation in the diabetic foot? *Diabetes Metabolism Research Review, 16*, S75-S83.


Barker, A., Kamar, J., Tyndall, T., White, L., Hutchinson, A., Klopfer, N., & Weller C.


Bergquist-Berenger, S., & Gajewski, B. (2011). Outcome and assessment information set data that predict pressure ulcer development in older adult home health patients. *Advances in skin and Wound Care, 24*(9), 404-413.


framework’. *Australian and New Zealand Health Policy, 5*(1).


Garber, S., Rintala, D., Holmes, S., Rodriguez, G., & Friedman, J. (2002). A structured educational model to improve pressure ulcer prevention


Harting, J., Kunst, A., Kwan, A., & Stronks, K. (2010). A ‘health broker’ role as a catalyst of change to promote health: An experiment in deprived Dutch


of the American Geriatric Society, 52, 359-367.


Presseau, J., Ivers, N., Newham, J., Knittle, K., Danko, K., & Grimshaw, J. (2015). Using a behaviour change techniques taxonomy to identify active
ingredients within trials of implementation interventions for diabetes care. 
*Implementation Science, 10*(55), 1-10.


Silver Chain. (2001). *Pressure ulcer prevention for clients and carers: No pressure zone.* Western Australia: Silver Chain.


psychosocial risk factors associated with foot re-ulceration in diabetes. 
*Behaviour Research and Therapy, 50*, 323-332.


Appendix A A classification system to grade levels of PI (AWMA 2012)

7. ASSESSMENT AND MONITORING OF PRESSURE INJURIES

Pressure injury assessment and monitoring
A comprehensive assessment of the PI assists in developing the most appropriate management plan and ongoing monitoring of wound healing.

Recommendation 24
Assess and monitor pressure injuries using a validated pressure injury healing assessment scale.

Practice points for assessing PIs

- Validated PI healing assessment scales include:
  - PUSH®
  - BWAT
  - Sessing Scale
- Measurement of the wound should include length, width and depth.4,28
- Tracing the wound margins provides a reliable indication of the progress of wound healing. Other techniques for measuring wound size include using a disposable ruler or photography including a calibrated measure.4,28
- Computerised calculation (planimetry) of the wound area from wound tracings or digital photography could be considered if resources are available.2,4
- The patient’s position should be replicated as closely as possible when re-measuring the wound to increase the accuracy of results.2,4
- When ongoing assessment indicates that the PI is not healing at an optimal rate (improvement evident within two to four weeks depending on initial condition of the wound4,4) the wound dressing choice and overall management should be reviewed.

Pressure injury classification
Pressure injury classification systems provide a consistent and accurate means by which the severity of a PI can be communicated and documented. These classification systems are used in PI research as well as in the clinical field to provide a description of the severity of the PI under discussion.

Recommendation 25
Consider using the NPUAP/EPUAP 2009 pressure injury classification system to identify and communicate the severity of pressure injuries.

The following skin anatomy graphic and image are provided as an anatomical reference for staging of pressure injuries as outlined in Table 7.1.

Skin anatomy
**Table 7.1 NPUAP/EPISOAP pressure injury classification system**

### Stage I Pressure Injury: Non-Blanchable Erythema
- Intact skin with non-blanchable redness of a localized area usually over a bony prominence.
- Darker pigmented skin may not have visible blanching; its color may differ from the surrounding area.
- The area may be painful, firm, soft, warmer or cooler compared to adjacent tissue.
- May be difficult to detect in individuals with dark skin tones.
- May indicate "at risk" persons (a heralding sign of risk).

### Stage II Pressure Injury: Partial Thickness Skin Loss
- Partial thickness loss of dermis presenting as a shallow, open wound with a red-pink wound bed, without slough.
- May also present as an intact or open/ruptured serum-filled blister.
- Presents as a shiny or dry, shallow ulcer without slough or bruising (NB bruising indicates suspected deep tissue injury).
- Stage II PI should not be used to describe skin tears, tape burns, perineal dermatitis, maceration or excoriation.

### Stage III Pressure Injury: Full Thickness Skin Loss
- Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscle are not exposed. Slough may be present but does not obscure the depth of tissue loss. May include undermining and tunnelling.
- The depth of a stage III PI varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have subcutaneous tissue and stage III Ps can be shallow. In contrast, areas of significant adiposity can develop extremely deep stage III Ps. Bone or tendon is not visible or directly palpable.
Stage IV pressure injury: full thickness tissue loss

- Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present on some parts of the wound bed.
- The depth of a stage IV pressure injury varies by anatomical location. The bridge of the nose, ear, occipital and malleolus do not have subcutaneous tissue and these PI can be shallow. Stage IV PIs can extend into muscle and/or supporting structures (e.g. fascia, tendon or joint capsule) making osteomyelitis possible. Exposed bone or tendon is visible or directly palpable.

Unstageable pressure injury: depth unknown

- Full thickness tissue loss in which the base of the PI is covered by slough (yellow, tan, grey, green or brown) and/or eschar (tan, brown or black) in the PI bed.
- Until enough slough/eschar is removed to expose the base of the PI, the true depth, and therefore the stage, cannot be determined. Stable (dry, adherent, intact without erythema or fluctuance) eschar on the heels serves as the body’s natural biological cover and should not be removed.

Suspected deep tissue injury: depth unknown

- Purplish or maroon localised area or discoloured, intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear. The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue.
- Deep tissue injury may be difficult to detect in individuals with dark skin tone.
- Evolution may include a thin blister over a dark wound bed. The Pi may further involve and become covered by thin eschar. Evolution may be rapid, exposing additional layers of tissue even with optimal treatment.

All 3D graphics designed by Jared Ohms. Gear interactive: http://www.gearinteractive.com.au

Photos anatomy (stage 1, 4), unstageable and suspected deep tissue injury courtesy C. Young, Lismore General Hospital. Photo stage 3 and 4 courtesy K. Carrick, St John. Used with permission.
5. PRESSURE INJURY RISK ASSESSMENT

Factors associated with an increased risk of pressure injury

An imperative in the prevention of PI is the assessment and identification of patients at risk and implementation of an individualised prevention plan. Risk assessment includes consideration of both patient and environmental factors that are associated with the development of PIs.

A risk factor is any factor that either contributes to increased exposure of the skin to excessive pressure or diminishes the skin's tolerance to pressure (see Figure 5.1). The literature search was not designed to retrieve research on factors associated with PI risk; however, one SR provided evidence related to patients with spinal cord injury (SCI). Risk factors were presented in previously published guidelines.

Figure 5.1 Factors associated with increased risk of pressure injury

![Diagram showing factors associated with pressure injury]

Identifying patients at risk of pressure injury

Recommendation 1

Conduct a comprehensive assessment for all patients to identify pressure injury risk factors. A comprehensive assessment should include:

- clinical history,
- pressure injury risk scale,
- skin assessment,
- mobility and activity assessment,
- nutritional assessment,
- continence assessment,
- cognitive assessment,
- assessment of extrinsic risk factors

Practice points for risk assessment

- Assessment of extrinsic factors should include the impact of environmental factors on pressure, shear and microclimate (e.g., local heating, air-conditioning, electric blankets).
- Findings of a comprehensive assessment should be used to inform development of a PI prevention plan.
(Coleman et al, 2014)
(Clark et al, 2006)
Appendix C Example protocol and decision pathway (AWMA 2012)

**Western Health**
**BRADEN PRESSURE ULCER RISK ASSESSMENT TOOL**

- Western Hospital
- Hazledean Nursing Home
- Sunshine Hospital
- Reg Geary House
- Williamson Hospital

**Assessment to be completed:**
- On admission to Western Health
- 2/7 post admission
- Weekly thereafter (acute/subacute) OR if the patient’s condition deteriorates.
- Monthly (residential care)

**PATIENT IDENTIFICATION LABEL**

**High Risk ≤ 12**
**Medium Risk = 13-14**
**Low Risk = 15-18**
**Nill Risk = 19-23**

### DATES OF ASSESSMENT

<table>
<thead>
<tr>
<th>RISK FACTOR</th>
<th>SCORE/DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SENSORY PERCEPTION</td>
<td><strong>1. COMPLETELY LIMITED</strong> Unresponsive (does not moan, flinch, or grasp) to painful stimuli, due to diminished level of consciousness or sedation OR Limited ability to feel pain over most of body surface</td>
</tr>
<tr>
<td></td>
<td><strong>2. VERY LIMITED</strong> Responds only to painful stimuli. Cannot communicate discomfort except by moaning or restlessness. OR Has a sensory impairment that limits the ability to feel pain or discomfort over 1/2 of body.</td>
</tr>
<tr>
<td></td>
<td><strong>3. SLIGHTLY LIMITED</strong> Responds to verbal commands but cannot always communicate discomfort or need to be turned. OR Has some sensory impairment which limits ability to feel pain.</td>
</tr>
<tr>
<td></td>
<td><strong>4. NO IMPAIRMENT</strong> Responds to verbal commands. Has no sensory deficit which would limit ability to feel or voice pain or discomfort.</td>
</tr>
<tr>
<td>MOISTURE</td>
<td><strong>1. CONSTANTLY MOIST</strong> Skin is kept moist almost constantly by perspiration, urine, etc. Dampness is detected every time patient is moved or turned.</td>
</tr>
<tr>
<td></td>
<td><strong>2. OFTEN MOIST</strong> Skin is often but not always moist. Linen must be changed at least once a shift.</td>
</tr>
<tr>
<td></td>
<td><strong>3. OCCASIONALLY MOIST</strong> Skin is occasionally moist, requiring an extra linen change approximately once a day.</td>
</tr>
<tr>
<td></td>
<td><strong>4. RARELY MOIST</strong> Skin is usually dry; linen only requires changing at routine intervals</td>
</tr>
<tr>
<td>ACTIVITY</td>
<td><strong>1. BEDFAST</strong> Continued to bed.</td>
</tr>
<tr>
<td></td>
<td><strong>2. CHAIRFAST</strong> Ability to walk severely limited or nonexistent. Cannot bear own weight and/or must be assisted into chair or wheelchair.</td>
</tr>
<tr>
<td></td>
<td><strong>3. WALKS OCCASIONALLY</strong> Walks occasionally during day but for very short distances with or without assistance. Spends majority of each shift in bed or chair.</td>
</tr>
<tr>
<td></td>
<td><strong>4. WALKS FREQUENTLY</strong> Walks outside room at least twice a day and inside room every 2 hours during waking hours.</td>
</tr>
<tr>
<td>MOBILITY</td>
<td><strong>1. COMPLETELY IMMOBILE</strong> Does not make even slight changes in body or extremity position without assistance.</td>
</tr>
<tr>
<td></td>
<td><strong>2. VERY LIMITED</strong> Makes occasional slight changes in body or extremity position but unable to make frequent or significant changes independently.</td>
</tr>
<tr>
<td></td>
<td><strong>3. SLIGHTLY LIMITED</strong> Makes frequent though slight changes in body or extremity position independently.</td>
</tr>
<tr>
<td></td>
<td><strong>4. NO LIMITATIONS</strong> Makes major and frequent changes in position without assistance.</td>
</tr>
<tr>
<td>NUTRITION</td>
<td><strong>1. VERY POOR</strong> Never eats a complete meal. Rarely eats more than 1/3 of any food offered. Eats 2 servings or less of protein (meat or dairy products) per day. Takes fluids poorly. Does not take a liquid dietary supplement OR Is NPO and/or maintained on clear liquids or IV for more than five days.</td>
</tr>
<tr>
<td></td>
<td><strong>2. PROBABLY INADEQUATE</strong> Rarely eats a complete meal and generally eats only about 1/2 of any food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will take a dietary supplement. Receives less than optimum amount of liquid diet or tube feeding.</td>
</tr>
<tr>
<td></td>
<td><strong>3. ADEQUATE</strong> Eats over half of most meals. Eats a total of 4 servings of protein/meat, dairy products) each day. Occasionally will refuse a meal, but will usually take a supplement if offered. OR Is on a tube feeding or TPN regimen, which probably meets most or nutritional needs.</td>
</tr>
<tr>
<td></td>
<td><strong>4. EXCELENT</strong> Eats most of every meal. Never refuses a meal. Usually eats a total of 4 or more servings of meat or dairy products. Occasionally eats between meals. Does not require supplementation.</td>
</tr>
<tr>
<td>FRICION AND SHEAR</td>
<td><strong>1. PROBLEM</strong> Requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down the bed or chair, requiring frequent repositioning with maximum assistance. Spasticity, contractures, or agitation leads to alleviated constant friction.</td>
</tr>
<tr>
<td></td>
<td><strong>2. POTENTIAL PROBLEM</strong> Moves freely or requires minimum assistance. During a move, skin probably slides to some extent against sheets, chair, restraints, or other devices. Maintains relatively good position in chair or bed most of the time but occasionally slides down.</td>
</tr>
<tr>
<td></td>
<td><strong>3. NO APPARENT PROBLEM</strong> Moves in bed and in chair independently and has sufficient muscle strength to lift up completely during move. Maintains good position in bed or chair at all times.</td>
</tr>
</tbody>
</table>

**TOTAL SCORE:** Total score of 12 or less represents **HIGH RISK**

**INITIAL SIGNATURE**

**DESIGNATION**

Level of risk MUST BE documented on reverse side of this form and appropriate preventative strategies implemented/documented with each assessment.

# Western Health Pressure Ulcer Preventative Strategies

<table>
<thead>
<tr>
<th>Low Risk Braden Score = 15-18</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skin Integrity</strong></td>
<td>Check daily and document presence of pressure ulcers</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>Provide educational pamphlet to patient / carer</td>
</tr>
<tr>
<td><strong>Bed device/s</strong></td>
<td>High density Macmed &quot;Oze Ultimate&quot;</td>
</tr>
<tr>
<td><strong>Seating</strong></td>
<td>Educate patient to shift weight independently 15/60 if able</td>
</tr>
<tr>
<td><strong>Turning regime</strong></td>
<td>Able to turn self</td>
</tr>
<tr>
<td><strong>Heel devices/aids</strong></td>
<td>Elevate heels using pillows OR wedges if patient has restricted mobility</td>
</tr>
<tr>
<td></td>
<td>Loose bed clothes OR bed cradle</td>
</tr>
<tr>
<td></td>
<td>Slide sheets</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medium Risk Braden Score = 15-14</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skin Integrity</strong></td>
<td>Skin care regimen neutral pH soap and protective barrier creams if patient incontinent</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>Provide educational pamphlet to patient / carer</td>
</tr>
<tr>
<td><strong>Bed device/s</strong></td>
<td>High density Macmed &quot;Oze Ultimate&quot;</td>
</tr>
<tr>
<td><strong>Seating</strong></td>
<td>Educate patient to shift weight independently 15/60 if able</td>
</tr>
<tr>
<td><strong>Turning regime</strong></td>
<td>Able to turn self</td>
</tr>
<tr>
<td><strong>Heel devices/aids</strong></td>
<td>Elevate heels using pillows OR wedges</td>
</tr>
<tr>
<td><strong>Allied health</strong></td>
<td>Head of bed 30 degrees unless medical condition contraindicates</td>
</tr>
<tr>
<td><strong>Allied health</strong></td>
<td>Referral to Dietitian for nutritional assessment</td>
</tr>
<tr>
<td><strong>Allied health</strong></td>
<td>Referral to physio to increase mobility to pre-morbid function</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High Risk Braden Score = ≤12</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skin Integrity</strong></td>
<td>Check daily and document presence of pressure ulcers</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>Skin care regimen pH neutral soap and protective barrier creams if patient incontinent</td>
</tr>
<tr>
<td><strong>Bed device/s</strong></td>
<td>Macmed &quot;Oze Ultimate&quot; + ROHO mattress or alternating air mattress</td>
</tr>
<tr>
<td><strong>Seating</strong></td>
<td>ROHO cushion if sitting out of bed</td>
</tr>
<tr>
<td><strong>Turning regime</strong></td>
<td>Two hourly</td>
</tr>
<tr>
<td><strong>Heel devices/aids</strong></td>
<td>Head of bed 30 degrees unless medical condition contraindicates</td>
</tr>
<tr>
<td><strong>Allied health</strong></td>
<td>Referral to dietitian for nutritional assessment</td>
</tr>
</tbody>
</table>

---

**RISK ASSESSMENT TOOL**

- Western Hospital
- Hazledean Nursing Home
- Sunshine Hospital
- Reg Geary House

**PATIENT IDENTIFICATION LABEL**

**Western Health Pressure Ulcer Preventative Strategies**

Each risk assessment to be dated, document actual score and tick strategies implemented.

**RISK ASSESSMENT DATE:**
Quick reference flow chart

**FLOW CHART FOR PREVENTION AND MANAGEMENT OF PRESSURE INJURY**

**Assess all patients as soon as possible following admission to service and within a minimum of eight hours (or an initial visit for patients in the community)**

Consult the patient and multidisciplinary team for care planning

Refer to guideline and/or product information for contraindications for therapies

- Nutritional screening: Use a validated tool appropriate to the clinical setting (Grade B)
  - In the context of nutritional risk (Grade A)
  - Conduct a comprehensive risk assessment including assessment of:
    - Clinical history
    - Mobility and activity
    - Intrinsic and extrinsic risk factors
    - Psychosocial history
    - Cognitive function
  - Use a validated pressure injury risk (Pi) assessment tool (Grade B)
  - Conduct a complete skin assessment (Grade C)

- Does the patient have an existing pressure injury (PI)?
  - Yes → Preventative strategies
  - No → Pressure Injury assessment
  - Use a validated pressure injury assessment scale (Grade C)

**STRATEGIES FOR PATIENTS AT HIGH RISK**

- Use a high specification foam reactive (constant low pressure) support surface (Grade A)
- Use a reactive support surface (Grade B)
- Implement skin protection strategies
- Provide high protein nutritional supplements (Grade B)
- Consider arginine supplements (Grade C)
- Consider more frequent repositioning (Grade A)
- Patient education

**PREVENTATIVE STRATEGIES**

- Implement skin protection strategies
- Use constant low pressure redistribution support surface (Grade A)
- Use a reactive support surface (Grade B)
- Regular repositioning (Grade A)
- Patient education

**PRESSURE INJURY ASSESSMENT**

- Use a validated pressure injury assessment scale (Grade C)
- Use NPIAP/EPFAP pressure injury classification system
- Use a validated pain assessment tool (Grade C)

**PAIN MANAGEMENT**

- Develop an individualized pain management plan including regular analgesia
- Consider topical opioids when debridling (Grade C)
- Consider electrotherapy (Grade B)

**ADDITIONAL MANAGEMENT OPTIONS**

- Consider negative pressure wound therapy (Grade C)

**ONGOING RISK ASSESSMENT**

- At least weekly pressure injury healing assessment

**DOCUMENT**

- All assessments
- All management plans
- All interventions

Page 11
Appendix D Key ethics documents

Whilst fantastic at unblocking the flow of his chakras, Walter’s latest holistic treatment is hell on the bedsores.

Pressure care - it isn’t mysticism.

If you have been involved in the management of pressure injuries, join the first interdisciplinary focus group to investigate the use of risk assessment scales and current practice.

Please contact Anna Rose PhD Candidate
phone: (02) 9036 7352
email: anna.rose@usyd.edu.au

The University of Sydney
What is it like to receive treatment for a pressure injury?

P.I.C.S.
Pressure Injury Case Study

The University of Sydney
If you want to know more about this research please write a name and contact phone number here.
Whilst fantastic at unblocking the flow of his chakras, Walter’s latest holistic treatment is hell on the bedsores.
Please complete the diary each week if possible. If you are unable to complete a week for any reason just leave those pages and continue the next week.

If you have any queries or concerns please contact me:

researcher: Anna Rose
phone: 0422 627 274
email: anna.rose@sydney.edu.au
Experiencing Discomfort

Did your pressure ulcer cause you any discomfort this week?  Yes / No

Please indicate your level of discomfort on the line below:

Minor discomfort 0 5 10 Unbearable

If you can, please describe your discomfort.

________________________________________

________________________________________

Completing Daily Activities

Did you need help with eating?  Yes / No

Did you need help with bathing?  Yes / No

Did you need help with dressing?  Yes / No

Did you need help with toileting?  Yes / No

Did you need help getting on/off a chair?  Yes / No

Did you need help getting in/out of bed?  Yes / No
Social Activities

During the past week did you participate in any social activities?  Yes / No

If yes, please specify: (e.g. making/receiving phone calls, having visitors, leaving the house for a social outing with a friend)

____________________________________________________________________

____________________________________________________________________

Health Professionals

Did you see any health professionals this week?  Yes / No

If yes, who where they? (nurse, occupational therapist, physiotherapist, GP)

____________________________________________________________________

____________________________________________________________________

Briefly describe what they did:

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________
Recruitment procedure for clients

Identification of client with pressure ulcer.

Consult inclusion/exclusion criteria.

When you visit the client briefly introduce the research project and ask the client whether they would be willing to receive further information.

Yes ↔ No (no further action)

Provide the postcard supplied by the researcher and explain that they need to return it to you or put it in the post (it is pre paid and addressed).

If you receive a postcard please contact the researcher directly to let them know.

The researcher uses the details supplied by the client to establish contact and discuss the project. At this point the researcher will determine if client is willing to participate.

Yes ↔ No (no further action required)

The researcher will contact the nurse to organise to attend the next appointment or go out on next home visit. At the commencement of the visit the nurse will introduce the researcher to the client. If the client is willing the researcher will observe this visit. Once the nurse has completed what they need to do they leave. The researcher stays and if informed consent to participate is provided by the client/carer the first interviews will take place.
Research project

What is the purpose of this research?
- To explore current practice using the experiences and perceptions of clients, carers & health professionals.

How is this being achieved?
- This is a qualitative project involving case study methods.

What data is being collected?
- Clients with a pressure ulcer will be followed for a period of 3 months
- Interviews, observations and document analysis will be used

Why is this research important?
- This research is designed to explore an area of practice, which has not received much attention in the literature.

Who is conducting this research?
- Anna Rose is conducting the research as part of her PhD under the supervision of Dr Lynette Mackenzie from the Faculty of Health Sciences at the University of Sydney

How will the information collected be used?
- The findings will be presented in a thesis to be submitted for Anna’s degree. Findings will also be published in peer-reviewed journals and presented at scientific meetings. All information presented will be based on aggregated and de-identified data.
Case Study: James

History and presenting issue

James was a 48 year old man with a history of cholecystectomy and diverticulitis. Following a period of illness lasting 6 months and several hospital admissions, James had an emergency laparotomy and anterior resection. James had an ileostomy as a result of surgery and had already received follow-up care from a stomal therapist.

James spent 9 days in hospital post surgery and was referred to community nursing on discharge for removal of clips from his abdominal wound. James reported that the plan was for the ileostomy to be removed in a few months. James was a tall and fit man, who did not take any regular medication prior to his surgery. During the 6 months prior to surgery James had nil appetite and dropped from 118kg to 76kg.

Environmental context and daily functioning

James lived with his supportive wife and family. Upon each visit his home was tidy. James usually sat on a low, old and spongy corner lounge, which offered little support when seated or when transferring. There was no pressure care equipment in place other than an inflatable rubber ring and a piece of eggshell mattress, both purchased by James’s wife.

Prior to becoming ill, James was self-employed as a labourer in his own property maintenance business. Due to the nature of his surgery and the presence of an ileostomy James was not allowed to engage in any tasks that involve lifting. While restricted by weakness and lethargy in the weeks post discharge James was able to mobilise independently and attend to his own personal care. Both James and the nursing staff noted that his condition was improving fairly rapidly.
Overview of the episode of care

James was discharged from hospital on a Thursday and an initial visit was conducted by a community nurse (CN) the following day. During this first visit an initial assessment was completed and wound care was provided to the incisional wound, which was described as no more than 30 cm in length. As per the PI prevention policy, a risk assessment was conducted. James was given a score of 4 on the Waterlow scale and determined to be “not at risk” of PI.

The following Tuesday when the CN visited James to provide routine wound care, a PI was discovered. During a conversation with the client in which the CN asked whether the client had any other concerns, he identified that he had discomfort around his bottom and that his wife had noticed a sore. Upon observation the CN noted a stage two PI in the sacral area. The CNs continued to treat the abdominal wound for one further visit and the PI for three additional visits. James reported that he had been left with some spare dressings in case one came off between nursing visits. James reported that his wife had used one of the dressings to successfully redress the wound, when one of the dressing had rubbed off.

Just as James was about to be discharged from the service due to the successful management of these wounds, a second PI was observed on his heel. The CN discovered this PI as the client was repositioning himself during a visit. James reported that he was unaware of the sore on his heel until it was identified by the nurse. James said that the PI was not painful and that it had been hidden from view by his TED stockings.

Due to the discovery of the second PI, James continued to receive community nursing for a further 3 weeks. James received community nursing twice weekly for approximately 8 weeks. Throughout this period a total of three different nurses were in attendance. The other
The clinicians James reported seeing were his GP and specialist. According to James, they did not assist with the management of the PI.
Case Study: Elizabeth

History and presenting issue

Elizabeth was an 82 year old lady with a history of Rheumatoid arthritis, Psoriasis, Non-Insulin-Dependent Diabetes Mellitus, Hypertension, high Cholesterol and a history of falls. Elizabeth had poor sensation in her feet due to her diabetes and reported a previous admission to hospital for the management of cellulites and removal of glass that was found embedded in her foot. Elizabeth did not report any recent hospital admissions.

The presenting issue was noted in Elizabeth’s medical records as an ulcer on her upper left leg near the buttocks about the size of a 10 cent piece with the skin off. According to Elizabeth, a neighbour who was assisting her with personal care discovered a break in her skin and mentioned it to Elizabeth and her sons. Elizabeth’s son then contacted the community health service. This service was familiar to Elizabeth and she noted that her previous and current care for wound management was of a high standard.

Environmental context and daily functioning

Elizabeth lived in a close-knit community and was well supported by neighbours and friends who call in regularly. Elizabeth’s husband had passed away the previous year. Elizabeth lived with her son who has liver failure. She has two other sons John and Edward who are very supportive. The family provide assistance with evening meals, shopping and transport. The Department of Aging Home Care and Disability provided assistance with house cleaning fortnightly.

Elizabeth had limited movement in her joints due to her arthritis and this restricted her participation in all activities of daily living. While fairly independent with personal care most days, supervision and some assistance
with personal care was provided by neighbours and family. All transfers and bed mobility are challenging and require effort. Elizabeth mobilised with a four-wheeled walking frame at home and she had a manual wheelchair for community mobility. Ventures out into the community were kept to a minimum, as these had become a struggle due to issues with access, concerns about falling and also fatigue.

Elizabeth's husband had been a Department of Veteran's Affairs gold card holder and as a result there were existing home modifications including: rails (x5) in the bathroom, shower chair, raised recliner and a ramp with rails at the front of the house.

**Overview of the episode of care**

Care commenced promptly the day after the self-referral was received. Both the CN and Elizabeth noted that she was known to the service having received care for a number of small skin breakdowns in the past. The nursing assessment included a Waterlow assessment score as per health service policy. Elizabeth was given a score of 16 and determined to be "at risk" of PI. Wound measurements were taken and tracked over time and the occurrence of the ulcer was noted in the incident management system. At the first visit Elizabeth and the CN determined that their goals were for 'wound care and referral to OT for pressure relieving'. In a follow up interview the CN noted that it is often difficult to predict a client's longer-term needs early in the episode of care. Due to her awareness of waiting lists for services, the CN explained that it is best to make a referral early and then cancel it later if the client is determined to no longer be in need of a service.

The wound was dressed twice weekly over a 6 week period. A Repose mattress, which the CN described as a portable short-term PI measure, was applied to Elizabeth's bed to assist in the healing of the wound and to help prevent further PI. Elizabeth and her family reported that altering the bed surface had had some detrimental impacts on quality of sleep and bed mobility. Elizabeth reported that
she had been told not to sit in the one place too long and to turn in bed frequently. However, as she wore socks to bed at night the slippery mattress surface had made it even more difficult for her to turn over in bed at night. The nurse also noted in the medical record that Elizabeth had taken several days to become used to the Repose mattress. Elizabeth received a further two weeks of wound care until the wound had healed. At this point in time Elizabeth was discharged from the service and the mattress was removed.

Two weeks into the case study the nurse who assisted in recruiting Elizabeth and her family to the project suddenly went on 6 weeks leave. Attempts were made to organise to attend another home visit with nursing staff managing Elizabeth’s care however, this process proved unfruitful. As the client had consented to the project and both she and her family wished to continue, I conducted two further homevisits and another interview. Elizabeth and her family reported that they were still awaiting the OT visit at the end of the 3-month case study period.

Additional details

Other notable events during the case study period included a fall in which Elizabeth sustained some bruising however, no significant injuries. Elizabeth’s family were aware of the fall and did not feel that seeking further medical attention was necessary at the time. Elizabeth also described events surrounding a corticosteroid injection provided by her Rheumatologist. Elizabeth and her family explained that the Rheumatologist had warned her about the increased risk of infection if she decided to go ahead with the injection due to the presence of the PI. While Elizabeth had the injection and suffered no ill effects, she did express how this had added to her worries at the time.

The CN who originally assisted with recruitment was contacted at a later date to participate in an interview and to clarify some of the details collected over the course of the case study. At the time of the interview the CN recruiter noted that according to the medical records there had been a long delay in accessing OT services and Elizabeth was still awaiting an OT assessment. During this time
Elizabeth had also experienced another small skin breakdown, this time her left lateral malleolus (ankle) for which she received community nursing care.
Appendix F ENABLE NSW Prescribers’ Guidelines

Welcome to the first EnableNSW electronic newsletter...

What is EnableNSW?
EnableNSW is a new unit established within HealthSupport, NSW Health to integrate and manage the statewide administration of five disability support programs:
- Program of Appliances for Disabled People (PADP)
- Home Oxygen Service (HOS)
- Artificial Limb Service (ALS)
- Ventilator Dependent Quadriplegia (VDQ) program
- Children’s Home Ventilation Program (CHVP)

PADP Review and NSW Government Response
In November 2007, a major Review of PADP and the NSW Government Response to the Review were released.

You can view these documents at

The recommendations of the Review provide an opportunity to develop a more consistent and cost-effective approach to the delivery of all NSW Health disability support services.

Key service reforms supported by the NSW government are:
- Transfer of lodgement centres to a single statewide program
- Improved and standard processes for the program including application, equipment request and waiting list management

The EnableNSW Team
The EnableNSW team currently consists of the Director, a Project Officer, 3 EFT Statewide Advisors (Home Ventilation and PADP), an IT consultant and an administrative assistant.

In this issue:
What is EnableNSW?
PADP Review and NSW Government Response
Statewide Equipment Advisors (PADP)
Current EnableNSW Initiatives:
- Common Equipment Prescription Guidelines project
- Specialised Equipment Set-Up Program (SESUP)
<table>
<thead>
<tr>
<th>Activities of Daily Living Equipment</th>
<th>Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beds &amp; bed accessories</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Group 1</strong></td>
<td>Occupational Therapist, Registered Nurse, Physiotherapist</td>
</tr>
<tr>
<td>- Height adjustable over bed table</td>
<td></td>
</tr>
<tr>
<td>- Self help pole</td>
<td></td>
</tr>
<tr>
<td>- Bed accessories &gt; $100</td>
<td></td>
</tr>
<tr>
<td><strong>Group 2</strong></td>
<td>Occupational Therapist, Physiotherapist with 1 yr experience + 3 previous prescriptions for group 2 equipment in this category</td>
</tr>
<tr>
<td>- Electric bed</td>
<td></td>
</tr>
<tr>
<td>- Night positioning systems</td>
<td></td>
</tr>
<tr>
<td><strong>Group 3</strong></td>
<td>Occupational Therapist, Physiotherapist with 3 yrs experience + 5 previous prescriptions for group 3 equipment in this category + multi-disciplinary team</td>
</tr>
<tr>
<td>- Custom moulded night positioning systems</td>
<td></td>
</tr>
<tr>
<td><strong>Chairs and chair equipment</strong></td>
<td>Occupational Therapist, Physiotherapist with &gt;1 year experience + 3 previous prescriptions for group 2 equipment in this category</td>
</tr>
<tr>
<td><strong>Group 2</strong></td>
<td></td>
</tr>
<tr>
<td>- Electric lift chair</td>
<td></td>
</tr>
<tr>
<td><strong>Home Enteral Nutrition (HEN)</strong></td>
<td>Clinical Nurse Consultant, Clinical Nurse Specialist, Nurse practitioner or Registered Nurse &gt; 1 years experience in enteral feeding management and 3 previous prescriptions</td>
</tr>
<tr>
<td><strong>Group 2</strong></td>
<td></td>
</tr>
<tr>
<td>- Enteral nutrition devices including nasogastric, replacement gastrosomy tubes and low profile devices</td>
<td></td>
</tr>
<tr>
<td><strong>Group 2</strong></td>
<td>Dietitian, Clinical Nurse Consultant, Clinical Nurse Specialist, Nurse practitioner, Registered Nurse &gt; 1 years experience in enteral feeding management and 3 previous prescriptions</td>
</tr>
<tr>
<td>- Pumps</td>
<td></td>
</tr>
<tr>
<td>- Giving sets and consumables for enteral feeding including extension tubes and dispensers/syringes</td>
<td></td>
</tr>
<tr>
<td><strong>Showering &amp; bathing equipment</strong></td>
<td>Occupational Therapist</td>
</tr>
<tr>
<td><strong>Group 1</strong></td>
<td></td>
</tr>
<tr>
<td>- Bath &amp; shower equipment &gt;$100</td>
<td></td>
</tr>
<tr>
<td>- Bath transfer bench</td>
<td></td>
</tr>
<tr>
<td>- Swivel bather</td>
<td></td>
</tr>
<tr>
<td>- Mobile shower commode</td>
<td></td>
</tr>
<tr>
<td><strong>Group 2</strong></td>
<td>Occupational Therapist with &gt;1 year experience + 3 previous prescriptions for group 2 equipment in this category</td>
</tr>
<tr>
<td>- Pressure care showering and bathing equipment</td>
<td></td>
</tr>
<tr>
<td>- Customised or tilt-in-space shower commode</td>
<td></td>
</tr>
</tbody>
</table>
• Clear and accessible information for consumers
• Development of a web-based information system to support applications, consumer information and program administration
• Expansion of the spinal set-up fund to include people with other types of catastrophic injuries
• Support for PADP administrators and clinicians from statewide equipment advisors
• Development of prescriber guidelines and common equipment lists to streamline and improve the request process
• Integration of Equipment Loan Pools within each Area Health Service that will interface with PADP.

These reforms will mean that the delivery of disability equipment support services will be integrated, consistent, cost-effective and equitable.

All savings achieved through program reforms will be redirected back into the program and used to purchase equipment for people with disabilities.

Once these reforms have been implemented, the NSW Government will review demand for equipment support services.

The NSW Government has also decided that, where appropriate, the supported recommendations will be applied to the other disability support programs that EnableNSW administers.

EnableNSW continues to engage key professional and consumer groups to receive ongoing feedback on the current issues for disability programs through meetings such as the PADP Advisory Committee and the Amputee Advisory Committee.

Information meetings will continue to be held with staff who will be directly affected by the reforms, including Managers and Coordinators of PADP, HOS and ALS.

Staff have been provided with assurances that there will be no forced redundancies.

The HealthSupport Workforce Development Team will work closely with Area Health Service staff to assist with any matters. Staff will be provided with regular updates on the progress and timetable for the reforms.

Statewide Equipment Advisors (PADP)

The establishment of Statewide Equipment Advisor (PADP) positions (2 EFT) is one of the recommendations from the PADP Review supported by the NSW government.

The role of the advisors is to provide expert clinical guidance to PADP staff and clinicians/prescribers for complex PADP equipment issues.

During the PADP reform process the advisors are also involved in projects such as the Common Equipment Prescription Guidelines Project and PADP policy development.

The equipment advisors are occupational therapists with many years experience in equipment prescription.

Since August 2007 the advisors have dealt with over 70 complex prescription issues, with requests for advice coming from PADP staff, clients and clinicians.
Current EnableNSW Initiatives

Common Equipment Prescription Guidelines Project
This is a collaborative project between EnableNSW and the Lifetime Care and Support Authority (LTCSA) to develop Common Equipment Prescription Guidelines for use by clinicians prescribing equipment for people with disabilities. The project has 2 phases:

Phase 1
- Development of processes to support equipment prescription including consistent forms.
- Development of prescriber qualifications and experience guidelines.

Phase 2
- Development of guidelines for the prescription of equipment.

Phase 1 is well underway and has involved input from expert clinicians and their networks through seven technical working groups as well as a period of public consultation.

Thank you to all the clinicians and networks who contributed to the technical working groups, as well as all stakeholders who provided feedback during the period of public consultation. All feedback has been carefully considered and has informed the progression of this project.

The next steps include the piloting of the Equipment Request Acquittal and Evaluation forms together with the application of the Qualifications and Experience.

It is planned to commence piloting these new processes with the Specialised Equipment Set-Up Program in April 2008. The processes will also be piloted at selected PADP sites (these are to be determined in the near future).

Specialised Equipment Set-up Program
The government supported the recommendation from the PADP Review to expand the existing spinal set-up fund to include people with other types of catastrophic injuries such as acquired brain injury.

The EnableNSW team has sought input from expert clinicians from the Spinal and Brain Injury Services to review the scope and eligibility criteria for the Specialised Equipment Set-Up Program (SESUP) as well as the development of processes to support smooth implementation and to ensure that the program is administered fairly.

It is expected that the new program will commence on 1 July 2008. The new equipment prescription processes discussed above will be piloted with the SESUP between April and June.

About this newsletter
Send your details to enable@hsupport.health.nsw.gov.au to subscribe or unsubscribe from our e-news distribution list.

Contact us
Telephone: 1800 ENABLE (1800 362 253)
Email: enable@hsupport.health.nsw.gov.au

Thank you to all the clinicians and networks who contributed to the technical working groups, as well as all stakeholders who provided feedback during the period of public consultation.
PROFESSIONAL CRITERIA FOR PRESCRIBERS

EnableNSW, NSW Health requires that prescribers of assistive technology meet the necessary qualifications and levels of experience as detailed below.

1. Principles of Equipment Prescription
1.1 EnableNSW endorses the use of a client centred approach to all assessment and equipment prescription. It is assumed that prior to approaching EnableNSW, the prescriber has undertaken a client centred assessment which has indicated that assistive technology may assist in optimising client outcomes.

2. Professional criteria for prescribers
2.1 Clinicians must have the stipulated professional qualification to prescribe different types of assistive technology as detailed in Table 2.

2.2 Prescription of Group 1 Assistive Technology only requires that the prescriber has the stipulated qualification. Prescription of Group 2 & Group 3 Assistive Technology also requires the clinician to have relevant experience. This is defined as:
- the amount of time a clinician has worked with the assistive technology prescription
- the number of prescriptions previously completed in that assistive technology group and category.

Table 1: Assistive Technology Groups

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Stipulated Qualification only</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Simple to set-up and use</td>
<td></td>
</tr>
<tr>
<td>• Not custom-made</td>
<td></td>
</tr>
<tr>
<td>• Frequently prescribed; and</td>
<td></td>
</tr>
<tr>
<td>• Stands alone and is not integrated with other equipment.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group 2</th>
<th>Stipulated Qualification and Greater than 1 year experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Complex to set-up and requires training to use safely; or</td>
<td></td>
</tr>
<tr>
<td>• Potential adverse outcome for a client / carer / attendant care worker if not prescribed or used appropriately; or</td>
<td></td>
</tr>
<tr>
<td>• Custom-made; or</td>
<td></td>
</tr>
<tr>
<td>• High-cost; or</td>
<td></td>
</tr>
<tr>
<td>• Infrequently prescribed; or</td>
<td></td>
</tr>
<tr>
<td>• Integrated or interfaces with other equipment.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group 3</th>
<th>Stipulated Qualification and Greater than 3 years experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Consists of several component pieces of equipment that must integrate to achieve the goal for the client; or</td>
<td></td>
</tr>
<tr>
<td>• Due to the risk to the client the skills of a multidisciplinary team is required to prescribe accurately.</td>
<td></td>
</tr>
<tr>
<td>• Stipulated Qualification and Greater than 3 years experience</td>
<td></td>
</tr>
<tr>
<td>• 5 previous prescriptions for group 3 equipment in that category</td>
<td></td>
</tr>
<tr>
<td>• Prescriber plus one or more members of the specialist multi-disciplinary team</td>
<td></td>
</tr>
</tbody>
</table>

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1 Developed in partnership by the Life Time Care and Support Authority (LTCSA) and EnableNSW – 02/09
Reviewed EnableNSW-0711
2.3. Prescribers are asked to complete a Declaration on the Equipment Request Form to confirm that they meet the professional criteria.

2.4. These requirements do not replace
- the need to document the clinical assessment and clinical reasoning underlying equipment prescription.
- the need for clinical supervision in the workplace, particularly where the clinician is a new graduate or new to the field of practice.

3. Group 1 Equipment and Complex Clients
3.1. At times, Group 1 equipment may be prescribed for a client with a complex condition, such as significant neurological impairment, or spinal cord injury. Although qualification alone is required in this instance, inexperienced clinicians should still seek or use additional clinical supervision to ensure the prescription is correct.

4. Inexperienced Prescribers Prescribing under Supervision
4.1. Prescribers who do not meet the professional criteria, may prescribe under the supervision of a clinician who is an eligible prescriber for that equipment. The prescriber will be the point of contact if there is any additional information required.

The format and level of supervision provided by the supervisor remains the responsibility of the clinical service to determine. It is recommended that the supervisor sights the ERF before it is submitted.

5. Approved Prescribers
5.1. Individuals without the stipulated qualifications, who have highly specialised skills in a particular clinical area, may apply to be an Approved Prescriber for specific equipment types. Applications must be made in writing to the equipment funding body and the applicant will be advised of the type of equipment they are approved to prescribe.

5.2. Services that operate under a transdisciplinary model or do not have access to health professionals representing several disciplines in a single location, may undertake education programs to train health professionals to prescribe group 1 equipment for non-complex clients. In these circumstances, the trained clinicians can also become Approved Prescribers.

For example an Aged Care Team operating under a transdisciplinary model may provide education to occupational therapists and nurses so that they can prescribe Group 1 walking aids, or education to physiotherapists so that they can prescribe Group 1 showering and bathing equipment.

6. Lack of Eligible Prescribers
6.1. In circumstances where a client’s access to equipment may be compromised due to a lack of eligible prescribers (for example in rural or remote areas), the treating health team should liaise with the equipment funding body to discuss options to address this problem.

7. Eligible Prescribers Employed by Equipment Suppliers
7.1. All prescribers must comply with the principle that the prescription of equipment must be removed from the supply/provision of the equipment, in order to eliminate and prevent any perceived or actual conflict of interest.

7.2. Equipment requests cannot be submitted by professionals working for suppliers, nor can they provide the supervision for equipment prescription.
### Scooters

**Group 2**
- 4 wheeled scooter

**Occupational Therapist, Physiotherapist with > 1 yr experience +
3 previous prescriptions for group 2 equipment in this category**
**Completion of a medical questionnaire is also required**

### Seating Systems

**Group 2**
- Custom made foam on ply seating
- Commercially available seating e.g. backrest, headrest and cushions
- Positioning devices e.g. harnesses, lateral supports
- Specialised car seats, harnesses and postural supports

**Occupational Therapist, Physiotherapist with
>1 year experience +
3 previous prescriptions for group 2 equipment in this category**

**Group 3**
- Custom-made moulded postural supports

**Occupational Therapist, Physiotherapist with
> 3yrs experience +
5 previous prescriptions for group 3 equipment in this category +
multi-disciplinary team input.**

### Vehicle Transfer Devices

**Group 1**
- Slide board >$100
- Turntable >$100
- Portable Ramp

**Occupational Therapist, Physiotherapist**

**Group 2**
- Wheelchair Hoist

**Occupational Therapist, Physiotherapist > 1 year experience +
3 previous prescriptions for group 2 equipment in this category.**

### Alternative Positioning

**Group 2**
Standing Frames

**Physiotherapist with > 1 year experience + 3 previous prescriptions for group 2 equipment in this category.**

**Group 2**
Seating that is independent of mobility device (eg. waterchair, children’s seating)

**Occupational Therapist, Physiotherapist with > 1 year experience + 3 previous prescriptions for group 2 equipment in this category.**

**Group 3**
Custom made positioning device that is independent of a mobility device.

**Occupational Therapist, Physiotherapist with > 3 years experience + 5 previous prescriptions for group 3 equipment in this category.**
<table>
<thead>
<tr>
<th>Orthoses &amp; Footwear</th>
<th>Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Axial (Spinal and Head) Orthoses</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Group 2</strong></td>
<td>Orthotist, Physiotherapist, Registered Nurse, Medical Specialist with &gt; 1 yr experience + 3 previous prescriptions for group 2 equipment in this category</td>
</tr>
<tr>
<td>- Rigid Collars</td>
<td></td>
</tr>
<tr>
<td>- Helmet</td>
<td></td>
</tr>
<tr>
<td><strong>Group 3</strong></td>
<td>Medical Specialist and Orthotist with &gt; 3yrs experience + 5 previous prescriptions for group 3 equipment in this category</td>
</tr>
<tr>
<td>- Thoracic lumbosacral orthoses</td>
<td></td>
</tr>
<tr>
<td>- Lumbosacral orthoses</td>
<td></td>
</tr>
<tr>
<td><strong>Upper Extremity Orthoses</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Group 2</strong></td>
<td>Occupational Therapist, Physiotherapist, Orthotist, Medical Specialist with &gt; 1 year experience + 3 previous prescriptions for group 2 equipment in this category</td>
</tr>
<tr>
<td>- Dynamic upper limb orthoses</td>
<td></td>
</tr>
<tr>
<td><strong>Group 3</strong></td>
<td>Occupational Therapist, Orthotist, Physiotherapist, Medical Specialist + Multi-disciplinary team input</td>
</tr>
<tr>
<td>- Power assisted wrist hand orthoses</td>
<td></td>
</tr>
<tr>
<td>- Flail arm orthoses</td>
<td></td>
</tr>
<tr>
<td><strong>Specialised Footwear</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Group 1</strong></td>
<td>Orthotist, Pedorthist, Physiotherapist, Podiatrist, Medical Specialist</td>
</tr>
<tr>
<td>- Footwear modifications</td>
<td></td>
</tr>
<tr>
<td><strong>Group 2</strong></td>
<td>Medical specialist, podiatrist and pedorthist with &gt; 1 year experience + 3 previous prescriptions for group 2 equipment in this category</td>
</tr>
<tr>
<td>- Prefabricated depth and width medical grade footwear</td>
<td></td>
</tr>
<tr>
<td>- Customised medical grade footwear</td>
<td></td>
</tr>
<tr>
<td><strong>Group 3</strong></td>
<td>Podiatrist, Pedorthist, Medical Specialist with &gt; 3 years experience + 5 previous prescriptions for group 3 equipment + Medical Specialist input</td>
</tr>
<tr>
<td>- Custom made medical grade footwear</td>
<td></td>
</tr>
<tr>
<td><strong>Below Knee Orthoses</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Group 1</strong></td>
<td>Physiotherapist, Medical Specialist, Orthotist, Pedorthist, Podiatrist</td>
</tr>
<tr>
<td>- Off the shelf lower limb orthoses</td>
<td></td>
</tr>
<tr>
<td><strong>Group 2</strong></td>
<td>Medical Specialist, Orthotist, Pedorthist, Physiotherapist, Podiatrist with &gt; 1 year experience + 3 previous prescriptions for group 2 equipment in this category</td>
</tr>
<tr>
<td>- Custom ankle foot orthoses</td>
<td></td>
</tr>
<tr>
<td>- Dynamic ankle foot orthoses</td>
<td></td>
</tr>
<tr>
<td>- Custom foot orthoses</td>
<td></td>
</tr>
<tr>
<td>- Patella Tendon Bearing (PTB) orthoses</td>
<td></td>
</tr>
<tr>
<td>- Basic knee ankle foot orthoses</td>
<td></td>
</tr>
</tbody>
</table>
## Complex Walking Orthoses

<table>
<thead>
<tr>
<th>Group 3</th>
<th>Qualifications</th>
</tr>
</thead>
</table>
| - Reciprocal gait orthoses (RGO)  
- Hip guidance orthoses (HGO)  
- Twister cables with AFO  
- Complex lower-limb walking orthoses (KAFO's) | Medical Specialist and Orthotist, or Physiotherapist with > 3 yrs experience +  
5 previous prescriptions for group 3 equipment in this category |

## Pressure Care

<table>
<thead>
<tr>
<th>Cushions, mattress replacement systems &amp; overlays</th>
<th>Qualifications</th>
</tr>
</thead>
</table>
| **Group 1**  
***clients at low risk of pressure ulcers***  
- Foam cushions / mattresses  
- Foam overlays | Occupational Therapist, Registered Nurse, Physiotherapist |
| **Group 2**  
**clients at medium to high risk of pressure ulcers**  
- Air-flotation cushions / mattresses  
- Gel pads / Gel style cushions  
- Alternating air cushions/mattresses  
- Low air-loss  
- Foam mattresses  
- Foam overlays | Occupational Therapist, Physiotherapist, Registered Nurse with >1 year experience +  
3 previous prescriptions for group 2 equipment in this category |

## Compression Garments

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off the shelf compression garments</td>
<td>Occupational Therapist, Physiotherapist, Registered Nurse or specialist medical officer with level 1 training (Lymphoedema Training Course, Australian Lymphology Association).</td>
</tr>
<tr>
<td>Group 2</td>
<td>Qualifications</td>
</tr>
<tr>
<td>Custom made compression garments</td>
<td>Occupational Therapist, Physiotherapist, Registered Nurse or specialist medical officer with level 1 training (Lymphoedema Training Course, Australian Lymphology Association).</td>
</tr>
</tbody>
</table>

## Prosthetic Limbs

<table>
<thead>
<tr>
<th>Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refer to Prosthetic Limb Service Accreditation Guidelines on the EnableNSW website</td>
</tr>
</tbody>
</table>

## Other Prostheses

<table>
<thead>
<tr>
<th>Qualifications</th>
</tr>
</thead>
</table>
| Wig  
Initial request needs confirmation of diagnosis from Medical Specialist |
<table>
<thead>
<tr>
<th>Respiratory Equipment</th>
<th>Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Continuous positive airway pressure (CPAP)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Group 1</strong></td>
<td>Qualified Sleep Medicine Practitioner or Respiratory Physician</td>
</tr>
<tr>
<td>– CPAP</td>
<td></td>
</tr>
<tr>
<td>– Humidification</td>
<td></td>
</tr>
<tr>
<td><strong>Oxygen Therapy</strong></td>
<td>Paediatrics &amp; Adults: Respiratory or Palliative Care physicians</td>
</tr>
<tr>
<td><strong>Group 1</strong></td>
<td></td>
</tr>
<tr>
<td>– Oxygen concentrator device</td>
<td></td>
</tr>
<tr>
<td>– Back up/portable cylinders (special circumstances)</td>
<td></td>
</tr>
<tr>
<td>– Nasal prongs</td>
<td></td>
</tr>
<tr>
<td><strong>Nocturnal Ventilation (for clients diagnosed with Obesity Hypoventilation)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Group 1</strong></td>
<td>Qualified Sleep Medicine Practitioner or Respiratory Physician</td>
</tr>
<tr>
<td>– Ventilator</td>
<td></td>
</tr>
<tr>
<td>– Humidification</td>
<td></td>
</tr>
<tr>
<td><strong>Nocturnal Ventilation (for clients diagnosed with other respiratory failure disorder)</strong></td>
<td>Specialist physician in Respiratory Medicine, Sleep Medicine, Spinal Cord Injuries &amp; Intensive Care (in Consultation with the multidisciplinary care team – eg Clinical Nurse Consultant, Speech Pathologist, Clinical Nurse Specialist, Physiotherapist, Biomedical Engineer)</td>
</tr>
<tr>
<td><strong>Group 3</strong></td>
<td></td>
</tr>
<tr>
<td>– Ventilator</td>
<td></td>
</tr>
<tr>
<td>– Humidification</td>
<td></td>
</tr>
<tr>
<td>– Batteries and battery chargers for ventilators</td>
<td></td>
</tr>
<tr>
<td><strong>Suction Units and Respiratory Consumables for Secretion Management</strong></td>
<td>Specialist physician in Respiratory Medicine, Rehabilitation, ENT, Palliative Care, Sleep, Spinal Cord Injury Unit &amp; Intensive Care (in consultation with the multidisciplinary care team – eg Clinical Nurse Consultant, Speech Pathologist, Clinical Nurse Specialist, Biomedical Engineers &amp; Physiotherapist)</td>
</tr>
<tr>
<td><strong>Group 3</strong></td>
<td></td>
</tr>
<tr>
<td>– Suction Units – high pressure, portable</td>
<td></td>
</tr>
<tr>
<td>– Suction Unit – manual (special circumstances)</td>
<td></td>
</tr>
<tr>
<td>– Humidifier unit (electrical)</td>
<td></td>
</tr>
<tr>
<td>– Ventilator circuits</td>
<td></td>
</tr>
<tr>
<td>– Heat Moisture Exchange (HME)</td>
<td></td>
</tr>
<tr>
<td>– Tracheostomy tubes and related consumables</td>
<td></td>
</tr>
<tr>
<td>– Laryngectomy tubes and related consumables</td>
<td></td>
</tr>
<tr>
<td><strong>Continuous Ventilation</strong></td>
<td>Specialist physician in Respiratory Medicine, Sleep Medicine, Spinal Cord Injury Unit &amp; Intensive Care (in Consultation with the multidisciplinary care team – eg Clinical Nurse Consultant, Speech Pathologist, Clinical Nurse Specialist, Physiotherapist, Biomedical Engineer)</td>
</tr>
<tr>
<td><strong>Group 3</strong></td>
<td></td>
</tr>
<tr>
<td>– Ventilator</td>
<td></td>
</tr>
<tr>
<td>– Humidification</td>
<td></td>
</tr>
<tr>
<td>– Circuits</td>
<td></td>
</tr>
<tr>
<td>– External Monitoring Systems</td>
<td></td>
</tr>
<tr>
<td>– Batteries and battery chargers for ventilators</td>
<td></td>
</tr>
</tbody>
</table>