School of Nursing and Midwifery
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Skin Tear Prevention:
What Is "Usual" Skin Moisturising Practice?

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DECLARATION

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgement has been made. This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

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ABSTRACT

Skin tears are a prevalent preventable wound among older people that can have serious consequences. There has been little research into how to reduce the likelihood of their occurrence. Moisturising the skin has been suggested as a simple strategy to reduce their incidence. A pragmatic cluster randomised controlled trial (RCT) was undertaken in 12 residential aged care facilities to test whether this was in fact the case.

The present study was conducted as an important adjunct to that RCT. It was designed to identify "usual" moisturising practice pre and post-intervention in both control and intervention facilities and thus determine whether practice changed according to protocol only in the intervention facilities or whether there was evidence of contamination in the control sites. Understanding how moisturising practice changed in the facilities during the RCT was considered essential for accurate interpretation of the trial's results.

A secondary aim of this study was the identification of enablers and barriers to moisturising. Collected pre RCT intervention, this information could inform the implementation process and/or assist the researchers to understand what had contributed to any practice change found.

The study included surveys of carers and interviews with site managers, both pre and post RCT intervention, across all 12 residential aged care facilities involved in the trial. Eighty five carers completed the survey pre-intervention: 44 from control facilities, group 1 and 41 from intervention facilities, group 2. Post-intervention there were 104 respondents, 59 carers from group 1 and 45 from group 2. All 12 site managers agreed to be interviewed pre and post-intervention, six from group 1 and six from group 2.

Little evidence of there being "usual" skin moisturising practice in any of the intervention or control sites was found pre-intervention from either the survey or interviews. Post-intervention practice remained ad hoc in the control sites whereas a significant change in practice, which matched the intervention protocol, i.e. twice daily moisturising with a standardised pH neutral, perfume free moisturising lotion (Abena) was evident at the intervention sites. This provided confirmation that the intervention had been successfully implemented and that contamination of the control sites had not occurred. This was an important finding as it provided some certainty that the lower skin tear incidence found in the intervention group by the RCT researchers could be directly attributed to the implementation of the moisturising practice protocol.

As regards the barriers and enablers, those identified by carers reflected the real life practicalities that impact on their ability to do their job well such as cream availability/accessibility and having a clear documentation/process/protocol. Most managers on the other hand, identified enablers more associated with management, such as providing staff with a rationale for the new practice and giving the staff an opportunity to be actively involved. Identified barriers included the absence of the aforementioned enablers plus the resident preferring not to be moisturised and there being documentation 'not to moisturise'. Many of the identified enablers formed part of the RCT intervention protocol and were therefore seen as having contributed to its successful implementation. It is therefore recommended that these enablers be considered by any agency when attempting to translate the RCT evidence into everyday practice.

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CHAPTER 1: INTRODUCTION

Background

The population is ageing in Australia and more older Australians are living in residential aged care facilities (Australian Institute of Health and Welfare, 2010) . The average age of residents is also increasing. In the last 10 years there has been an increase in the proportion of residents aged 85 years and above (Australian Institute of Health and Welfare, 2011). As people age there are a number of inevitable physiological changes that occur. Some of these changes involve the skin and result in it becoming thinner, drier and less elastic and, as a consequence, more susceptible to tearing.

Skin tears have been found to be the second most common (9.6%) preventable wound in older adults in hospitals (Mulligan, Prentice, & Scott, 2011). The picture in nursing homes is even grimmer with the few studies reported in the literature having found skin tear prevalence ranging between 9.8% and 20% (Edwards, Chang, & Finlayson, 2010; WoundsWest, 2010). Although often starting as an apparently innocuous lesion, these injuries can develop into complex chronic wounds (LeBlanc, Christensen, Cook, Culhane, & Gutierrez, 2013) and complications such as compromised vascular status or infection can increase morbidity or mortality risks (Stephen-Haynes & Carville, 2011). Skin tears can therefore be costly emotionally and physically to both the individual and their family, as well as financially for the treating facility (Carville et al., 2007; Holmes, Davidson, Thompson, & Kelechi, 2013; LeBlanc & Baranoski, 2011; Payne & Martin, 1993; Stephen-Haynes & Carville, 2011). Consequently, there is both an ethical and fiscal requirement for more robust skin tear research to fill the many evidence gaps (Ratcliffe & Fletcher, 2007).

Little is currently known about the epidemiology of skin tears or the most cost effective prevention or treatment strategies (LeBlanc & Baranoski, 2011). However, moisturising is considered by some clinicians as one of the simplest strategies that could reduce the likelihood of a skin tear by re-hydrating dry skin as well as causing it to retain water so it is less likely to split or tear (Ratcliffe & Fletcher, 2007). It has also been suggested that regular moisturising would be particularly suited to the residential aged care context, as it can be undertaken by staff, family members or the resident themselves (Edwards et al., 2010). However, its effectiveness in this or

other settings was found to have not been systematically examined. A group of researchers at Curtin University and Silver Chain therefore determined they would design a study to fill this gap in the evidence-base. The result was a pragmatic cluster randomised controlled trial (RCT) that would examine the effectiveness of twice daily moisturising in reducing the incidence of skin tears among residents of the 12 residential aged care facilities (consisting of 980 beds), owned by a large West Australian not for profit aged care provider (K. Carville, G. Leslie, R. Osseiran-Moisson, N. Newall, & G. Lewin, 2014).

Collecting practice data, as well as outcomes data, both before and after the intervention has been implemented, should be an integral part of any RCT design. Both data sets are essential to understand if a change has occurred as a result of the intervention, although it is not unusual for only outcomes data to be collected. In the case of the moisturising RCT, if there was a difference between the control and intervention sites in the change in incidence of skin tears (the outcomes measure) during the intervention period, but no accompanying evidence of a change in moisturising practice, it would not be possible to definitively attribute the positive outcomes to the moisturising intervention. This study was therefore primarily designed to enhance the RCT researchers' understanding of the outcomes of the moisturising RCT by determining how practice changed within the facilities in each arm of the study.

Additionally the study was designed to inform future implementations of the moisturising intervention by identifying what staff perceived as enablers of, and barriers to, following moisturising protocols. Collected pre RCT intervention, this information could inform the implementation process and/or assist the researchers to understand what had contributed to any practice change found.

In summary, this study was designed to ensure the results from the moisturising RCT could be accurately interpreted and if the results were positive, to facilitate the translation of this evidence into everyday practice. It was a critical, but independent, part of the moisturising study.

Study aim and objectives

The aim of this study was to determine whether a skin moisturising intervention in a pragmatic cluster RCT in 12 residential aged care facilities was implemented according to the protocol and to investigate what enabled or prevented the implementation of the moisturising, to inform its future translation into everyday practice.

The specific research objectives were to:

- Describe "usual" skin moisturising practice in the intervention and control care facilities pre and post-intervention.

- Determine whether there were any differences in moisturising practice between the groups and over time.

- Identify the enablers of, and barriers to, following moisturising protocols in residential aged care facilities.

Overview of methodology

This was a mixed methods descriptive study which included a survey of residential facility staff (carers) and interviews with facility site managers. Carers were surveyed pre and post-intervention as to their moisturising practice and pre-intervention as to their perception of barriers and enablers to following a moisturising protocol in an residential aged care facility. Facility site managers were interviewed to gain an understanding of what they expected carers to be doing as regards moisturising and how they managed this aspect of care. To supplement these data, the site manager was asked to show the researcher any electronic documentary evidence of current skin moisturising practice in their facility.

Significance of the study

Skin tears are preventable and prevalent amongst older people due to the effects of ageing on the skin. As the population ages, the number of patients developing skin tears is therefore likely to increase. Along with this there will be an increase in the associated costs of skin tear development which are emotional, physical and fiscal to the patient, their family and treating facility.

Moisturising is thought to be a simple preventative and cost-effective solution to the escalating issue of skin tear development. This study forms a pivotal role in determining whether this is the case by ensuring that if the RCT shows positive results they can be correctly attributed to the moisturising intervention. Additionally, identifying barriers and enablers to the implementation of a moisturising protocol will provide information that may be used by organisations to help them translate this research into everyday practice.

Conclusion

Skin tears are a prevalent, preventable wound among older people that can have serious consequences. To date there has been little research into how to reduce the likelihood of their occurrence. Moisturising the skin has been suggested as a simple strategy to reduce their incidence. A pragmatic cluster randomised RCT was undertaken in 12 residential facilities to test whether this was in fact the case.

The present study was conducted as an essential adjunct to that RCT. It was designed to identify "usual" moisturising practice pre and post-intervention in both control and intervention facilities and thus determine whether practice changed according to protocol only in the intervention facilities or whether there was evidence of contamination in the control sites. Understanding how moisturising practice changed in the facilities during the RCT was considered essential for accurate interpretation of the trial's results. Additionally, the study was designed to inform future implementations of the moisturising intervention by identifying what staff perceived as enablers of, and barriers to, following moisturising protocols and if the results were positive, to facilitate the translation of this evidence into everyday practice.

The next chapter describes the literature reviewed and further describes the context of this study.

CHAPTER 2: LITERATURE REVIEW

Introduction

This literature review provides the context for the study, initially describing the ageing population and anatomical changes that occur to skin as part of the ageing process. It defines, classifies and reports on the prevalence of skin tears, as well as discussing which risk factors are associated with skin tear development. Current prevention and treatment protocols for skin tears are reviewed and in particular the benefits of skin moisturising discussed. Finally, the review explains the benefits of using a pragmatic randomised controlled trial (RCT) design for evaluating a new treatment and discusses how best to ensure results are attributed correctly to the intervention being tested.

Specific questions to be addressed by the literature review were:

- What are the physiological changes to the skin associated with ageing?
- What is a skin tear and how is it classified?
- What are the risk factors for skin tear development?
- What is the prevalence of skin tears, nationally and internationally?
- What evidence exists currently for skin tear prevention and treatment?
- What is an RCT and why does practice need to be described at baseline?
- How is a change in practice best achieved?

To answer these questions a thorough literature review using the key words: effects of ageing on skin; skin tear (s) ; classification of skin tears; risk factors skin tears; prevalence skin tear and randomised controlled trials; was completed. Literature sources were only included if written in English and published within the last ten years, unless sentinel resources. Electronic sources included CINAHL, Cochrane Library, Joanna Briggs Institute, Ovid, PubMed and Science Direct. A hand search of text books, journals and reports was also undertaken. Whilst aiming to only incorporate the highest levels of evidence, because much of the evidence was based on expert opinion/consensus everything was included.

Ageing population

It is acknowledged that we have a global population that is ageing, with an anticipated rise in the number of persons aged over 60 years from 605 million to two billion between the years 2000 and 2050 (World Health Organisation, 2012).

As the population ages more Australians are living in residential aged care facilities (Australian Institute of Health and Welfare, 2010). In June 2010 the number of residents was 166,370 and this was an increase of 2.5% over the previous year. The majority of these residents, seven out of ten, were assessed as "high care" (i.e. requiring nursing home type care) and the remainder "low care" (i.e. requiring hostel type care) (Australian Institute of Health and Welfare, 2011).

In the future, the number of older Australians requiring residential aged care and the number of residential aged places available will rise. These residents are also likely to be older as in the last 10 years there has been an increase in the proportion of residents aged 85 years and above (Australian Institute of Health and Welfare, 2011).

Physiological changes to the skin associated with ageing

There are many physiological changes associated with the ageing process. The skin is one of the key organs affected and becomes more susceptible to injury with advancing age (Kottner, Lichterfeld, & Blume-Peytavi, 2013).

The skin is made up of three main layers: the epidermis, dermis and subcutaneous layer (or hypodermis) and associated structures called cutaneous appendages (Stephen-Haynes, Callaghan, Bethell, & Greenwood, 2011; Voegeli, 2012).

The epidermis or outer layer of the skin has the role of maintaining moisture balance by not allowing moisture loss, as well as preventing damaging materials, both chemical and environmental, from entering the body. Sibbald, Krasner and Lutz (as cited in Bianchi, 2012) state that as we age, the epidermis is thinned because it can take up to twice as long to renew keratinocytes (or cornocytes), the cells which make up the stratum corneum (external surface layer) of the epidermis. This results in dry, thin skin that can increase the risk of mechanical breakdown of the skin as well as pre-dispose the older person to infection (Stephen-Haynes et al., 2011).

Voegeli writes (as cited in Voegeli, 2010) that the dermis or second layer of the skin, is responsible for many functions and provides strength and flexibility through the production of the proteins, collagen and elastin. Ageing can lead to a reduction in these fibrous proteins, resulting in weaker, less elastic skin. The dermal layer can be up to 20% thinner as one ages (Bianchi, 2012), facilitating injury when an external force is applied. The connection between the dermis and epidermis is also compromised due to these age-related changes (Bianchi, 2012), as a flattening of cells means attachment between these two layers is weakened and therefore more easily damaged (Voegeli, 2010).

The third layer of the skin is called subcutaneous tissue or the hypodermis. It is a fatty layer of adipose and fibrous connective tissue that provides shock-absorption to protect underlying structures from external pressure, shear and friction, as well as a defence from temperature loss (Voegeli, 2012). This layer also reduces in depth with age, making it less effective at protecting the skin against trauma (Holmes et al., 2013).

Lastly, changes to the skin associated with ageing also result in decreases in the production of sweat and sebum (oil). Xerosis cutis (dry skin) can result because of these changes, as well as differences at a cellular level, for example a reduction in the content of natural moisturising factors and lipids, resulting in the skin having a poorer water-holding capacity (Kottner et al., 2013).

The literature identifies that as a result of ageing, a myriad of physiological alterations occur throughout all layers of the skin and the culmination of these changes is that the skin is compromised. There is a decline in the turnover of cells, thinning of protective layers and weakening, rigidity and dehydration of the skin all of which increase with age (Kottner et al., 2013). Xu, Lau, Taira & Singer (2009) states that as well as the skin being more delicate, ageing also affects the wound healing process itself, by slowing it down. Additionally vascular changes in both the large and small vessels are associated with ageing such as a reduction in vascular responsiveness and capillary fragility and thinning, compromise wound healing (Holmes et al., 2013; LeBlanc & Baranoski, 2011; Morey, 2007; Ratcliffe & Fletcher, 2007).

Skin tear definition

Skin tears are an example of a problem exacerbated by these skin changes and were defined by Payne and Martin (1993) as "a traumatic wound occurring principally on the extremities of older adults as a result of friction alone or shearing and friction forces which separate the epidermis from the dermis (partial thickness wound) or which separates both the epidermis and the dermis from underlying structures (full thickness wounds) " (p. 20).

There have been more recent definitions (LeBlanc, Christensen, Orstead, & Keast, 2008) but despite its age, (Payne & Martin's definition was originally published in 1990 and then reviewed by the same authors in 1993), there was consensus among Australian wound experts in an earlier skin tear project that the Payne and Martin definition was the best available (Carville et al., 2007). The word "*principally"* is appropriate for two reasons, firstly, because these wounds can also develop in other age groups, for example, newborn infants, due to physical characteristics associated with immature skin (Beldon, 2008; Bianchi, 2012; LeBlanc & Baranoski, 2011; Stephen-Haynes et al., 2011). Skin deterioration can also occur at the end of life, as a consequence of chronic illnesses or multiple co-morbidities, which can result in skin tears together with other wounds developing, regardless of chronological age (Sibbald et al., 2010). It is however agreed that skin tears are much more of a risk for older people, particularly those over 80 years of age because of the degenerative effects of ageing on the skin and prolonged contact to harmful, external elements (Holmes et al., 2013).

The second reason the word *"principally"* is appropriate within the definition is that the anatomical location of skin tears, although predominantly on the backs of the hands, the arms and legs in the older person, can occur elsewhere on the body (LeBlanc & Baranoski, 2011; Lopez et al., 2011; Stephen-Haynes et al., 2011).

Skin tear classification

It is vital to classify skin tears as this assists with documenting wound healing outcomes and informs wound management decisions (Holmes et al., 2013). The original skin tear classification tool was developed in the United States in the early nineties and then reviewed and adapted three years later (Payne & Martin, 1993).

The classification tool was not widely used in Australia (White, 2001) and this prompted a group of Australian researchers including the author, to revisit and build upon the original tool. The result was the Skin Tear Audit Tool Research (STAR) classification system. The STAR tool identifies five categories of skin tear (1a, 1b, 2a, 2b and 3), and has been found to be simple and easy to use (Carville et al., 2007; Stephen-Haynes et al., 2011). It differentiates between the amount of skin loss that occurs as a result of the skin tear, (1=none, 2=partial and 3=total skin loss) as well as the viability of remaining tissue (A=viable, B=non-viable). The amount of skin loss and viability of any remaining tissue can affect healing times as well as outcomes (Carville et al., 2007).

In a consensus document, it was reported that fewer than 6% of the international respondents to an online questionnaire (n=57) were using the STAR tool. It was acknowledged however, that only 79 of the respondents were from Australia (LeBlanc & Baranoski, 2011) and the STAR tool had at the time of survey only recently been distributed overseas. Since then, the tool has been more widely utilised internationally in New Zealand (Milner, 2013) and the United Kingdom (Wounds UK, 2012) and there have been translations of the STAR classification tool into Japanese and Portuguese (including Brazilian Portuguese) as well as published research conducted using the tool to classify skin tears in a cohort of oncology patients in Brazil (Amaral, Pulido, & Santos, 2012) and with residents of aged care facilities in England (Stephen-Haynes et al., 2011). The STAR classification tool was also used within an Australian hospital emergency department as part of an acute skin tear management protocol (Vandervord, Tolerton, Campbell, Darke, & Loch-Wilkinson, 2014).

More recently, another skin tear classification system, the International Skin Tear Advisory Panel (ISTAP) Skin Tear classification system, has been developed by a group of wound experts predominantly from North America (LeBlanc, Baranoski, Holloway, & Langemo, 2013; LeBlanc, Baranoski, Holloway, Langemo, & Regan, 2014). However, due to having only been published in June 2013, it is too soon to know whether there has been uptake of this tool.

Risk factors for skin tear development

Although the literature proposes that clinically, as well as through a number of non-clinical studies, certain risk factors are associated with skin tear development, it is not clear exactly how or if they do predict risk (Ratcliffe & Fletcher, 2007). In their consensus statements paper for the prevention, prediction, assessment and treatment of skin tears, LeBlanc and Baranoski state "Intrinsic and extrinsic factors contribute to the occurrence of skin tears some of these factors are yet to be determined." (2011, p. 6).

Clinical experience and a number of epidemiological studies indicate that increase in age, altered mobility, cognitive impairment, reduction in sensation, malnutrition and dehydration are the main intrinsic factors related to the development of skin tears. Exposure to extremes of weather (photo ageing), in particular ultraviolet radiation , increase in manual handling due to an increased need for assistance to complete the activities of daily living (ADLs) such as toileting, transferring, dressing etc. as well as bathing, and use of soaps that dry the skin, are those extrinsic factors found to predispose older people to skin tears (Bianchi, 2012; Holmes et al., 2013; LeBlanc & Baranoski, 2011; Stephen-Haynes et al., 2011; Voegeli, 2012). Additionally, having already sustained a skin tear is thought likely to increase an elderly person's risk of developing more. This is because it will take longer to repair the wound due to the slow replenishment of epidermal cells and during this time and even after healing, the tensile strength of the affected area is reduced (Ratcliffe & Fletcher, 2007). The use of certain medications such as immunosuppressives, anti-inflammatories and anticoagulants are also thought to predispose a person to skin tears (Carville et al., 2007; Holmes et al., 2013; Voegeli, 2012) as is chronic disease (Beldon, 2008).

Consequently, an as yet unpublished case control study sought to fill the evidence gap regarding risk factors and identified six patient characteristics that best predicted the likelihood that someone would acquire a skin tear during their stay in a tertiary hospital. These characteristics included five skin conditions: senile purpura, ecchymosis, haematoma, evidence of previously healed skin tear scarring and oedema as well as not being able to reposition oneself independently (Newall, Lewin, Carville, Santamaria, & Roberts, 2010).

Additional research is required to validate that these characteristics (LeBlanc & Baranoski, 2011) are good predictors of who is likely to develop a skin tear and a prospective study is currently underway in Western Australia. It is anticipated that the results of this second study will inform the development of a skin tear risk assessment tool (Newall, Lewin, Carville, Leslie, & Roberts, 2012).

A recently published study in a residential long term care facility found relationships between the presence of a skin tear, spasticity, impaired cognitive function and need for assistance with ADLs. There was also a suggestion that there may be a relationship between a history of having had skin tears and the presence of a skin tear (LeBlanc, Christensen, et al., 2013). It was acknowledged by the authors that the numbers of residents with skin tears were low (n=25/113) and a larger study is required to validate these findings. Of note is that some residents were as young as 36 years, so this was not a purely elderly cohort.

Prevalence of skin tears

There is a lack of literature which has considered the prevalence, incidence, and economic impact of skin tears on the global population (LeBlanc & Baranoski, 2011).

Compounding this, the number of skin tears is frequently underestimated as they are often not reported by staff (Carville & Smith, 2004 Malone, Rozario, Gavinski, & Goodwin, 1991 White, 2001). This is despite the suggestion that skin tears may be more prevalent than pressure injuries (Carville, et al., 2007). The most commonly quoted prevalence figure for skin tears is that there are over 1.5 million of them among institutionalised adults within the United States (Malone, Rozario, Gavinski, & Goodwin, 1991). This figure is out-dated and based on numbers from incident reports at one long term care facility that have been extrapolated to the whole resident care population. For these reasons, Ratcliffe and Fletcher (2007) stated that more investigation is required to establish the true size of the problem. This is still true today.

Of the few recent prevalence figures identified by the literature review only one was conducted outside Australia. A 2011 cross-sectional prevalence study at a 114 bed long term care facility in Eastern Ontario found 22% of residents had a skin tear (25/113) (LeBlanc, Christensen, et al., 2013).

There have, on the other hand, been a number of recent prevalence studies undertaken in Australia, both in acute and residential aged care settings. In Western Australia (WA), four state-wide prevalence surveys for all wound types, were conducted between 2007 and 2011. These studies involved patients in all 86 public acute and aged care health services in WA. The most recent survey, undertaken in 2011, found that skin tears were the second most common preventable wound and their prevalence was 9.6% (306/3194). This was a 4.3% percentage point increase from the previous survey in 2009 (Mulligan et al., 2011).
In a 2010 study also conducted at a public hospital, but in the Australian Capital Territory (ACT), a lower skin tear prevalence of 5.5% (18/329) was found. Not surprisingly the rate increased to 20% (19/96) when a higher risk cohort were surveyed later that same year in the acute aged care and rehabilitation wards of two public hospitals within the ACT (Lopez et al., 2011).

Also in 2010, an elderly population surveyed at 14 residential facilities in Western Australia, was found to have a skin tear prevalence of 9.8% (77/783). Interestingly, skin tears were the most prevalent wound type within this older group (WoundsWest, 2010).

Skin tear prevalence was found to be even higher in seven residential facilities in Queensland and New South Wales. In this study, a random sample of 200 residents had a skin tear prevalence of 20% (40/200) in 2009 pre-intervention (June – September) and 18% (36/201) in 2010 (February-June), after the implementation of a wound best practice intervention (Edwards et al., 2010).

To summarise, the limited data that exist support the premise that skin tears are a significant issue, with the prevalence ranging between 9.8-20.0% in the residential aged care population in Australia and between 5.5 and 9.6% in our hospital population.

Current skin tear prevention and management

In 2004 Johnson stated "probably because the majority of skin diseases are not life-threatening, the study of the skin has been the Cinderella of academic research until

relatively recently. It has also never been a priority for Government research funding" (p.1). Little has changed.

However, lately it has been remarked that although often starting as an apparently innocuous lesion, these injuries can develop into complex chronic wounds (LeBlanc, Christensen, et al., 2013) and complications such as compromised vascular status or infection can increase morbidity or mortality risks (Stephen-Haynes & Carville, 2011). This may be the reason why there has been an increase in interest about the treatment and prevention of skin tears and their associated costs. Skin tear costs impact the treating facility the individual to whom the skin tear occurs their family and, are not just financially related (Carville et al., 2007; Holmes et al., 2013; LeBlanc & Baranoski, 2011; Payne & Martin, 1993; Stephen-Haynes & Carville, 2011).

Despite this increase in focus, there remain few published guidelines for skin tear assessment, prevention and treatment (LeBlanc & Baranoski, 2011). More recently, best practice statements about care of the older person's skin have been developed to enable practitioners to identify how best to implement research findings into their own practice (Wounds UK, 2012). While there has been an increase in expert opinion and consensus documents in the last few years, the number of systematic/evidence reviews and RCTs remains low (Holmes et al., 2013). The few systematic/evidence reviews that have been completed reflect the lack of rigorous research, by their reliance on expert opinion (Kottner et al., 2013; Pamaiahgari, 2011; Pusey, 2013).

Treatment strategies

Treatment strategies are in the main informed by expert opinion. Experts agree that the principles underpinning treatment strategies should be: haemostasis (control the bleeding), clean the wound, remove any debris and then replace the flap (where applicable), apply a non-adherent dressing that is suitable for the wound and protect the surrounding skin from further trauma (Baranoski, 2001 Bianchi, 2012 Holmes, et al., 2013 LeBlanc & Baranoski, 2011 McErlean, 2004 Morey, 2007 Ratcliffe & Fletcher, 2007 Stephen-Haynes & Carville, 2011 White, 2001). After this, usual wound management practices apply, such as: moist wound healing, prevention of infection, regular review, re-assessment and documenting of the wound. There is

also general agreement between clinicians that skin tears take on average between seven and 21 days to heal (LeBlanc & Baranoski, 2011 Ratcliffe & Fletcher, 2007).

Prevention strategies

Experts agree that a pragmatic approach to skin tear prevention is to identify and then limit the effect of risk factors associated with their development (Holmes et al., 2013). Also, knowing where anatomically skin tears frequently occur helps to identify their cause thus allowing better targeting of prevention strategies. (Ratcliffe & Fletcher, 2007). Once identified, the impact of risk factors can be lessened in two ways, if extrinsic, by making the environment less hazardous, or if intrinsic by maximising the skin's ability to withstand trauma (Battersby, 2009; Edwards, Gaskill, & Nash, 1998; Holmes et al., 2013; Stephen-Haynes & Carville, 2011; Xu et al., 2009). An example of limiting external vulnerabilities is to use mobility aids to facilitate client transfer and reduce the likelihood of knocks and falls and the associated friction and shear. An example of an intervention to improve the skin's ability to maintain integrity is regular moisturising. As already discussed, current thinking regarding skin tear risk factors is based on expert opinion from clinical and descriptive studies rather than on more rigorous evidence. While it would be better for prevention strategies to be informed by evidence rather than conjecture, clinicians have no chance other than to base their practice on expert opinion until that is possible (Ratcliffe & Fletcher, 2007).

There have been a small number of studies that have investigated the success of prevention strategies in reducing the development and reoccurrence of skin tears (Battersby, 2009; Ratcliffe & Fletcher, 2007). Ratcliffe and Fletcher (2007) cite a number of studies two of which consider a whole range of preventative strategies addressing both extrinsic and intrinsic risk factors (Bank & Nix, 2006; Brillhart, 2005). Others focus more on specific interventions to maintain skin integrity, such as emollient soaps (Mason, 1997) or no-wash cleanser (Birch & Coggins, 2003) and another study compared a combination of cleanser and skin protectant (Hunter et al., 2003). Despite methodological differences, all authors concluded that a reduction in skin tear incidence was a consequence of their intervention.

However, before the effectiveness of prevention strategies can be optimised, we need to understand the relationships between risk factors (and their interactions)

and skin tear development. An example of this is cited in a recent systematic review (Pusey, 2013) that identified a retrospective study of 209 older persons that considered the development of skin tears in individuals who had received a multicomponent prevention intervention. This intervention included: padded side rails for those at high risk, staff education, long-sleeved clothes and the application of gentle cleansers and moisturising lotion (Bank & Nix, 2006). The intervention was found to be successful in that the prevalence of skin tears was reduced but the study design meant that it could not be ascertained as to whether it was one particular component of the intervention, or a combination, that led to these results. The authors acknowledged this limitation and stated that RCTs comparing the different prevention strategies are needed and that such studies should also look at the differential cost effectiveness of the different strategies. The same review (Pusey, 2013) described a six months observational study of 100 older persons which had considered the efficacy of two different skin care regimes, a cleansing product plus moisturiser with nutrients and a cleanser and moisturiser without nutrients. The regime with nutrients showed a significantly greater reduction in the development of skin tears, as well as associated cost savings (Groom, Shannon, Chakravarthy, & Fleck, 2010). Nevertheless, the paucity of this type of study and the use of non-experimental research designs, led Pusey to conclude that there was currently no strong evidence regarding the efficacy of topical skin care regimes.

Although prevention is the appropriate goal in the majority of circumstances, not all skin tears are preventable for example in situations where people experience serious illness such as multi-organ failure this could be the case (Sibbald et al., 2010).

In summary, current skin tear prevention and treatment practices are, because of a lack of evidence, based on expert opinion and whilst this is unfortunately inevitable, more methodologically sound research is required to fill the evidence gap (Ratcliffe & Fletcher, 2007).

Moisturisers

Johnson (as cited in Voegeli, 2012) maintains that moisturising is one of the four main principles of skin care, together with cleansing, replenishing, and protecting the outer layer of the epidermis. Hurlow and Bliss (2011) define moisturisers as

"complex chemical mixtures that are designed to make the skin softer and more pliable by reducing trans-epidermal water evaporation, thus increasing the water content" (p.258).

The main purpose of moisturisers is to rehydrate dry skin by causing it to retain water so that it is less likely to split or tear (Ratcliffe & Fletcher, 2007). Skin becomes drier as we get older because natural moisturising factors (NMF) and lipids in the epidermis reduce with age and have the clinical effect of drying and reducing the ability of the skin to act as a protective wall (Voegeli, 2012). Moisturisers emulate the role of lipids in the epidermis, partly through the action of humectants, which promote the retention of water thereby increasing the water content in the epidermis. Moisturisers also prevent water loss from the skin by evaporation (Foy White-Chu & Reddy, 2011).

It has been proposed by clinicians that moisturising is an effective preventive strategy for skin tears (Battersby, 2009; Edwards et al., 2010; Foy White-Chu & Reddy, 2011; Holmes et al., 2013; LeBlanc & Baranoski, 2011; Pamaiahgari, 2011; Pusey, 2013; Ratcliffe & Fletcher, 2007; Stephen-Haynes et al., 2011; Wounds UK, 2012).
Those moisturisers with humectants (i.e. substances that promote retention of water) in particular, have demonstrated successful relief of dry skin, but more rigorous research is required (Kottner et al., 2013).

Research on skin moisturising is feasible as it is one of the more straightforward prevention strategies to implement in a residential aged care context, because it can be undertaken by staff, family members or the resident themselves (Edwards et al., 2010).

It was because moisturising was a pragmatic skin tear prevention strategy advocated by experts, as well as its known beneficial effects on dry skin, that Curtin University researchers decided to conduct a randomised controlled study (K. Carville, G. Leslie, R. Osseiran-Moisson, N. Newall, & G. Lewin, 2014). This RCT aimed to explore the effectiveness of moisturising in reducing the incidence of skin tears in a group of Australian residential aged care residents. The intervention was

twice daily moisturising with a standardised pH neutral, perfume free, moisturising lotion (Abena) to body extremities in a gentle, downwards direction.

Randomised controlled trials

Goodman and Gilchrest (2013) define an RCT as "a full experimental test of a treatment or intervention that involves random allocation to treatment/intervention or control groups (or to treatment in different orders), ideally using methods that 'blind' the allocation to those involved in the study. RCTs usually involve a large and heterogeneous sample of participants, recruited from multiple, geographically scattered sites to ensure that the results are not specific to a single setting" (p.251).

The RCT is considered the "gold standard" of research methodologies to ascertain if an intervention is effective and safe or not (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). One of the main reasons is because randomisation is seen as the ultimate technique to ensure both treatment and control groups are matched as equally as possible (Hotopf, 2002). These trials can also be further divided into: "explanatory" RCTs which focus on internal validity, ensuring interventions work in a controlled environment and "pragmatic " RCTs, which have more emphasis on the treatment working in the real clinical world (Godwin et al., 2003).

Clearly an intervention that is studied in a more realistic environment will be of greater benefit (Hotopf, 2002). This latter aspect is because its applicability to the real world means it does not need to be validated after the research stage, so it is more useful and efficient, both for time and resources.

A well-designed and executed pragmatic randomised trial is considered the design of choice to test not just the clinical effectiveness but also the cost effectiveness of a new treatment (Godwin et al., 2003). This is important to consider as any successful prevention strategy also needs to be affordable to be acceptable.

A pragmatic RCT was therefore conceptualised as the most appropriate study design to explore the effectiveness of skin moisturising in reducing the incidence of skin tears in a residential aged care population. Furthermore, because the study intervention was being conducted across many sites and involved multiple staff, a cluster randomisation design was chosen. This design is used to reduce

contamination bias (Godwin et al., 2003) and in the RCT it involved residential facilities being designated as either treatment or control sites. The rationale was that if an entire residential site was allocated to the study treatment arm and therefore implementing the intervention (twice daily moisturising), this regime would be consistent for every resident that had consented to being part of the study. Often staff work on different wards at the same residential facility (due to staff absenteeism and varying workloads), if each ward within the site was not following the same skin moisturising plan, staff moving between wards could potentially put at risk the continuity of each ward's skin care regime.

The need to describe practice at baseline and follow up and prevent detection bias

Collecting baseline or pre-intervention data, as well as outcome data (after the new treatment has been implemented), is an integral part of any RCT design. This is because these baseline data are essential to understand if a change has occurred as a result of the intervention. In the case of the moisturising RCT, if the practice of moisturising was already occurring, results could not be attributed to a change in practice.

Related to this, the aim of the research study which is the topic of this thesis, was to define what was "usual" moisturising practice for skin tear prevention at all sites, both before and after the RCT. With a treatment intervention such as skin moisturising and a "usual treatment" control it is obviously not possible to blind either the person receiving or the person performing the intervention whether they are in the treatment or control arm of the study. In this type of situation Kottner et al (2013) and others (Godwin et al., 2003; Weller, McNeil, Evans, & Reid, 2010) recommend blinding the outcome assessor to prevent detection bias. This was important because blinding is considered best practice in a RCT (Goodman & Gilchrist, 2013; Hotopf, 2002; Moher, Schulz, & Altman, 2001).

Achieving practice change

Whether the intervention/practice change is adhered to is a significant issue in all RCTs but can be more problematic in pragmatic RCTs. This is because unless it is certain the intervention has been delivered as intended, trial outcomes may be

incorrectly attributed. To understand this further, it is essential to discover why people are motivated or enabled to implement or follow protocols and what they consider the barriers to be. Identifying barriers and enablers can occur in many ways including surveys, interviews and note audits (Grol & Wensing, 2004).

There has been consensus about what motivates people to change their practice and some examples of the common enablers are: having a supportive organisation/management, ownership by involving all stakeholders (but particularly by those implementing the new regime), education, seeing the benefits of the protocol being introduced, experts or champions supporting the process and having a feedback mechanism (Ellis, Howard, Larson, & Robertson, 2005; Kitson, Harvey, & McCormack, 1998; Nay, 2003; Newall et al., 2009).

Conversely, frequently cited barriers are: lack of time, negative staff attitudes towards research and change, low credibility of new practice, lack of administrative support, cost constraints, concerns about back-fill of staff, and low levels of staff knowledge (Fitzgerald, Tomlinson, Peden-McAlpine, & Sherman, 2003; Grol & Wensing, 2004; National Institute of Clinical Studies, 2006; Nay, 2003).

Although it is generally accepted that barriers and enablers to change in clinical practice are known, as yet there is no consensus on the best strategies to optimise enablers and overcome the barriers (Grol & Wensing, 2004; National Institute of Clinical Studies, 2006). Some authors advocate that strategies targeted at different levels of an organisation are most advantageous because barriers exist at different levels (Edwards et al., 2010; Kitson et al., 1998; National Institute of Clinical Studies, 2006; Nay, 2003; Prentice & Stacey, 2001). Kennedy, Leathley and Hughes (2010) agree and also suggest that "implementation of guidelines needs to be supported by education, infrastructure, data support, promotion, endorsement and, if applicable, incentives or penalties to encourage uptake" (p. S98). Another view is that it is not particular strategies but the interaction of three domains: evidence type, context that it is to be introduced to, and how the change is implemented, that will ensure successful uptake of new practice (Kitson et al., 1998). There is no conclusive evidence to establish that one domain is more influential than another, but in one study, support from an external expert facilitator was considered more effective than facility culture or leadership (Ellis et al., 2005). However, in another study by the

same author (Ellis et al., 2006), a strong relationship was found between the context of the organisation and an organisation's ability to implement new prevention strategies for pressure ulcer development. Others believe that it is essential the client and carer are involved (Lawton, 2007, 2009; Milner, 2013; Wounds UK, 2012) along with the whole multi-disciplinary team to facilitate successful practice change (LeBlanc & Baranoski, 2011).

The lack of consensus and the dissimilar results in varied contexts in relation to different clinical practices, underscores the need to tailor strategies to the particular context in which practice change is being implemented. In order to do this it is necessary to understand what barriers and enablers exist in that context.

Summary

The literature reviewed showed that skin tears are a prevalent wound type, predominantly among older people. Although often starting as an apparently innocuous lesion, these injuries can develop into complex chronic wounds and complications such as compromised vascular status or infection can increase morbidity or mortality risks.

Skin tears are mainly preventable but there is not enough evidence about the interaction of risk factors and their association with skin tear development to enable establishment of an evidence-based prevention protocol. However one intervention - moisturising, has been shown to rehydrate dry skin, which is a leading precipitating factor to skin tear development. More evidence is however required before it is possible to state definitively that regular moisturising reduces the incidence of skin tears. Pragmatic randomised controlled trials are considered the "gold standard" for evaluating the effectiveness of new treatments. Within these trials, to ensure results are attributed correctly, it is essential to define baseline or "usual" practice in order to be able to identify whether practice has changed, in the way intended, during the trial. Discovering what in this setting assists or hinders staff to follow a protocol for the practice being studied will then help understand why practice change was achieved in the study or not.

The aim of the study which is the topic of this thesis is the description of "usual" moisturising practice for skin tear prevention both before and after a moisturising

RCT has been implemented across multiple sites of a residential aged care organisation in WA. Barriers and enablers to regular moisturising were also explored prior to the start of the RCT. This study therefore formed a critical but independent part of the moisturising study.

The research design, data analysis description and ethical considerations for this study will be described in the next chapter.

CHAPTER 3: METHODOLOGY

This chapter describes the study's design, sample and how data collection occurred. The statistical analysis, ethical considerations as well as data storage and reporting are also covered.

Study design

This was a mixed methods descriptive study designed to identify "usual" moisturising practice pre and post-intervention in both the control and intervention facilities in a large RCT (see Appendix A). It included a survey of residential facility staff (described as carers in this thesis) and interviews with facility site managers. Carers were surveyed pre and post-intervention as to their then current moisturising practice and asked pre-intervention about barriers and enablers to following any moisturising protocol operating in the facility. Site managers were interviewed to gain an understanding of what they expected carers to be doing as regards moisturising and how they managed this aspect of care. To supplement these data, the site manager provided electronic documentary evidence of skin moisturising practice upon request, to indicate if this care had occurred.

Hotopf (2002) remarked that "usual care is a difficult term to define because it will depend heavily on the knowledge, skills and resources of the health care professionals delivering it" (p.329). For this reason data were collected from the perspectives of both the direct care staff, who would be expected to predominantly implement any skin care regime, and site managers who would manage this process and be aware of what expectations they, and the organisation, held in relation to moisturising practice.

The rationale for investigating enablers and barriers to following any pre-existing skin moisturising protocols as part of the pre-intervention data collection at each site, was to identify if there were any differences at baseline in enablers and barriers between sites, carers or control/treatment groups. Any disparity found could explain differences in the uptake of the RCT protocol and therefore subsequent results.

According to Grol & Wensing (2004) barriers and enablers can be identified in many ways using methods including surveys, interviews and note audits. All three of these methods were utilised in this study.

Sample

A convenience sample of a minimum of five carers and one manager from each of the 12 residential facilities in the RCT – 6 'intervention facilities' and 6 'control facilities', were selected. This survey sample size was decided with respect to time and budget constraints and in consultation with senior management of the aged care organisation (it was expected that the sample would make up approximately 20% of the total number of carers employed at that time).

Only carers were surveyed, as they were the staff who provided the bulk of the direct care to residents. For the purpose of this study carers are defined as non-professional direct care staff.

Sample recruitment

A senior member of staff from the aged care organisation met with all site managers prior to study commencement to explain the importance of the study to the organisation and their staff's role. Together with the researcher, the senior manager developed a timetable of visits to each site from pre-intervention from May to June 2011 and post-intervention from March to April 2012. The intervention was introduced in August 2011 through education sessions and the RCT conducted for six months from September 2011 until February 2012. When planning visit times, consideration was given to minimising disruption to the site by avoiding visits during other planned events, such as accreditation or internal audit, as well as circumventing busy times of day when resident activities were at their highest, such as during residents' personal care and meal times.

The researcher was accompanied on most occasions by the site manager who introduced her to the shift supervisor and explained that the researcher would wait in the room that the carers would normally go to for their tea break. As carers entered the room, the researcher introduced herself and after confirming roles, explained the requirements of the survey and gave them the staff information sheet (Appendix B) to read. When the carer had read the information sheet and been given the

opportunity to ask any questions they had about the study, they were asked to complete the questionnaire tool which did not require them to identify themselves (Appendix C). Completion and return of the questionnaire was taken to indicate the carer had consented to take part in the study.

Interview times with the managers in charge of each facility were arranged in advance to coincide with the researcher's scheduled site visits. On the day of the visit, after confirming the time arranged was still suitable, the researcher met with the site manager and gave them an information sheet (Appendix D) and consent form (Appendix E). When they had been given sufficient time to read the sheet and ask any questions they had about the study, they were asked to sign the consent form before asking if they could proceed with the interview. It is almost impossible to blind participants to an intervention such as skin moisturising, so because of this pre-intervention data collection to establish "usual" moisturising practice occurred before sites were randomised to either treatment or control group.

The researcher was not informed as to sites' group allocation and remained blind until data collection was complete this is recommended by (Kottner et al., 2013) to prevent detection bias.

Data collection

All 12 facilities were visited twice during the study, once before the intervention and then again approximately six months post-intervention, as described in the *'sample recruitment'* section. As "usual" skin moisturising care could potentially occur either during the morning or afternoon, visits were randomly assigned to these times of day. This ensured a cross-section of morning and afternoon shift staff were recruited to complete the questionnaire. The researcher conducted all site manager interviews and oversaw the distribution of all carer questionnaires to maximise consistency in data collection.

It was identified that because a member of senior management from the facility introduced the researcher to carers and arranged interviews, staff could potentially feel pressurised to not say anything that could be perceived as conflicting to the organisational perspective. However, the likelihood of this was reduced as staff were

reminded as to the purpose of the study as well as the fact that questionnaires and interview records were unidentifiable and confidentiality was assured.

Survey of carers

After carers were recruited to the study, they were given a questionnaire and asked to complete it at the time, without conferring with the other carers who were completing it at the same time.

The personal approach to the survey was adopted because in previous projects the researcher has conducted, posting out questionnaires to staff resulted in a poor response rate (Lewin et al., 2007). It was thought that meeting carers in person to explain the rationale for the survey would maximise the return rate. Completion and return of the questionnaires occurred at the time of the visits, to further reduce the number of non-returns. Both of these strategies resulted in a high response rate.

If the carer had any questions regarding the questionnaire they were advised to ask the researcher and not the other carers. This was to ensure that data collected were solely the views of the individual carer and not influenced by others. Once the carers had completed the questionnaire, they were asked to put it into a closed box. The rationale for this was to encourage full disclosure as it made it clear that completed questionnaires would be anonymous and only read by the researcher who was external to the organisation. The carers who completed the questionnaire were given a small chocolate bar as a token of appreciation for their participation. The last instruction given to the carers was to not discuss their responses with other carers who had not yet completed their questionnaires.

Interview of site managers

As the semi-structured interview with site managers was audio-taped it was important that a suitable room (usually their office) was located and arrangements made to avoid any disruption. Once the site manager had confirmed the interview time was convenient and signed the consent form, the interview commenced using the questions listed in Appendix F for guidance. At the end of the interview, managers were asked whether they were able to show the researcher any documentation identifying their facility's current moisturising practice. Once this last step was completed, the site manager was also given a small chocolate bar as a

token of appreciation for their participation. They were then asked to not discuss their responses with managers at other sites who had not yet completed their interviews.

Data collection instruments

Carer survey tool

The survey questionnaire, Appendix C, was succinct and comprised mainly of closed questions with predetermined response categories. The questionnaire was designed by the author and based on two tools previously used in another wound study (Lewin et al., 2003). Content validity was achieved by consulting with the Clinical Nurse Consultant at the organisation where the study was conducted. The questions were designed to elicit data about: the carer, their training related to skin care and the "usual" practice at their site for moisturising residents' skin.

There were small changes made to the questionnaire post-intervention, the first was the inclusion of a question to ascertain if carers had completed the survey pre-intervention another simplified the layout of a question and the last two changes involved amending predetermined response categories to match the categories found to be most useful when analysing the pre-intervention data. None of these changes affected the essential content of the questionnaire.

Site manager interview tool

The interview guide, Appendix F, was also designed by the author and had previously been used to ascertain if new pressure ulcer protocols had been adhered to in a residential setting and found to elicit detailed information. It comprised of open ended questions that sought to clarify and further investigate: what was expected of facility staff as regards moisturising residents' skin, how these expectations were communicated to staff, whether any training had been provided, how this practice was monitored and managed and, whether they believed staff were meeting their expectations. The only change post-intervention was that site managers were asked if they had previously been interviewed for this study.

Statistical analysis

The survey responses were data entered and analysed descriptively using the Statistical Package for Social Sciences (SPSS version 18). Pre and

post-intervention data were analysed separately and then compared for both intervention and control groups. As all data was categorical only non-parametric statistics were used to assess the differences between the groups. Statistical significance was assessed using a Chi-square or Fisher's exact test, as appropriate, statistical significance was determined at $p<0.05$.

The audio-taped interviews were transcribed by the researcher and the answers to the open ended questions summarised in relation to each of the different aspects of practice. The data from the interviews and surveys were then considered together to construct a complete picture of "usual" skin moisturising practice and to identify enablers and barriers to the implementation of practice protocols.

Ethical issues

The research plan and associated documentation were submitted to, and approved by, the Human Research Ethics Committee (HREC) at Curtin University (Appendix G). The study had already received in principle approval from the aged care organisation managing the facilities in question. Once the project obtained approval from the Curtin University HREC committee, the aged care organisation granted ethics and research approval to undertake the study at their 12 sites (Appendix H).

Data storage and reporting

Staff confidentiality and data security were ensured as study data were only identified by a site letter and not by name. The paper-based data collection tools were data entered and stored on the researcher's personal drive on her computer, which is only accessible to the researcher. These data will remain securely stored for a period of 10 years (NHMRC recommends retaining general data for a minimum of five years from the date of publication but for specific data such as clinical trials, 15 years, so 10 years was chosen as a compromise) in accordance with the National Health and Medical Research Council (NHMRC) guidelines, after which time they will be securely destroyed (2007). The hardcopies of the surveys will be kept in a locked cabinet in the researcher's office until the thesis is completed and submitted and then stored securely until destroyed after 10 years.

Interviews were audio-recorded and the discussions transcribed, with the transcripts remaining confidential as they did not include any individual's name. Only the researcher and her supervisors have access to the recordings and transcripts. Recordings were kept in a secure location until they were transcribed by the researcher and the transcriptions stored on the personal drive of the researcher's computer, which is only accessible by her. These data will remain securely stored for a period of 10 years in accordance with the National Health and Medical Research Council (NHMRC) guidelines after which time they will be securely destroyed (2007). This research reports all data at an aggregate level. No individual staff data has or will be made available to any persons other than the researcher and her supervisors. The results of this study will be reported at conferences and in journal articles, but again this will not involve the reporting of any personal information.

Chapter four will present the results from all data collected.

CHAPTER 4: RESULTS

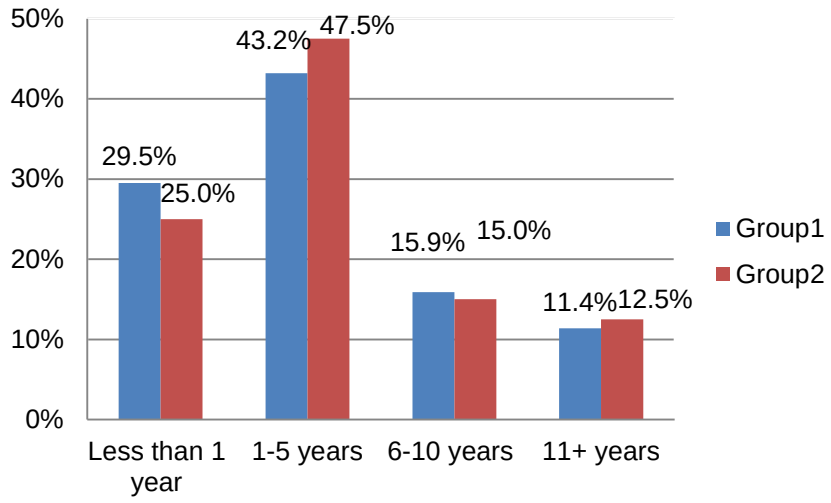
This chapter presents the results of the carer survey for the control and intervention groups before and after the intervention. The survey results are supplemented by the findings from site manager interviews and the electronic documentation audits and aim to describe current skin moisturising practice and determine if this practice differs between care facilities. Additionally, the carer surveys identify barriers and enablers of moisturising. All data collected have been collated and analysed by control (group 1) and intervention sites (group 2). The data are categorical and are presented in tables, bar and pie charts in terms of the frequency or percentage of the different categories of response. There is a key results section at the end of the chapter that summarises the results.

Pre-intervention skin moisturising practice

Informants (carers and site managers)

Eighty five carers completed the survey: 44 from control facilities, group 1, and 41 from intervention facilities, group 2. This constituted 18% (n=85/474) of the total number of carers employed at that time. One manager from each of the 12 residential facilities was interviewed. As shown in figure 1 the proportions of carers from each group that had worked in the role for different periods of time were very similar and not significantly different statistically (Chi-square test).

Figure 1: Overall - carers' years in role by group



Note: Chi-square comparing how long carers had been employed in their role by group did not indicate a statistically significant difference (x^2(3, n=85) = 0.28, P=0.96).

Overall, as shown in table 1, the proportion of site managers interviewed that had worked for the organisation in their current role for 18 months or less pre-intervention was 67% (n=8). This represented 50% of group 1 site managers (n=3) and 83% of group 2 managers (n=5).

Table 1: Site managers' years in current role by group

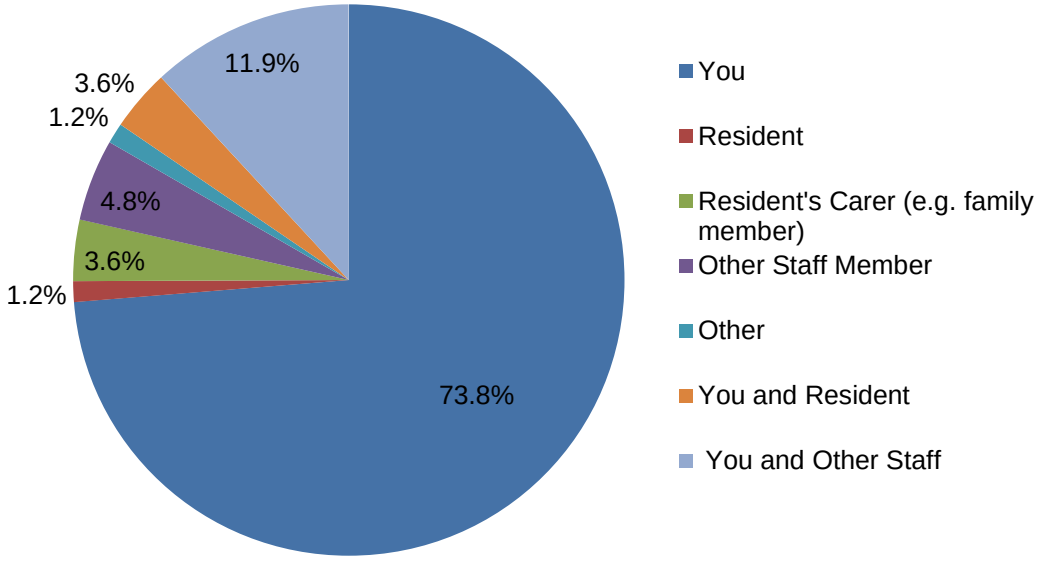
Group site manager allocated to	18 months or less	Greater than 18 months	Total
Group 1	3	3	6
Group 2	5	1	6

Person who mostly moisturises

As shown in figure 2, of the 84 carers that answered the question, the majority, 73.8% (n=62) said they themselves mostly moisturised the residents. This was confirmed by the site managers, although seven of the 12 also said that residents were encouraged to moisturise themselves. When the survey data were analysed by individual site, the percentage of staff that responded that they mostly moisturised residents' skin ranged from 100% (n=7) at one site to 20% (n=1) at another.

There was little difference between the survey responses from carers in group 1 and group 2, with very few indicating that moisturising was mainly the domain of the resident (n=1, group 1) or the resident and carer together (n=3, group 2). Of the seven site managers that indicated that residents were involved in moisturising, two were from group 1 sites and the remaining five from group 2.

Figure 2: Overall - person who mostly moisturises (n=84)



Frequency of moisturising

Survey responses to this question are provided in table 2 and indicate variation in practice as to how often residents' skin was moisturised. The most common response in both intervention and control sites was "once a day", 67% in group 1 (n=29) and 59% in group 2 (n=24) and the next most common "twice a day" and "when the skin looks dry". The largest difference between the groups was in the proportions of carers who responded "when resident asks", 16% (n=7) of group 1 vs. 29% (n=12) of group 2 but this was not statistically significant (x^2(1, n=19) = 1.3, P=0.25).

The majority of managers, 75% (n=9/12), also indicated that there was no normative moisturising practice at their site. This was the case for both facilities in group 1 where the proportion was 67% (4/6) and group 2 where the proportion was 83% (n=5/6). There were however, three managers (group 1: 2 and group 2: 1) who said it was usual practice to moisturise "twice a day". The survey responses from the group 1 sites did not however support this as only one of the five carers at one site responded this way and two of the seven carers from the other site. At the group 2 site on the other hand, five of the eight carers indicated that moisturising twice a day was the norm.

Table 2: Moisturising frequency by group (multi-response answers)

	Group 1 N=43	**Group 2 N=41**
Once a day	67% (n=29)	58.5% (n=24)
Twice a day	28% (n=12)	34% (n=14)
Weekly	2% (n=1)	0
When resident asks	16% (n=7)	29% (n=12)
When skin looks dry	33% (n=14)	27% (n=11)
Other[a]	9% (n=4)	2% (n=1)

[a] Other: per shift x 1, on ADL sheet x 1, if resident allows x 1, stated on profile x 1, when needed x 1.

Note: Chi-square test calculated combining values for "weekly" and "once a day " and omitting "other", did not indicate a statistically significant difference (x^2(2, n=99) = 2.13, P=0.35).

Time of day

Table 3 shows that "after a shower" was the most common response (76%, n=64) when carers were asked when moisturising mostly occurred and that this was the case for both group 1 (75%, n=32) and group 2 (78%, n=32). Again site managers' responses essentially mirrored those of carers. Seventy five per cent (n=9/12) answered that moisturising occurred mostly after showering. This response was however more common from group 2 managers, 100% of whom answered this way, whereas only half of group 1 managers did.

Table 3: Time of day moisturising mostly occurs by group (multi-response answers)

	Group 1 N=43	**Group 2 N=41**
Morning	58% (n=25)	54% (n=22)
Afternoon	7% (n=3)	15% (n=6)
Before bed	33% (n=14)	34% (n=14)
After shower	75% (n=32)	78% (n=32)
After washing	37% (n=16)	49% (n=20)
Other[a]	9% (n=4)	0

[a] Other: could be each shift x 1, after toileting x 1, during ADLs x 1, when or time when stated on ADLs x 1.

Note: Chi-square test calculated omitting "other" did not indicate a statistically significant difference. (x^2(4, n=184) = 1.55, P=0.82).

Brand of moisturiser used

Of the 72 carers who responded, 65% (n=47) said they used Sorbolene, the proportions being similar in groups 1 and 2, i.e. 62% (n=23) and 69% (n=24) respectively. The second most commonly identified moisturiser was Abena, used by 21% (n=15) of carers overall - 27% (n=10) from group 1 and 14% (n=5) from group 2. Only three survey respondents indicated that they used both Sorbolene and Abena.

Table 4: Brand of moisturiser used by group (free text response)

	Group 1 N=37	**Group 2 N=35**
Sorbolene	62% (n=23)	69% (n=24)
Abena	27% (n=10)	14% (n=5)
Resident's own choice	8% (n=3)	14% (n=5)
Any other/equivalent	8% (n=3)	17% (n=6)
Prescribed creams	5% (n=2)	9% (n=3)
Melonin	3% (n=1)	3% (n=1)

Note: Chi-square test calculated comparing Sorbolene with Abena did not indicate a statistically significant difference (x^2 (1, n=62) = 1.44, P=0.23).

Documentation

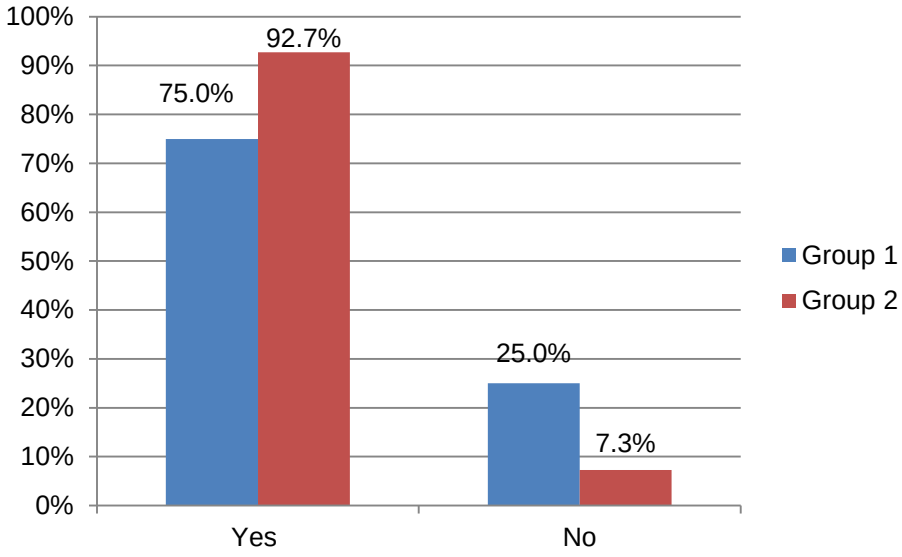
Overall, 83.5% (n=71) of carers said they documented when they moisturised. When analysed by site, the proportions of carers from each site saying they documented ranged from 100% at four sites (n ranged from 6-8 carers) to 57.1% at another (n=4).

However, when analysed by group, figure 3, a significantly greater proportion, 25% (n=11), of group 1 said they did not document whenever they moisturised as compared to group 2, 7.3% (n=3).

Variation in documentation practice between sites was also evident from the managers' interviews. Just 67% (n=8/12) of site managers said there should be documentation on I-Care either within the "activities of daily living" section (ADL) or in the care plan. Fifty per cent of these managers were from group 1 (n=3) and 83% (n=5) from group 2.

Contrary to manager expectations, documentation about moisturising were found in I-Care records in all sites where they were examined (11/12) either in the "skin integrity and wound care" care plan section or in the ADL section. At three sites staff had documented in both sections. At the remaining site, the researcher was unable to observe the I-Care system.

Figure 3: Overall - documentation of moisturising by group



Note: Fisher's exact test was used because of the small cell counts, indicating a statistically significant difference (two-tailed p=0.04).

Enablers of "usual" moisturising practice

When asked what the enablers of moisturising practice were at their residential facility (see Appendix B, Q10), of the 50 carers that offered suggestions, over half (n=28) responded "cream availability/accessibility", table 5. Proportionally, a greater number of carers in group 1, 68% (n=17) than in group 2, 44% (n=11) gave this answer. A small number of respondents, 12% (n=3) all of whom worked at the same site, identified a need for a "better moisturiser".

Table 5: Enablers of "usual" moisturising practice (free text response)

	Group 1 N=25	**Group 2 N=25**
Cream Availability/Accessibility	68% (n=17)	44% (n=11)
Documentation/Process/Protocol	28% (n=7)	24% (n=6)
Resident related[a]	16% (n=4)	4% (n=1)
Training	8% (n=2)	8% (n=2)
Time	4% (n=1)	16% (n=4)
Better Moisturiser	0	12% (n=3)

[a] Resident related: For example, resident approving of moisturiser or whether resident is in bed or sitting down.

Note: Chi-square test comparing "Cream availability/accessibility"='Yes' or 'No' indicated no statistically significant difference between the two groups (x^2 (1, n=58) = 1.15, P=0.28).

In general, site managers' interview responses concurred with carers' survey responses, apart from not identifying any "resident related" enablers. They did however identify a number of additional enablers, for example: seven of the 12 managers felt that giving staff the rationale, describing positive outcomes or rewarding reduction in incidence rates, would best assist implementation of the moisturising protocol.

> *"It's like they understand that they have to give someone their tablets for their blood pressure if they don't give it then one - it is a serious incident but two - the blood pressure will be impacted. So I think if they understand that about skin care and moisturiser then you know you're more likely to get them to do it."*

One site manager felt strongly that being involved in this and previous trials would help moisturising protocol implementation, whereas managers at two other sites thought that changing staff ratios could improve moisturising practice. Active staff involvement and ownership of outcome together with the provision of a clear rationale were highlighted by another two site managers:

"I think it's a number of things, it's the active involvement of the care staff if we can get them to understand the importance of what they are doing and actually the outcome for the resident is more comfort and all of those good things, that would be the big thing because they are actually delivering the care, I can give them as much direction as I like but I'm not doing the job and I can't watch if all residents are being moisturised on a daily basis. I think for them to take some ownership of the outcome would probably be a good thing."

The only response that was in contrast to the carers' responses was that seven of the 12 site managers said they did not require extra creams.

Barriers to "usual" moisturising practice

In total, only four carers identified any barriers to moisturising practice at their residential facility (see Appendix B, Q8B and Q9A). Two barriers were identified by one of the carers - no access to creams and the resident preferring not to be moisturised. Each of the other three carers identified just one barrier each: two identified not having enough time and the third identified documentation "NOT to moisturise" as a barrier.

As with enablers, the site managers identified similar barriers but also suggested some additional ones:

- Lack of knowledge - noted by five of the 12 managers.
- The budget was seen as an issue by one manager.
- At four sites the managers believed the challenges were: the number of carers being too low, having too many agency staff or the site culture.

"If you do what you've always done you'll get what you always get ...and that's not good enough anymore so yes there are some barriers but a lot of its culture."

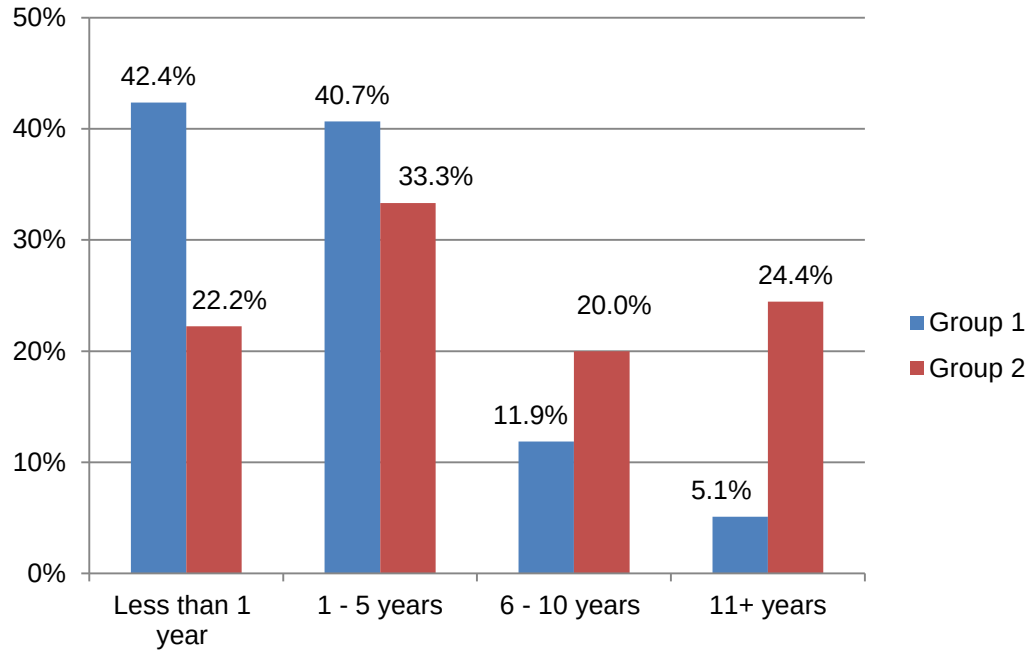
Post-intervention skin moisturising practice

Informants (carers and site managers)

One hundred and four carers completed the survey: 59 carers from control facilities i.e. group 1 and 45 from intervention facilities, group 2. This constituted 20% (n=104/515) of the total number of carers employed at that time. The proportion of carers that completed the survey both pre and post-intervention was 18% (n=19), 53% (n=10) being from group 1 and 47% (n=9) from group 2. All 12 sites were represented.

A manager from each of the 12 residential facilities was interviewed. Of the 12, 67% (n=8/12) had also been interviewed pre-intervention. Of these, 37.5% (n=3/8) were from group 1 and 62.5% (n=5/8) were from group 2.

Figure 4: Overall - carers' years in role by group



Note: Chi-square test indicated statistical significance (x^2(3, n=104) =11.65, P=0.01) when comparing how long carers had been employed in their role by group.

One fewer site manager interviewed post-intervention had worked for the organisation for 18 months or less, 58% (n=7), compared to pre-intervention 67% (n=8). The proportions within each group had however altered more: with 67% of group 1 site managers (n=4) at post-intervention having been in the job for less than 18 months compared to 50% pre-intervention while the figures were 50% (n=3) post-intervention and 83% (n=5) pre-intervention for group 2 managers.

Table 6: Site managers' years in current role by group

Group site manager allocated to	18 months or less	Greater than 18 months	Total
Group 1	4	2	6
Group 2	3	3	6

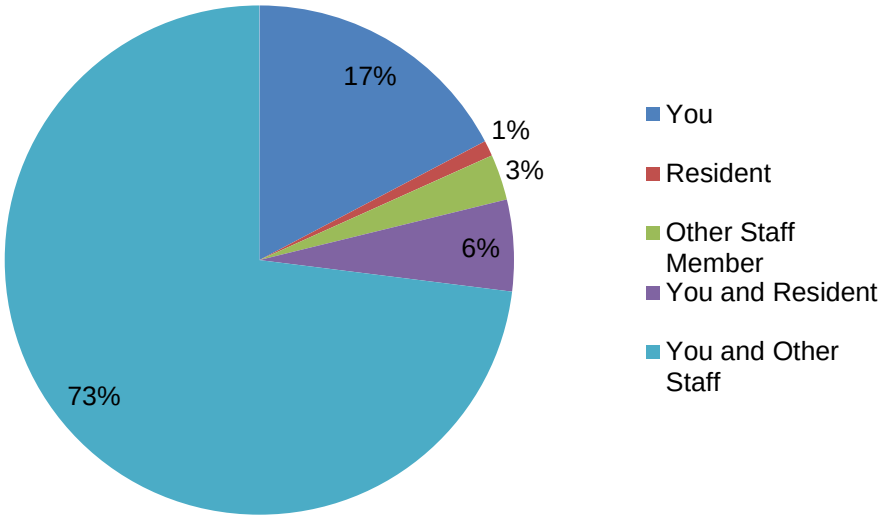
Person who mostly moisturises

As shown in figure 5, of the 104 carers that answered the question, the majority, 73% (n=76) said it was themselves and other staff that mostly moisturised the residents. This was confirmed by the site managers although seven of the 12 also said that residents were encouraged to moisturise themselves, this being the same proportion as pre-intervention and in direct contrast with the survey results for resident involvement shown in figure 6.

> *"Yes, there's been no problem with encouraging families to encourage the resident, I believe some family members have started using it themselves, so it's all about looking after your skin as you get older."*

When the survey data were analysed by individual site, the percentage of staff that responded they and other staff mostly moisturised residents' skin ranged from 100% at four sites (n=7, n=6, n=11, n=6 respectively), to 33.3% (n=2) at another.

Figure 5: Overall – person who mostly moisturises (n=104)



Figures 6 and 7 show that pre-intervention, 79% of group 1 (n=34) answered "You" and post-intervention 73% (n=43) answered "You and other staff". Group 2 responses were very similar with 68% (n=28) responding "You" pre-intervention and 73% (n=33) post-intervention responding "You and other staff", as indicated in figures 8 and 9. These responses indicated that carers mostly moisturise residents' skin. While some site managers commented that residents were involved in their own moisturising this was not supported by the carer survey results.

Figure 6: Pre-intervention person who mostly moisturises (n=34) in group 1

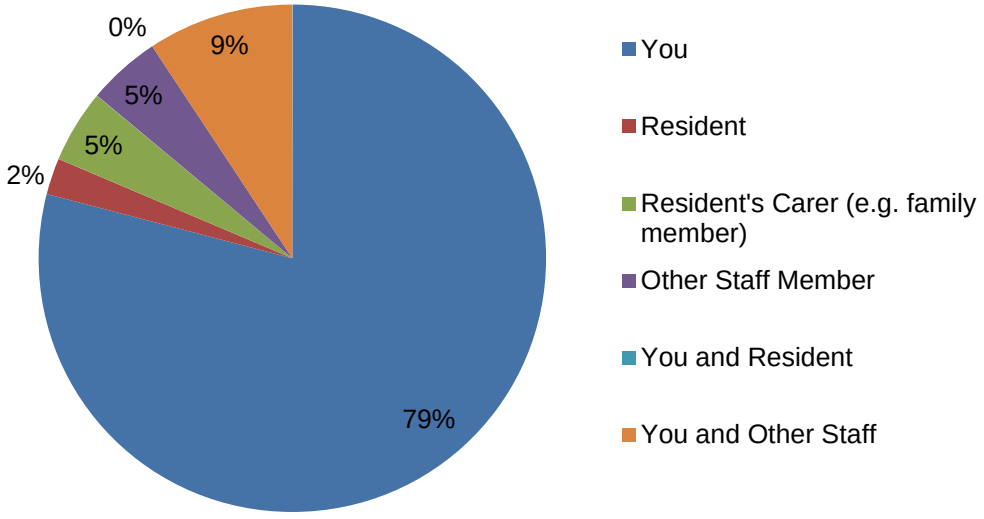


Figure 7: Post-intervention person who mostly moisturises (n=43) in group 1

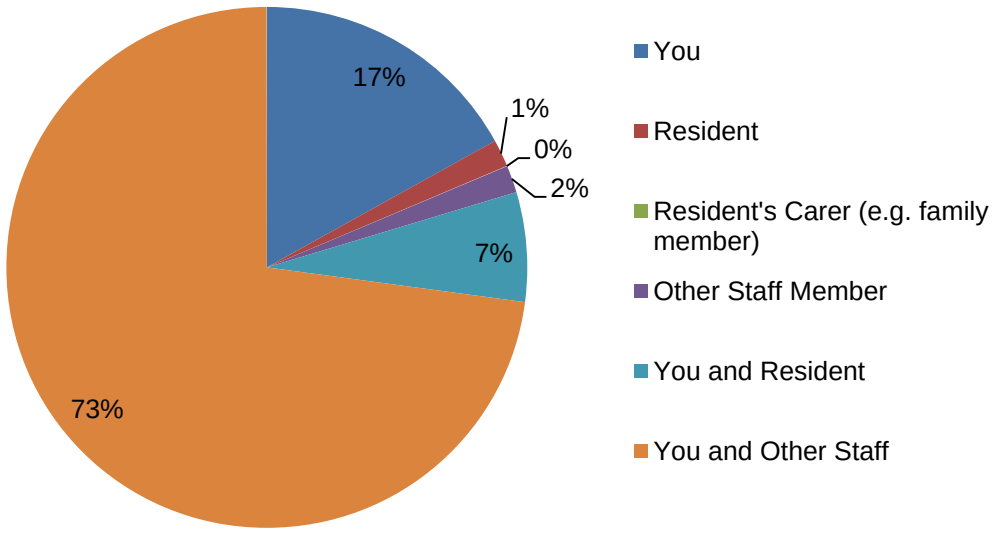


Figure 8: Pre-intervention person who mostly moisturises (n=28) in group 2

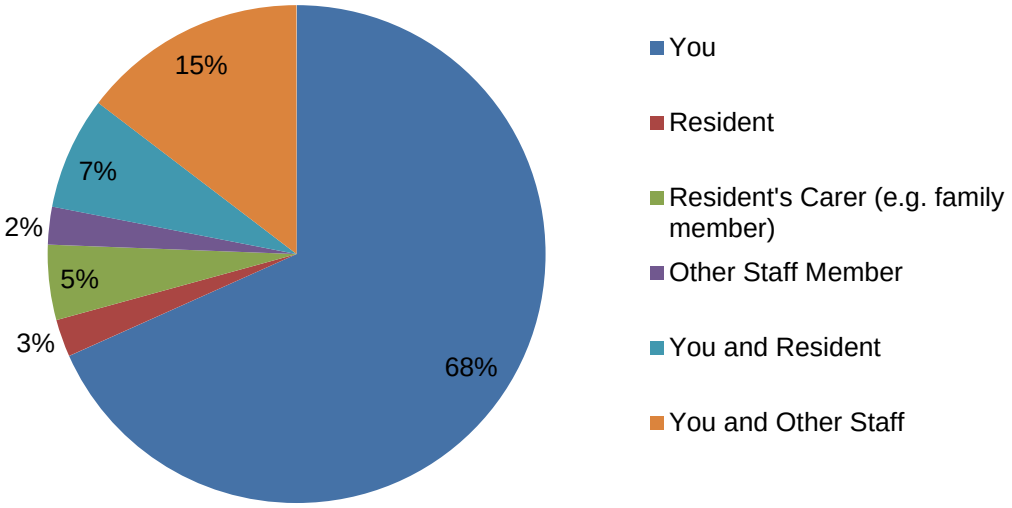
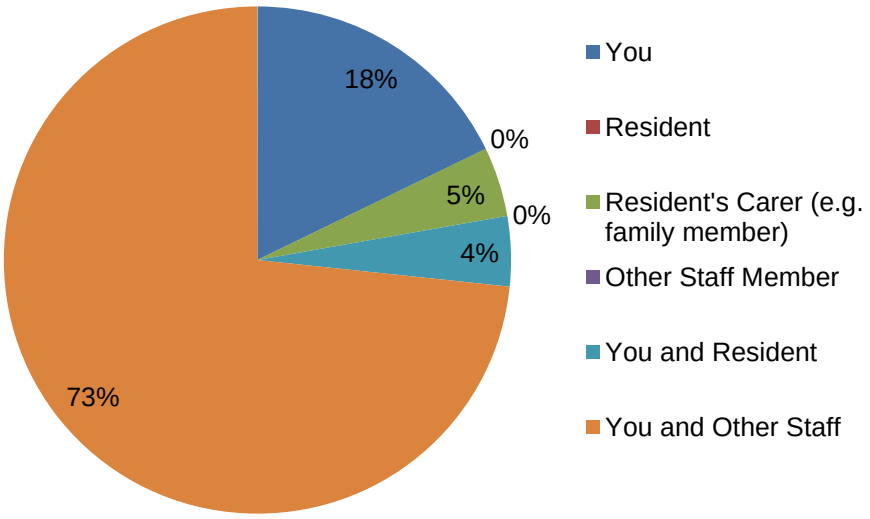


Figure 9: Post-intervention person who mostly moisturises (n=33) in group 2



Frequency of moisturising

Post-intervention survey responses to this question, are presented in table 7 and indicate variation in practice between the groups as to how often residents' skin was moisturised. The most common response overall was "twice a day", 78% in group 2 (n=35) and 46% in group 1 (n=27). While the proportion giving this response in the intervention group was substantially larger than in the control group, the reverse was true for the response "once a day" which was given by only 18% (n=8) of group 2 compared to 56% (n=33) of group 1 carers.

Site manager's comments also reflected that moisturising practice varied between sites with 58% (n=7/12) saying that moisturising occurred "twice a day". Of these sites, six were from group 2 and one site was from group 1. Managers at another two sites from group 1 responded that their practice was to moisturise residents after an assessment of their skin has shown it is required.

> *"There's no set practice however when we do note dry skin on initial skin assessment, then we will implement interventions such as moisturiser for dry skin and that would be entered into the care plan as a regime that would be specific to that individual."*

The remaining three site managers from group 1 indicated that there was either no "usual" practice at their respective sites or they were not aware of it.

Table 7: Moisturising frequency by group (multi-response answers)

	Group 1 N=59	**Group 2 N=45**
Once a day	56% (n=33)	18% (n=8)
Twice a day	46% (n=27)	78% (n=35)
Weekly	0	0
When resident asks	41% (n=24)	58% (n=26)
When skin looks dry	47% (n=28)	62% (n=28)
Other[a]	0	2% (n=1)

[a] Other: don't know

Note: Chi-square test indicated statistically significantly differences when calculated omitting missing values and "other" (x^2(3, n=209) =15.36, p=0.00).

Table 8 shows that in group 1 carers, the proportion of responses "once a day" was smaller post-intervention and that of "twice a day" was larger. Other changes are also apparent, particularly for "when resident asks" which was proportionally 25% larger which was the biggest change pre – post for this group.

Table 8: Moisturising frequency pre and post-intervention in group 1 (multi-response answers)

Group 1	**Pre-Intervention N=43**	**Post- Intervention N=59**
Once a day	67% (n=29)	56% (n=33)
Twice a day	28% (n=12)	46% (n=27)
Weekly	2% (n=1)	0
When resident asks	16% (n=7)	41% (n=24)
When skin looks dry	33% (n=14)	47.5% (n=28)
Other[a]	9% (n=4)	0

[a] other: per shift x 1, on ADL sheet x 1, if resident allows x 1, stated on profile x 1.

Note: Chi-square test calculated combining "weekly" and "once a day" and omitting missing values indicated no statistically significant difference (x^2 (3, n=175) = 6.71, P=0.08).

Within group 2, table 9 shows that the changes in proportions of responses for all categories were larger than the changes for group 1 and this was significantly different. Whereas the proportion responding "once a day" reduced more than twofold the proportion answering "twice a day" more than doubled. The proportions responding "when resident asks" and "when skin looks dry" also doubled.

Table 9: Moisturising frequency pre and post-intervention in group 2 (multi-response answers)

Group 2	Pre-Intervention N=41	Post- Intervention N=45
Once a day	58.5% (n=24)	18% (n=8)
Twice a day	34% (n=14)	78% (n=35)
Weekly	0	0
When resident asks	29% (n=12)	58%(n=26)
When skin looks dry	27% (n=11)	62% (n=28)
Other [a]	2% (n=1)	2% (n=1)

[a] Other: when needed x 1 and don't know x 1.

Note: Chi-square test calculated omitting missing values and "other", indicated statistically significant difference (x^2(3, n=159) =22.54, P=0.00).

Time of day

Table 10 shows that the most common response among all the 104 carer respondents was "after a shower" but with some variation between groups. A greater proportion of group 2 carers (87%, n=39) compared to group 1 (78%, n=46) answering this way. "Afternoon" was the time that was least often nominated as the usual time to moisturise. The largest proportional difference between groups was for the response "before bed", with 51% (n=23) of the intervention group and 29% (n=17) of the control group, responding this way.

Overall, most site managers, 75% (n=9/12) concurred with the carers that moisturising happened after shower/personal hygiene in the morning and/or before bed. All group 2 site managers' responses indicated that this was now "usual practice" in their sites whereas site managers from group 1 indicated that variations in practice remained.

Table 10: Time of day moisturising mostly occurs by group (multi-response answers)

	Group 1 N=59	**Group 2 N=45**
Morning	39% (n=23)	38% (n=17)
Afternoon	7% (n=4)	11% (n=5)
Before bed	29% (n=17)	51% (n=23)
After shower	78% (n=46)	87% (n=39)
After washing	58% (n=34)	78% (n=35)

Note: Chi-square test indicated no statistically significant difference (x^2 (4, n=243) = 2.44, P=0.66).

When responses from group 1 table 11 were analysed pre and post-intervention there were some differences in the time of day that moisturising occurred 19% fewer carers responded "morning" whereas 21% more said they usually moisturised residents "after a wash".

Table 11: Time of day moisturising mostly occurs pre and post-intervention in group 1 (multi-response answers)

Group 1	**Pre-intervention N=43**	**Post-intervention N=59**
Morning	58% (n=25)	39% (n=23)
Afternoon	7% (n=3)	7% (n=4)
Before bed	33% (n=14)	29% (n=17)
After shower	75% (n=32)	78% (n=46)
After washing	37% (n=16)	58% (n=34)
Other [a]	9% (n=4)	0

[a] Other: could be each shift x 1, after toileting x 1, during ADLs x 1, when or time when stated on ADLs x 1.

Note: Chi-square test calculated omitting "other", indicated no statistically significant difference (x^2 (4, n=214) = 4.21, P=0.38).

Table 12 highlights that when the responses from group 2 were analysed pre and post-intervention, overall there were no statistically significant differences in the time of day moisturising occurred. There were 16% fewer "morning" responses, 9% more "after shower" responses, 17% more "before bed" and 29% more "after wash'.

Table 12: Time of day moisturising mostly occurs pre and post-intervention in group 2 (multi-response answers)

Group 2	Pre-intervention N=41	Post-intervention N=45
Morning	54% (n=22)	38% (n=17)
Afternoon	15% (n=6)	11% (n=5)
Before bed	34% (n=14)	51% (n=23)
After shower	78% (n=32)	87% (n=39)
After washing	49% (n=20)	78% (n=35)

Note: Chi-square test indicated no statistically significant difference when comparing time of day moisturising occurred overall, pre and post-intervention (x^2 (4, n=213) = 4.84, P=0.31).

Brand of moisturiser used

Table 13 shows that the majority of carers said they used Abena, but the proportion was larger in group 2 (91%, n=41) than in group 1 (34%, n=20). Sorbolene was the second most commonly used moisturiser with 68% (n=40) of group 1 and 18% (n=8) of group 2 reported using it. There were significant differences between the groups in the responses Abena and Sorbolene. The majority of site managers, 75% (n=9/12), named Abena, which was consistent with the carers' responses. All of group 2 and three group 1 site managers identified Abena as the usual moisturiser. Others, 42% (5/12 and all from group 1) said the residents' preference also guided the brand of moisturiser used. Sorbolene was identified as the usual moisturiser by three group 1 site managers. This was consistent with the carers' responses in that it was rarely used by staff at group 2 sites. One site manager elaborated to explain that cost dictated the type of cream used.

> *"There are a lot of residents who have their preferred product, which we get families to supply, we can only supply a basic level of product because of cost constraints, unfortunately tends to be a Sorbolene or a Sorbolene based product, anyone wants any more than that then we get the families involved."*

The remaining two site managers did not know which moisturiser was used.

Two managers also talked about there being a small number of individuals who for various reasons had "special" creams and they explained that this was noted on the care plan to avoid confounding trial data as theirs were intervention sites.

Table 13: Brand of moisturiser used by group (free text response)

Moisturiser	Group 1 N=59	Group 2 N=45
Sorbolene	68% (n=40)	18% (n=8)
Abena	34% (n=20)	91% (n=41)
Any other/equivalent*	15% (n=9)	2% (n=1)
Resident's own choice	7% (n=4)	0
Not sure	3% (n=2)	2% (n=1)

Note: Chi-square test when calculated comparing Sorbolene with Abena only indicated a statistically significant difference (x^2 (1, n=109) =27.74, P=0.00).

Table 14 shows that group 1 survey responses did not vary much pre and post-intervention, although there was a larger proportion of carers answering that they used Abena 7% and Sorbolene 6%.

Table 14: Brand of moisturiser used pre and post-intervention in group 1 (free text response)

Group 1	Pre-intervention N=37	Post-intervention N=59
Sorbolene	62% (n=23)	68% (n=40)
Abena	27% (n=10)	34% (n=20)
Resident's own choice	8% (n=3)	7% (n=4)
Any other/equivalent	8% (n=3)	15% (n=9)
Prescribed creams	5% (n=2)	0
Melonin	3% (n=1)	0
Not sure	0	3% (n=2)

Note: Chi-square test when calculated comparing Sorbolene with Abena indicated no statistically significant difference (x^2 (1, n=93) = 0.09, P=0.77).

Whereas table 15 highlights that group 2 responses were significantly different pre and post-intervention as proportionally far fewer carers nominated Sorbolene, 51%, as compared to Abena, - 77%.

Table 15: Brand of moisturiser used pre and post-intervention in group 2 (free text response)

Group 2	Pre-intervention N=35	Post-intervention N=45
Sorbolene	69% (n=24)	18% (n=8)
Any other/equivalent	17% (n=6)	2% (n=1)
Resident's own choice	14% (n=5)	0
Abena	14% (n=5)	91% (n=41)
Prescribed creams	9% (n=3)	0
Melonin	3% (n=1)	0
Not sure	0	2% (n=1)

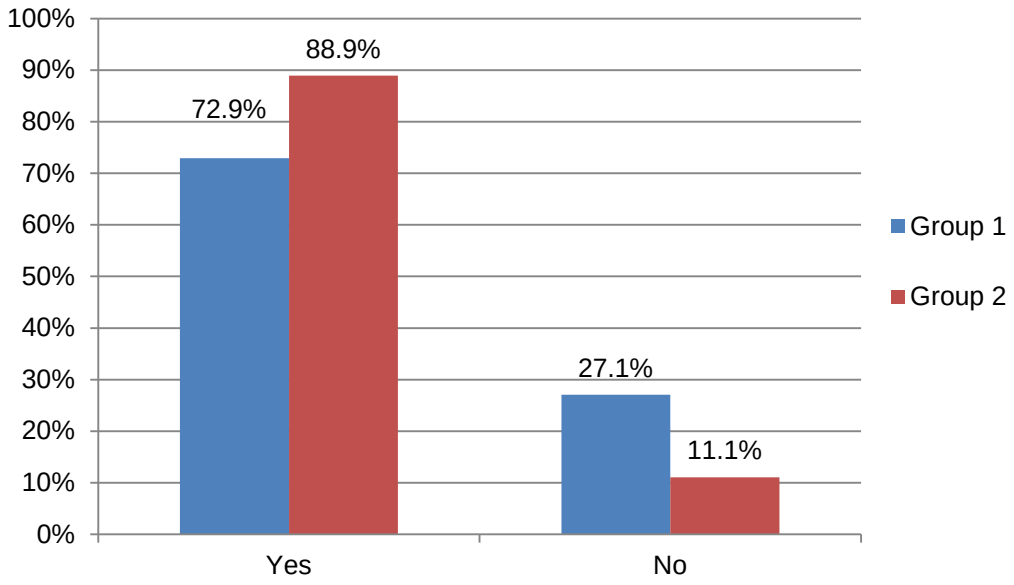
Note: Chi-square test when calculated comparing Sorbolene with Abena, indicated a statistically significant difference (x^2 (1, n=78) =33.23 P=0.00).

Documentation

Overall, the vast majority of carers, 79.8% (n=83), said they documented whenever they moisturised. When analysed by site this ranged from 100% at five sites (at four sites n=6, at the other site n=13) to 50% at another two sites (n=3 at both).

However, when analysed by group, figure 10, shows a greater proportion, i.e. 27.1% (n=16), of group 1 said they did not document whenever they moisturised as compared to group 2, 11.1% (n=5) this difference being just statistically significant.

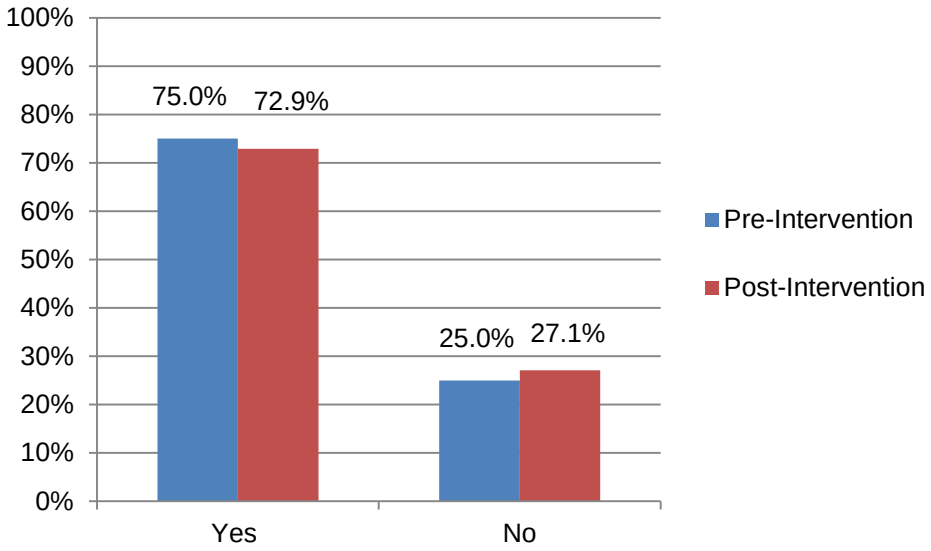
Figure 10: Overall - documentation of moisturising by group



Note: Chi-square test indicated a statistically significant difference (x^2(1, n=104) =4.06, p=0.04).

The proportions of group 1 carers saying they documented did not differ between the pre and post-intervention surveys as shown in figure 11.

Figure 11: Documentation of moisturising pre and post-intervention in group 1



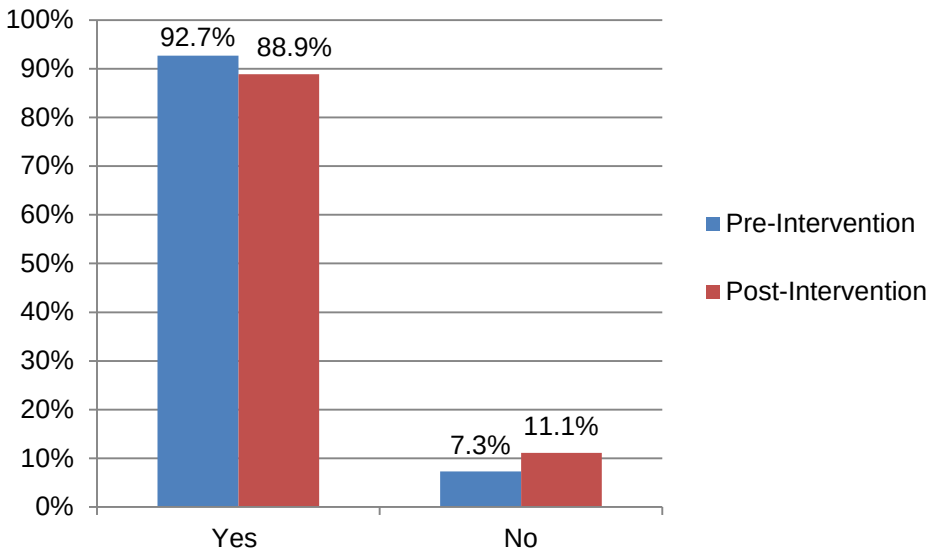
Note: Chi-square test indicated no statistically significant difference in documentation of moisturising between group 1 pre and post- intervention (x^2 (1, n=103) = 0.06, P=0.81).

Although the difference in the proportion of group 2 carers saying they documented in the post compared to the pre-intervention survey was greater than in group 1, as shown in figure 12, these changes were also not significantly different.

Documentation being more routine in group 2 than group 1 sites was confirmed by the site managers. All six group 2 managers said that this occurred whenever residents' skin was moisturised whereas two group 1 site managers were not sure whether it happened and one said that it did not. Of the nine site managers that said their staff documented, seven said they did it by ticking the ADL chart, two (both group 2) also wrote comments on the ADL chart.

At all sites where I-Care was observed (n=9), the ADL chart was ticked and a care plan describing moisturising was located. Comments were also written on the ADL chart at three sites and at another three sites, the progress notes were also completed.

Figure 12: Documentation of moisturising pre and post-intervention in group 2



Note: Fisher's exact test (because of small cell counts) indicated no statistically significant difference (two-tailed p=0.72).

KEY RESULTS

Informants (carers and site managers)

Eighty five carers completed the survey pre-intervention: 44 from control facilities, group 1 and 41 from intervention facilities, group 2. Post-intervention there were 104 respondents, 59 carers from group 1 and 45 from group 2.

Of the 104 carers that completed surveys post-intervention, 18% (n=19) had also completed the survey pre-intervention. By group, the number of carers completing the survey twice was very even, 10 from group 1 and 9 from group 2. All 12 site managers were interviewed both pre and post-intervention, six were from group 1 and six from group 2. During the interviews it was ascertained that, 67% (n=8/12) of site managers were interviewed pre-intervention as well as post-intervention. Of these, 37.5% (n=3/8) were from group 1, and 62.5% (n=5/8) were from group 2.

Pre-intervention skin moisturising practice

Both survey and interview data showed there was no "usual" moisturising practice across the control (group 1) and intervention (group 2) sites related to when, how often moisturising occurred, and which moisturiser was used. However there were similarities across sites for the following variables: time of day and moisturiser type used.

The only consistent practice identified by carers was that they were the ones who mostly moisturised. Site managers confirmed this but 58% (n=7/12) also commented that residents were encouraged to be involved in their own moisturising. However, this was not evident from the carer survey results.

Post-intervention skin moisturising practice

As found with the pre-intervention survey, there was no difference between the groups post-intervention in terms of who moisturises. The most common response was that the carer mostly moisturised. There was however, an increase in the number of respondents indicating that other staff were also involved in moisturising.

The site managers' perspective on who mostly moisturised residents' skin was the same post-intervention as it had been pre-intervention. Again their opinion that residents were encouraged to be involved in moisturising was not supported by the carer survey results.

Differences between the control and intervention groups in "usual" moisturising practice post-intervention were found. These related to how often and when moisturising occurred and which moisturiser was used. The changes in group 2 were substantial and statistically significant whereas those in group 1, although in a similar direction, were smaller and not significant. The proportion of group 2 responding "once a day" reduced more than twofold, while the proportion answering "twice a day" more than doubled. In group 1 the corresponding figures were a reduction in "once a day" by a fifth and an increase of "twice a day" by nearly two thirds. These differences were reflected by the site manager responses. All of group 2 and three of group 1 site managers interviewed said residents were moisturised "twice a day".

When asked which moisturiser was most commonly used carer respondents nominated Abena (n=61). Sorbolene was the next most commonly identified (n=48) and there was a significant difference between those responding either Sorbolene or Abena by group. Group 1 survey responses did not vary much pre and post-intervention, whereas there were significantly fewer, 51%, nominations of Sorbolene and more, 77%, nominations of Abena post-intervention by group 2 carers.

All group 2 site managers indicated that Abena, was the most commonly used moisturiser at their sites and this was consistent with carer survey responses from group 2. Sorbolene was highlighted as being mainly used by three site managers from group 1 sites and was therefore also consistent with the carers' responses in that it was used by very few staff at group 2 sites.

Enablers and barriers to moisturising residents pre-intervention

The enablers identified by both carers and managers included: training documentation, process, protocol, i.e. having instructions written down or a clear process or protocol having sufficient time and having a better moisturiser. Carers also commented on the need for increased availability and accessibility of moisturisers and identified a number of resident related variables that enabled moisturising, i.e. resident approving of moisturiser use, or whether resident is in bed or sitting down. There were a number of additional enablers identified by managers which all related directly to staff: giving staff a rationale the experience of participating in a trial staff ratios resources and active staff involvement, i.e. because staff are responsible for ensuring that moisturising occurs, they have a sense of ownership and therefore see that their actions can potentially result in positive resident outcomes.

A number of barriers were also identified by both carers and managers. These included: lack of time (although some managers saw this as "staff perceived" rather than real), a resident's preference, no access to creams and documented instructions not to apply cream. Additional barriers identified by managers included: staff knowledge deficits, staff related issues, site culture and budget.

In the following chapter these results will be discussed and interpreted to provide an understanding of the extent of any practice change within the intervention group facilities as well as any change in "usual" skin moisturising practice (possibly contamination) that had occurred in the control group facilities. Additionally, any limitations to these results will be identified and discussed.

CHAPTER 5: DISCUSSION

In this chapter, the results presented in chapter four will be assessed and interpreted to determine whether the aims and objectives of this study have been achieved. The findings will then be considered to ascertain whether they concur with current literature identified in chapter two. Finally, strengths and limitations of this study, as well as implications for practice will be identified.

Overall, this study aimed to determine whether a skin moisturising intervention in an RCT in residential aged care facilities was implemented according to the protocol, as well as how successfully this new moisturising regime was introduced in the intervention sites. It also aimed to identify whether there was any contamination, i.e. did skin care practice in the control site also change in any way to reflect the new regime in the intervention sites. The intervention regimen consisted of twice daily moisturising of all participating residents at all six group 2 sites with a standardised pH neutral, perfume free, moisturising lotion (K. Carville et al., 2014).

To achieve these aims, "usual "skin moisturising practice was determined pre and post-intervention and any differences in moisturising practice between these two time points identified. A further aim of the study was to ascertain enablers and barriers to following moisturising protocols to understand how the intervention could be implemented most effectively.

The pre-intervention results indicated that there was no "usual" moisturising practice in the study sites prior to the randomised controlled trial, while the post-intervention results showed the most common practice in the intervention sites to now be twice daily moisturising indicating that the intervention was implemented as per protocol. The results also showed that contamination had not occurred between the intervention and control groups because there were no marked changes in moisturising practice in the latter group sites. The enablers and barriers identified by carers and site managers pre-intervention appeared to have been implemented or overcome respectively and may account for the successful change in practice achieved in the intervention sites.

Although there was some variation between groups in how often sites moisturised, indicating there was no "usual" moisturising practice pre-intervention, it was noted that two of the three site managers who responded it was "usual" practice to moisturise "twice a day" were from the control group. However, survey responses from these two specific group 1 sites did not suggest that the carers thought that this was usual practice. As the intervention was to moisturise "twice a day", that two site managers believed this to be "usual practice" at their site was important to note and follow up, otherwise post-intervention it could appear that contamination had occurred. Although the "cluster" randomisation design of the moisturising RCT is a strategy to reduce contamination, Godwin et al. (2003) report that contamination is still possible. This was one of the reasons it was so important to conduct this study, to ensure contamination had not occurred.

At the one group 2 site where the manager said pre-intervention that it was "usual practice" to moisturise "twice a day", the majority (n=5/8) of carers also described this as "usual practice". If the RCT objective was to compare pre and post-intervention skin tear incidence, that one intervention site was already moisturising would have been of consequence, as any reduction in skin tear incidence at that site could not have been attributed only to the introduction of the intervention. On the other hand, should there not have been any reduction in incidence at this site the effect of the intervention would not have appeared so large. However as the RCT was comparing the incidence rates of the control and intervention groups during the intervention period the fact that one intervention site was following the intervention protocol before the trial was not an issue.

It is the reality of "pragmatic" RCTs that idiosyncrasies occur and as long as they are identified and accounted for results are not confounded (Godwin et al., 2003). Research conducted in a more realistic environment is preferable to studies conducted in an artificial context as the latter fails to identify if the treatment under review can be applied in real clinical practice (Hotopf, 2002). In this example, one site already moisturising "twice a day" before the data collection period, whilst not ideal was not an issue as described above, but if the study design was different this awareness would have allowed the researchers to make methodological adjustments.

Successful change in practice, from ad hoc to moisturising "twice a day", was clearly demonstrated by the intervention group, with survey responses being statistically different pre and post-intervention and site managers' interview responses confirming this. Additional evidence that the RCT intervention had been implemented as per protocol was provided by changes in the time of day moisturising was reported as occurring in the intervention sites post-intervention as compared to pre-intervention. Lastly, there was a significant difference in the type of moisturiser being used in the intervention groups pre and post-intervention that confirmed the intervention had been successfully implemented.

In the control group sites on the other hand, the majority of carers indicated that little had changed from baseline to post-intervention and in those sites where there did at first sight appear to have been some change further investigation found no evidence of contamination.

The perception that residents were very involved in their own care and that moisturising occurred more routinely than it actually did, are examples of site managers' organisational view of how things are done and/or how they expect things to be done. Their beliefs about what was happening were found to be somewhat different to what carers said was actually happening on a day to day basis. Both management and staff perspectives provide important insights into the organisational context and thus the potential barriers and enablers to the implementation of routine moisturising into everyday care practices in residential aged care. Strategies required to address these barriers and enablers then need to be targeted at different levels of the organisation. (Edwards et al., 2010; Kitson et al., 1998; National Institute of Clinical Studies, 2006; Nay, 2003; Prentice & Stacey, 2001).

The carer-identified barriers reflected the real life practicalities that impact on their ability to do their job well. Many strategies to overcome these barriers were introduced as part of the RCT protocol. For example: ensuring the availability and accessibility of cream, training and introduction of a moisturising documentation protocol and process. Introducing strategies to directly address identified barriers no doubt contributed to the successful implementation of the new moisturising practice.

Similarly, the enablers identified by site managers such as: providing staff with a rationale for the new practice, giving them the opportunity of participating in a trial and being actively involved, formed part of the implementation of the intervention. Education, infrastructure, data support and endorsement strategies have also been identified in the literature as important contributors to the successful implementation of clinical guidelines (Kennedy et al., 2010). While in an earlier study by the researcher (Newall et al., 2009) nurses also identified that being part of a trial itself, particularly in the design phase, as well as understanding the rationale of client participation, were motivating factors for participating in the trial.

Two enabling factors commonly identified in the literature for successful implementation of a new clinical practice were staff having a feedback mechanism and experts or champions supporting the implementation (Ellis et al., 2005; Kitson et al., 1998; Nay, 2003). Despite not being identified as enablers by site managers and carers, both strategies were used to implement the intervention in the moisturising RCT.

Additionally, the participating aged care organisation was committed to improving resident outcomes and involved all site managers from the beginning of the project set-up stage. It had been identified previously that gaining institutional and clinical support for best practice implementation greatly assists in the successful implementation of new initiatives (Ellis et al., 2006; Prentice & Stacey, 2001). In the current study, one of the ways this was evidenced was that due to site managers' engagement and commitment to achieving data integrity, when the RCT protocol was unable to be followed, the site managers developed their own processes so that the contaminated data were not collected.

Kitson et al. (1998) suggest that when implementing change, evidence type and how the change is implemented, as well as context, can influence whether its uptake is successful.

In this study the change in practice may be attributed to the fact that firstly, moisturising is an accepted practice already with known skin tear preventative benefits (Foy White-Chu & Reddy, 2011; Holmes et al., 2013; LeBlanc & Baranoski, 2011; Pusey, 2013; Wounds UK, 2012) and that in the very process of implementing the twice daily regime, carers' tasks were clarified through clear documented processes and made part of everyday practice (Nay, 2003), this was achieved both by increased access and availability of moisturiser as well as moisturising being integrated into personal hygiene care.

In general, there was considerable agreement between carers and site managers with regard to who was involved in moisturising residents' skin. While all agreed that carers were predominantly involved, the majority of site managers also commented that residents were encouraged to be involved in their own moisturising, whereas this was seldom reported as happening by the carers. The literature advocates involving residents in their own care, some suggesting more generally that individuals and their families need to be involved in prevention strategies (LeBlanc & Baranoski, 2011; Milner, 2013) whilst others more specifically identifying that patients and their carers actually apply the moisturiser (Wounds UK, 2012). Edwards et al. (2010) suggest that because moisturising can be undertaken by residents and their family (as well as staff) it makes it a feasible prevention strategy for reducing skin damage in residential aged care facilities.

Some of the enablers identified by carers were particularly relevant to residents moisturising themselves, such as the acceptability of the product and factors related to the practicalities of application, e.g. if the moisturiser had a pump lid. Lawton (2007, 2009) reported that patient preference is a prime consideration in the choice of moisturiser and its continued use is heavily influenced by this. It has been established that compliance with an intervention is one of the most important outcomes of a pragmatic research trial (Godwin et al., 2003) and even though this RCT did not specifically focus on this, it is plausible that if residents had not found the moisturiser acceptable, carers would have been less likely to implement the new protocol so consistently. This discussion underscores the importance of seeking feedback from residents in any further research.

Some incidental learnings that resulted from this study were that in a number of cases staff, residents and their family experienced benefits from touch. For some it was about having a purpose by being able to actually do something meaningful for their family member or resident, whereas for others it seemed to have a more emotional effect, soothing and enhancing the sense of well-being of not only the resident being touched but also the person applying the moisturiser. Although there is a lack of empirical research concerning the practice of touch in caring for older people (Gleeson & Timmins, 2004), the research that has been completed has focussed on people with a cognitive impairment or oncology patients. Touch has been found to have benefits in older people who have difficulty in communicating (Fellowes, Barnes, & Wilkinson, 2004; Holliday-Welsh, Gessert, & Renier, 2009) as it can reduce the isolation many feel as a result of their illness or circumstance (Gleeson & Timmins, 2004) as well as assist with the management of agitation (Holliday-Welsh et al., 2009; McCann & McKenna, 1993). However caution must be taken, as not all residents are comfortable with being touched and those touching should be aware of verbal and non-verbal cues to stop if this is the case (McCann & McKenna, 1993).

A Cochrane systematic review of the studies on aromatherapy and massage for relieving symptoms in people with cancer, reported that there is some evidence that those such as anxiety, nausea and pain, can be reduced (Fellowes et al., 2004). It is not known whether it is the massage itself or simply the time spent focused on an individual whilst engaging in non-verbal communication and the experience of touch not related to the usual activities of daily living (such as toileting and manual handling) that is of most benefit (Holliday-Welsh et al., 2009). What is known in the aged care residential setting is that little "caring" or "non-task" related touch occurs (McCann & McKenna, 1993). When it does occur it has been shown to be mutually beneficial for staff, residents and their family (Holliday-Welsh et al., 2009; Moore & Gilbert, 1995; Routasalo & Isola, 1996). For this reason, although skin moisturising could be considered a "task" it can also be "caring" and therefore a positive experience for all participants, resident, staff and family alike. Although not within the scope of this study, the additional benefits of touch should be considered in other similar moisturising studies.

There were also anecdotal reports that a number of staff members and residents' families had begun to apply moisturiser to their own skin twice daily since they had learned of and seen the benefits of moisturising to the residents.

Study strengths

The recruitment strategy was found to be very successful and resulted in the planned sample size of carers being exceeded both pre and post-intervention. The factors considered to have contributed most to this success were the researcher having recruited in person, at the carers' place of work and, the strong support provided by the residential aged care organisation both prior to study commencement as well as on the actual recruitment days, from each of the site managers. Other factors likely to have contributed were: the tool being quick to complete, carers being given adequate completion time, having a small incentive for participation, response anonymity and, questionnaire collection at time of completion.

Another strength of the study was that it canvassed the views of both site managers and carers. This was important as they had different perspectives: the site managers had expectations of the carers related to their moisturising practice, whereas the carers reported what they actually did. As well as site manager interviews and carer surveys, documentation was also consulted to ascertain if practice had really changed. Interestingly, when electronic records were consulted, moisturising was documented despite staff not believing that documentation was always happening. This could reflect the randomness of the choice of the electronic records looked at or that while the carer themselves did not always document, another member of staff did.

Having this study as an independent part of the RCT meant that group allocation was concealed from the researcher who was blinded to which sites were in the intervention group. Blinding is considered best practice in a RCT (Goodman & Gilchrist, 2013; Hotopf, 2002; Moher et al., 2001), as when a treatment intervention is difficult to conceal, blinding the outcome assessor will prevent detection bias (Godwin et al., 2003; Kottner et al., 2013; Weller et al., 2010).

Study limitations

Using a questionnaire and interviews rather than direct observation could have been considered a limitation as both carers and managers may have reported what they thought they should be doing rather than what was actually being done. To reduce the likelihood of this, documentation was also consulted.

A number of multi-response questions in the carer questionnaire were ambiguous and the researcher acknowledges that in retrospect this is a weakness in the survey tool design as a number of responses were conflicting, resulting in ambiguous data, e.g. Q7B (see Appendix B) options for when does skin moisturising usually occur: morning, after shower, after washing, etc. However it was not seen as influencing the overall results as multiple answers reflected that there was no "usual" moisturising practice.

Implications for practice

Although the purpose of this study was to provide data critical to the interpretation of the RCT, there were some learnings that came from this study that may be useful for practice. Interestingly, carers and site managers identified that residents' preference as to moisturiser type could be either a barrier or an enabler to implementing the protocol. It would be of value therefore for residents to be involved in the decision of which cream to use as well as actually applying it themselves, where possible. One implication for practice could be to include a quality of life survey for residents to complete in future research although this should not be the only involvement of residents. Early consumer involvement in the research process should be encouraged (McKenzie & Hanley, 2007) and Alzheimer's Australia stated this has been highlighted as valuable by organisations such as the National Health and Medical Research Council in Australia, the Cochrane Collaboration, and the Medical Research Council (UK) (Skladzien, 2010).

Strategies previously identified as being successful in motivating staff to participate in trials or change practice such as: being given a rationale for participation, seeing positive clinical outcomes and early involvement (Newall et al., 2009) as well as those enablers reported in this study, could also be implemented to successfully motivate residents. Edwards et al (2010) found that as well as staff, resident involvement in education and decision making led to greater uptake of evidence

based wound care practice in their residential aged care program. Carers and residents' families may need support regarding how best to engage residents in moisturising, whilst residents should wherever possible retain ownership of their own skin.

Another implication for practice is to involve the residents' family with moisturising as it can actually provide them with a meaningful way of interacting with the resident so that there is the added benefit of providing comfort and emotional support as touch conveys love and belonging (Moore & Gilbert, 1995).

The high staff turnover of both carers and managers in residential aged care was illustrated by the marked proportion of participating staff that had been in their role for less than one year and 18 months respectively. To ensure consistency in care provision, when there is high staff turnover, there is a need for constant reminding of practice protocols to reinforce earlier training.

Chapter six will summarise this study and reflect on the significance and implication of its results.

CHAPTER 6: CONCLUSION

This study was primarily designed to identify "usual" skin moisturising practice pre and post-intervention in a group of residential aged care facilities involved in a RCT of moisturising as a skin tear prevention intervention.

Little evidence of there being "usual" skin moisturising practice was found pre-intervention in either intervention or control sites. Post-intervention, practice remained ad hoc in the control sites, whereas a significant change in practice, which matched the intervention protocol, had occurred in the intervention sites.

Thus the intervention could be seen to have been successfully implemented and contamination of the control sites had not occurred. This finding is important as it provides some certainty that the lower skin tear incidence found in the intervention group in the RCT could be directly attributed to implementation of the moisturising practice protocol.

To date there has been little research on skin tear prevention, despite it being a prevalent wound type among older people associated with not insubstantial emotional and financial costs to the older person, their family and the residential facility. Moisturising is potentially a simple and very cost-effective way to reduce these costs. Further research is needed to calculate and compare the cost savings from this and other skin tear prevention strategies.

The secondary objective of this study was to identify the enablers and barriers to skin moisturising. Enablers identified by the carers reflected the real life practicalities that impact on their ability to do their job well and examples are: cream availability/accessibility, documentation/process/protocol and having enough time.

The barriers identified included the absence of the aforementioned enablers plus resident preferring not to be moisturised and being documented not to moisturise. Most managers identified enablers more associated with management such as: providing staff with a rationale for the new practice, giving staff the opportunity to participate in a trial and be actively involved.

While the barriers and enablers identified by the two groups differed somewhat they simply reflected the perspective of their role. In both cases they also can be seen to be essentially generic and be important facilitators when implementing moisturising protocols in practice and did in fact play such a role in the implementation of the intervention in the RCT.

In conclusion, this study was a critical but independent part of a large moisturising RCT but also had useful implications for practice.

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Xu, X., Lau, K., Taira, B., & Singer, A. (2009). The current management of skin tears. *The American Journal of Emergency Medicine, 27*, 729-733. http://dx.doi.org/:10.1016/j.ajem.2008.05.015

APPENDIX A: MOISTURISING RCT PAPER

Carville, K., Leslie, G., Osseiran-Moisson, R., Newall, N., & Lewin, G. (2014). The effectiveness of a twice-daily skin-moisturising regimen for reducing the incidence of skin tears. *International Wound Journal, 11*, 446-453. http://dx.doi.org/:10.1111

APPENDIX B: STAFF INFORMATION SHEET FOR QUESTIONNAIRE

Skin Tear Prevention: What is "usual" skin moisturising practice?

Bethanie Residential Aged Care

You are invited to participate in a research study. Please take your time to read this information statement and discuss any questions you may have about the study with the researcher, Nelly Newall.

What is this study about?

This study is aiming to find out what is "usual" skin moisturising practice across Bethanie's facilities. It would involve you (should you agree to participate) completing a short questionnaire made up of 20 questions. The questions will be related to your current role at Bethanie as well as about any training you have received related to this subject. There will also be some more specific questions about exactly what skin care residents receive as well as things that help or hinder this happening.

Who is conducting this study?

The project is being conducted by a Masters of Philosophy (Nursing) student, who is a Registered Nurse, from Curtin University.

Who is invited to participate?

You are being asked to participate in this study because you are a staff member who is involved in the daily care of residents.

What will happen if you agree to take part in the project?

If you agree to participate in this study you will be asked to complete a short questionnaire that takes approximately 5 minutes to complete.

Risks and Benefits

There are no direct risks or benefits to you in participating in this study. The benefit will be to the organisation in increasing their understanding of current moisturising practices in the different facilities.

Voluntary Participation

It is important for you to know that you do not have to take part in this study and you can decide if you want to be involved or not. By completing the questionnaire and returning it, it will be assumed you have consented to participate in this study.

How will your privacy be protected?

If you do decide to take part in the study, the questionnaire is anonymous to protect your privacy and all information provided by you will be kept strictly confidential. In accordance with national research guidelines, all study records will be stored for ten years by the researcher in a secure location and then will be destroyed.

What if you have any concerns or a complaint about how the study is conducted?

The ethical aspects of this study have been approved by the Human Research Ethics Committee at Curtin University (Approval Number: SON&M 8-2011) and Bethanie Residential Aged Care. If you have any concerns you can contact the Secretary, Human Research Ethics Committee, Office of Research and Development, Curtin University, PO Box U1987, Perth WA 6845, telephone 9266 2784 or email hrec@curtin.edu.au

Who to contact if you have any questions about the study?

If you have any questions about this study or questionnaire please discuss them with the researcher, **Nelly Newall (Telephone: 0449 261 921) or her Supervisor, Professor Gill Lewin (Telephone: 9266 1829).**

Thank you for taking the time to read this information statement.

APPENDIX C: STAFF QUESTIONNAIRE

Facility ID: _____ **Bethanie Residential Aged Care**

About this survey: Please answer these questions based on your own current knowledge. Please do not consult with others – the goal is to find out about current understanding and practices as well as anything that makes it easy or difficult to perform these tasks.

Why we need this: We will use this information to understand why certain care practices occur and what works or doesn't work and why. It is hoped by having this information improvements can be made both to resident care and how you are supported in performing these tasks.

Returning the form: Please complete the form now and return it to the closed box. **Please be assured that all information collected is confidential.** Please tick appropriate box if you make a mistake put a cross over the incorrect box and tick the correct answer.

1 What is your current role in Bethanie?

☐1 Carer (Cert III)
☐2 Carer
☐3 Enrolled Nurse
☐4 Registered Nurse
☐5 Clinical Care Co-ordinator

2 How many years have you worked in your current role?

☐1 Less than 1
☐2 1-5
☐3 6-10
☐4 11-15
☐5 More than 15

3 What is your employment status?

☐1 Full time
☐2 Part time
☐3 Casual
☐4 Agency

4 What shift do you usually work?

☐1 Weekday morning
☐2 Weekday afternoon
☐3 Weekend morning
☐4 Weekend afternoon
☐5 Nights
☐6 All different shifts

5 Have you received any training on the cause and prevention of skin tears in the last two years?

☐1 Yes **(Go to Q5A)**
☐2 No **(Go to Q6)**

5A If Yes, how long was the training course?

☐1 Less than 1 hour
☐2 1-4 hours
☐3 1 day
☐4 Other (please specify below)

_____

6 Have you received any training about care of residents' skin?

☐1 Yes **(Go to Q6A)**
☐2 No **(Go to Q7)**

6A If Yes, how long was the training course?

☐1 Less than 1 hour
☐2 1-4 hours
☐3 1 day
☐4 Other (please specify below)

_____

About moisturising residents' skin:

7 Who mostly moisturises residents' skin?

☐1 You
☐2 Resident
☐3 Resident's carer (eg family member)
☐4 Other staff member
☐5 Other (please specify below)

_____

7A How often do you moisturise residents' skin? (Tick as many as apply)

☐1 Once a day
☐2 Twice a day
☐3 Weekly
☐4 When resident asks
☐5 When skin looks dry
☐6 Other (please specify below)

_____

7B When does skin moisturising usually occur? (Tick as many as apply)

☐1 Morning
☐2 Afternoon
☐3 Before bed
☐4 After shower
☐5 After washing
☐6 Other time(please specify below)

_____

7C Do you document when residents' skin has been moisturised?

☐1 Yes **(Go to Q7D)**
☐2 No **(Go to Q8)**

7D If Yes, where is it documented?

☐1 Medication chart
☐2 Progress notes
☐3 I-Care
☐4 Other (please specify below)

_____

8 Is there a skin care moisturising plan/protocol?

☐1 Yes **(Go to Q8A)**
☐2 No **(Go to Q9)**

8A Are you able to keep to it?

☐1 Yes **Is the plan/protocol** ☐1 a resident specific plan **or** ☐2 a general plan **(Go to Q10)**

☐2 No **(Go to Q8B)**

8B If No, what is the reason? (After 8B go to Q10)

☐1 Not enough time
☐2 No access to creams, etc
☐3 Other (please specify)_____
☐4 Resident's preference
☐5 Supervisor's preference

9 If there isn't a protocol, are you able to moisturise as often as you think is needed?

☐1 Yes **(Go to Q10)** ☐2 No **(Go to Q9A)**

9A If No, what is the reason?

☐1 Not enough time
☐2 No access to creams, etc
☐3 Other (please specify)_____
☐4 Resident's preference
☐5 Supervisor's preference

10 What would make it easier for you to be able to moisturise residents' skin?
(please specify below)

_____

_____

Thank you for completing this survey.
Please put your completed form in the closed box.

Questionnaire modified from a survey used in Silver Chain conducted by Nelly Newall and modified with permission.

APPENDIX D: SITE MANAGER INFORMATION SHEET FOR INTERVIEW

Skin Tear Prevention: What is "usual" skin moisturising practice?

Bethanie Residential Aged Care

You are invited to participate in a research study. Please take your time to read this information statement and discuss any questions you may have about the study with the researcher, Nelly Newall.

What is this study about?

This study is aiming to find out what is "usual" skin moisturising practice across Bethanie's facilities. It would involve you (should you agree) participating in a short interview. The questions will be related to your current role at Bethanie as well as about any training that your staff has received related to skin moisturising care. There will also be some more specific questions about exactly what skin moisturising care residents receive as well as things that help or hinder this process.

Who is conducting this study?

The project is being conducted by a Masters of Philosophy (Nursing) student who is a Registered Nurse from Curtin University.

Who is invited to participate?

You are being asked to participate in this study because you are a staff member in a leadership role who has knowledge and understanding of "usual" skin moisturising practice in your facility and any associated training and documentation.

What will happen if you agree to take part in the project?

If you agree to participate in this study you will be interviewed by the researcher and the interview will be recorded . The interview should last approximately 15-20 minutes.

Risks and Benefits

There are no risks or direct benefits to you in taking part in this study but the organisation will benefit by gaining a better understanding of skin care practice in its facilities and any barriers or enablers to best practice in this area of care.

Voluntary Participation

It is important for you to know that you do not have to take part in this study and you can decide if you want to be involved or not.

How will your privacy be protected?

If you do decide to take part in the study, all information provided by you will be kept strictly confidential. To protect your privacy, your name will not be kept on the interview notes or recording but your interview will instead only be identified with an identification number. While quotes from your interview may be presented and published at conferences and in journal articles they will not be identifiable and will not involve the reporting of any personal information. In accordance with national research guidelines, all study records will be stored for ten years by the researcher in a secure location and then will be destroyed. The researcher will also adhere to usual standards of confidentiality in the collection and handling of your personal information and that the standards of the Privacy Act 1988 will apply to the way your information is handled.

What if you have any concerns or a complaint about how the study is conducted?

The ethical aspects of this study have been approved by the Human Research Ethics Committee at Curtin University (Approval Number: SON&M 8-2011) and Bethanie Residential Aged Care. If you have any concerns you can contact the Secretary, Human Research Ethics Committee, Office of Research and Development, Curtin University, PO Box U1987, Perth WA 6845, telephone 9266 2784 or email hrec@curtin.edu.au.

Who to contact if you have any questions about the study?

If you have any questions about this study or questionnaire please discuss them with the researcher, **Nelly Newall (Telephone: 0449 261 921) or her Supervisor, Professor Gill Lewin (Telephone: 9266 1829).**

Thank you for taking the time to read this information statement.

APPENDIX E: SITE MANAGER CONSENT FORM FOR INTERVIEW

Skin Tear Prevention: What is "usual" skin moisturising practice?

Bethanie Residential Aged Care

- I have read the Information Statement about this study and any questions I have asked have been answered to my satisfaction.
- I agree to participate in this study, realising that I may withdraw at any time.
- If I do withdraw, all information collected for the purposes of the project, that is specific to me, will then be destroyed.
- I agree that information the researcher has collected during the interview may be linked with the data collected for this study, provided that I am not identifiable.
- I agree for interviews with me to be recorded and for my quotes to be presented and published, provided that I am not identifiable.
- I understand that the researcher will adhere to usual standards of confidentiality in the collection and handling of my personal information and that the standards of the *Privacy Act* 1988 will apply to the way my information is handled.

Signed _____

Participant

Name _____

Block Letters Please

Date _____

APPENDIX F: INTERVIEW GUIDE

I'd like to start by thanking you for agreeing to this interview, the aim of which is to gather feedback from you about "usual" skin moisturising practice in your facility. It should only take about 15 minutes to complete.

Recording: We are hoping to record this session to ensure all your thoughts and opinions are captured truly. The discussion will be transcribed but the transcript will be confidential. The transcript will not include any individual's name. Only I and possibly my supervisors will have access to the recording and transcript.

Are you happy for the recording to proceed?

About your current role:

What is your current role in Bethanie?
How many years have you worked in your current role?
What is your employment status?
What shift do you usually work?

Usual skin moisturising practice?

Do you see any value in moisturising older people's skin?

What is usual practice in relation to moisturising residents' skin in this facility?
(Possible prompts/follow up questions: is this at the request of residents/routine? what parts of the body are moisturised? How often? If after bathing/shower, how often are residents bathed or showered? Are residents/their families encouraged to apply moisturiser?

Is there a care policy/ work instruction/ protocol which tells staff what is expected as regards moisturising residents' skin?

If yes,
Can you show me any relevant documentation that defines it on I-Care?

What benefits do you anticipate for the organisation through adherence to these protocols?
How will they affect resident outcomes? How will you know this?
What **assists you** to implement these protocols?
What are **the challenges** around implementing these protocols?
What changes will be required in order for the protocols to achieve desired outcomes?

- At an organisational level?
- In staff?

How do you know if skin care is given?

Can you show me an example of documentation to confirm this has occurred on I-Care?

If skin care was not given what follow up would there be?
If there are no written protocols etc. How do staff know what to do in terms of moisturising?
Do staff record whether they have moisturised? If not, how do you know what they do in this regard?
Do you want them to do something different as regards moisturising, from what they are already doing?
If yes, what do you see as the barriers to them doing this?
What might help encourage them to follow protocol in regards to moisturising?

Staff Training

Who are the key staff that need to be familiar with these processes for them to be implemented successfully?
How do you ensure they have the necessary skills to do this?
Is there current skin tear training?
If yes:
How can current training be improved?
What staff requires skin care training?
How do you ensure all staff is appropriately trained?
How do you keep track of training (i.e. with new staff) and update (existing staff) if required?
Who is responsible for setting this up?

Resident/Carer Education

Does this occur and if so how?
Are residents/carers involved in usual skin care and if so how?
Are residents/carers given any information on skin care?

(Ongoing) resource requirements:

Do you have the resources you need?
Is there anything else you need (other than cream or whatever listed above ...) to implement this process?

How are staff made aware of residents that need skin care?

Is current reporting system effective? Ie does agency staff know which residents require skin care?

Feedback from staff and residents
How do residents/staff feedback issues related to skin care?

Do you have any further comments?

APPENDIX G: CURTIN UNIVERSITY ETHICS APPROVAL

Curtin University

Memorandum

To	Ms Tracy (Nelly) Newell/ Professor Gill Lewin
From	Professor Dianne Wynaden
Subject	Protocol Approval SON&M 8-2011
Date	9th May 2011
Copy	Professor Gavin Leslie, Mr Dean Newman

Office of Research and Development

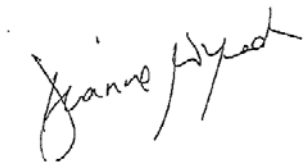
Human Research Ethics Committee

Telephone 9266 2784
Facsimile 9266 3793
Email hrec@curtin.edu.au

Thank you for your "Form C Application for Approval of Research with Low Risk (Ethical Requirements)" for the project titled **SKIN CARE PREVENTION: WHAT IS USUAL SKIN MOISTURING PRACTICE?** On behalf of the Human Research Ethics Committee, I am authorised to inform you that the project is approved.

Approval of this project is for a period of twelve months from 9TH May 2011 to 9th May 2012.

The approval number for your project is **SON&M 8-2011.** *Please quote this number in any future correspondence.* If at any time during the twelve months changes/amendments occur, or if a serious or unexpected adverse event occurs, please advise me immediately.



Professor Dianne Wynaden
Low Risk Coordinator/Ethics Advisor
School of Nursing and Midwifery

Please Note: The following standard statement must be included in the information sheet to participants:
This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number SON&M 8-2011). If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University of Technology, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784 or hrec@curtin.edu.au

APPENDIX H: THE BETHANIE GROUP INC ETHICS APPROVAL

The Bethanie Group Inc

To Nurture, Serve and Care

30th of May 2011

RE: Project Approval for the research application "Skin tear prevention-what is 'usual skin care."

Dear Tracy,

I refer to the application to The Bethanie Group Inc to undertake the project "Skin Tear Prevention- What is "Usual Skin Care."

The Bethanie Group Inc has received your Research Project Approval Application Form to undertake the project at The Bethanie Groups 12 facilities. The Bethanie Group Inc has granted ethics and research approval to undertake the project. The project has been signed off in accordance with Bethanie's policies and procedures and all additional requirements including a current National Police Clearance has been lodged with Bethanie.

Yours Sincerely,

JDwyer

Jessica Dwyer
Research and Report Coordinator