

Incontinence Associated Dermatitis in Residential Aged Care:  
An exploratory study of staff perspectives

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Contents	
Abstract.....	4
Declaration.....	5
Acknowledgements.....	6
Preface - A clinical problem .....	7
CHAPTER 1 - Introduction .....	8
Incontinence Associated Dermatitis .....	8
IAD in the Acute Care setting.....	9
IAD in Aged Care services.....	9
Significance of the current study .....	11
Aim of the study.....	12
Research question.....	12
Overview of thesis chapters.....	12
CHAPTER 2 – Literature Review .....	14
Search strategy and selection process.....	14
Search keywords .....	14
Eligibility criteria.....	15
Search outcomes.....	15
Data extraction and analysis .....	16
Findings from the literature review .....	16
1. Epidemiology of IAD.....	16
2. Identifying the risk factors .....	17
3. Assessing IAD .....	18
4. Preventing and managing IAD.....	19
Discussion of findings from integrative literature review .....	19
Summary .....	20
CHAPTER 3 - Methodology.....	21
Research Approach .....	21
Qualitative research and its traditional approaches.....	21
Interpretive description .....	22
Research design .....	23
Sample selection of participants.....	23
Data collection .....	23
Data analysis .....	24
Accounting for bias .....	25
Ethics Approval .....	25

CHAPTER 4 - Findings .....	26
Key theme 1: Awareness of IAD.....	27
What IAD is and its effect on residents.....	27
Risk factors for development of IAD .....	27
Key theme 2: Good current practices for IAD management .....	30
Scheduled toileting .....	30
Good personal hygiene .....	31
Use of good skincare regimens .....	31
Clear skincare plans .....	32
Appropriate education and good teamwork .....	32
Good reporting and regular monitoring .....	33
Key theme 3: Current challenges.....	33
Shortage of staff.....	33
Differentiation between IAD and pressure injuries .....	34
Key theme 4: Areas for improvement .....	35
Addressing the staff shortage .....	35
Improving staff awareness.....	35
CHAPTER 5 – Discussion.....	37
Assessment of IAD in nursing homes in Australia.....	37
Prevention of IAD in nursing homes in Australia .....	38
Multidisciplinary management of IAD in nursing homes in Australia .....	39
Challenges around IAD in nursing homes in Australia .....	39
Implications.....	40
Implications for clinical practice .....	40
Implications for education providers.....	41
Implications for future research .....	41
Limitations .....	41
Conclusions .....	42
References .....	43
Appendix 1 .....	49
Appendix 2 .....	51
Appendix 3 .....	61
Appendix 4 .....	62
Appendix 5 .....	65

## Abstract

**Background:** Incontinence Associated Dermatitis is characterised by inflammation of the perineal skin, which is usually caused by incontinence of urine, stool, or both. The condition is prevalent among the elderly population, including people living at home and in residential aged care facilities.

Incontinence Associated Dermatitis is a relatively new and growing topic of interest. The lack of research evidence around the condition in nursing homes in Australia has determined the need for deeper understanding to improve the quality of life of the affected population.

**Objectives:** To explore the existing knowledge and experience of RACF staff regarding Incontinence Associated Dermatitis; to describe the barriers and enablers to providing best practice care and assessments; and to explore further educational needs.

**Method:** Interpretive Description methodology was chosen for this qualitative study. Ten nurses and one carer practicing in the aged care sector in Australia were recruited and interviewed. Data was coded using a constant comparative approach to identify patterns which were consistent, yet distinct. Identified patterns were used to develop a conceptual structure to present thematic ideas.

**Results:** The analysis resulted in four main themes, 'Awareness of the condition', 'Current good practices', 'Major challenges', and 'Areas for improvement'.

The participants had good awareness of the essence of Incontinence Associated Dermatitis. They were aware of risk factors associated with higher risk of IAD, such as obesity, and lengthy exposure of the skin to acid, chemical substances, and heat after an incontinence episode. Furthermore, participants acknowledged that reduced mobility and cognitive deficit are also contributors.

Incontinence Associated Dermatitis was considered an easily preventable condition. Good practices were mainly about prevention rather than treatment. Timely toileting, good hygiene, and use of skincare products were identified as best prevention strategies. Education and training of staff was also important for proper management.

Two major challenges were identified. Shortage of staff represented as a low staff-to-resident ratio means lack of enough staff to provide residents with timely and adequate incontinence care. Another major challenge was the difficulty in differentiating between Incontinence Associated Dermatitis and pressure injury as they can look quite similar.

Addressing staff shortages and promoting staff awareness to better distinguish between Incontinence Associated Dermatitis and pressure injuries were identified as important areas for improvement.

**Conclusions:** This study is the first to research the perspectives of nurses and carers regarding the assessment and management of Incontinence Associated Dermatitis in nursing homes in Australia. The study results suggest appropriate use of recognised strategies for prevention; however, two major problems emerged, staff shortages, and difficulties in distinguishing between Incontinence Associated Dermatitis and pressure ulcers. The derived insights can help identify what is needed to inform, improve, and advance nursing home clinical practice regarding Incontinence Associated Dermatitis.

## Declaration

I, Petya Zhelearova declare that the Master by Research thesis named Incontinence Associated Dermatitis in Residential Aged Care – an exploratory study of staff perspectives is no longer than 18,000 words in length. This paper includes quotes from academic articles and textbooks and excludes tables, graphs, figures, appendices, bibliography, and references.

From my point of view, this thesis does not contain any writings or materials that have been submitted previously, in whole or in part, for the award of any other postgraduate degree. Except where otherwise indicated, this thesis is my own work.

## Acknowledgements

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## Preface - A clinical problem

A few years ago, a work opportunity increased my interest in becoming a Continence Nurse Advisor (CNA). In 2017, I took the role as a CNA in the aged care organisation where I was previously employed. This role further increased my interest in becoming a qualified CNA, and in the same year, I won a scholarship by The Benchmark Group to complete a Graduate Certificate in Continence Promotion and Management through the Continence Foundation of Australia. In 2018, I successfully completed the program with a grade of 98%. Part of the study program included a continence clinical placement with Adelaide Specialist Incontinence Services. The placement provided the opportunity to observe comprehensive continence and urogynecology assessments. In addition to that it also provided exposure to the latest evidence-based technologies, such as urodynamics and bladder scanners. I also had the opportunity to talk to patients seeking professional help for their continence issues.

During this study period, I was able to apply my new skills and knowledge into practice. I became more confident in the role and was able to support older people living with incontinence. My role as a CNA was not only to prescribe continence aids and change urethral or suprapubic catheters, but also to educate the residents to effectively manage their continence needs through reviewing consumers' nutrition and hydration, skin, and medications. I organised case conferences related to the management of incontinence, and worked closely with the multidisciplinary team, including physiotherapists, dietitians, general practitioners, gastroenterologists, urologists, and different institutions such as The Ileostomy Association of South Australia and the Continence Foundation of Australia.

I became a leader and mentored other nursing staff; however, I was only at the beginning of my Continence Nurse Advisor role. As a result, I faced many challenges at work – I was working with a vulnerable elderly population who often had cognitive or physical impairment. Therefore, I was not able to use much evidence-based practice continence tools. I have searched the literature for appropriate continence resources or guidelines that I can possibly use to improve the overall continence health status of our residents, but I found only one validated Perineal Assessment Tool which can be used to identify patients that are at high risk of developing Incontinence Associated Dermatitis (IAD). In addition, I have searched the literature for nursing staff perspectives of IAD in residential aged care facilities (RACFs); however, I have found little information on this topic.

I was aware of other continence nurse advisors working in the industry; however, I did not have a direct connection with them. I wanted to learn from them how to effectively manage continence issues in the elderly living in RACFs. Accordingly, I joined the Continence Nurses Society of Australia where I was able to meet with other experienced continence nurse specialists. I needed to consult with them to find out what type of assessments are closely related to continence care for elderly people living in RACFs. Later in 2020, I was appointed to the Continence Nurses Society of Australia's committee and since then, I have been actively involved in important decision-making on this issue.

## CHAPTER 1 - Introduction

This project was developed because of a clinical awareness in the workplace related to incorrect classification of pressure injuries on the perineal area. It was also identified that direct care staff and nursing staff working in residential aged care facilities (RACFs) needed to improve their knowledge on integrity and continence care for residents. Based on this practice, a research question arose through which to explore direct care staff knowledge, experiences, and perspectives on Incontinence Associate Dermatitis (IAD). A qualitative exploratory study using Interpretive Description was undertaken to answer the research question and meet the aim of the study.

This chapter presents the overview and purpose of the study, the background, and the significance of the study, as well as its aim and objectives. This chapter also presents an outline of Chapters 1 to 5.

### Incontinence Associated Dermatitis

Incontinence Associated Dermatitis (IAD) affects the perineal and groin area and it is characterised by an inflammation of the perineal skin, IAD usually develops from chronic exposure to urine or stool (Black et al. 2011; Pather & Hines 2016). IAD can lead to erythema or even breakdown of the genital skin.

The literature indicates that IAD is a type of moisture-associated skin damage (MASD) which affects the elderly population living at home and in RACFs, as well as hospitalised patients in acute care or long-term care settings (Black et al. 2011; Beeckman et al. 2011). MASD is associated with inflammation of the skin caused by lengthy exposure to moisture, such as sweat, wound exudate, maceration, perspiration, secretion, saliva, urine, or stool. It is important to differentiate IAD from other MASD conditions, because the prevention and treatment of IAD is different from the other types of MASD (Black et al. 2011).

IAD is associated with skin impairment on the perineal and groin area and is typically associated with redness and oedema of the epidermis and the dermis of the affected skin (Gray et al. 2007). IAD is closely related to chemical exposure and urine or stool exposure, varies in size, and can be classified as a secondary cutaneous skin infection (Gray et al. 2007). It is also known as perineal dermatitis, diaper rash, or Vulvar Contact Dermatitis (VCD), and is closely associated with cutaneous candidiasis in hospitalised patients (Junkin & Selekof 2007; Beeckman, Woodward & Gray 2011).

IAD can affect people of any age, but it is more common in elderly people with decreased mobility, cognitive impairment, and some form of incontinence (Cassells & Watt 2003). IAD can be related to internal factors such as bladder issues and dehydration, or external factors which include, but are not limited to, inappropriate use of continence aids and additional linen layers, and incorrect use of skin products. IAD can affect people who are incontinent of urine or faeces or both (Pather & Hines 2016) IAD is a relatively new and growing topic of interest that needs deeper understanding and further research to improve the quality of life of the affected population (Gray et al. 2012).



### IAD in the Acute Care setting

Researchers from a teaching hospital in the United States identified that MASD is a common risk factor for developing IAD in patients in the acute care setting (Campbell, Coyer & Osborn 2016). Others however have claimed that the frequent use of soap and water increases the risk of developing IAD in clients admitted into long-term care (McNichol et al. 2018). Furthermore, MASD is a reportable condition in long-term care (McNichol et al. 2018). Statistics from the national database indicate that the percentage of MASD has steadily risen from 4.00% in 2012 to 6.63% in 2017 in comparison to the development of pressure injuries, which increased from 7.48% to 8.20% accordingly. The percentage of IAD itself is unknown, as IAD is classified as an MASD (Getliffe & Dolman 2007).

Other studies demonstrated that IAD in critically ill patients can vary from 7% to 50%, and that IAD is more prevalent in patients with diarrhoea (Pather & Hines 2016). In the United States, two small studies in the acute care sector outlined the association between incontinence and skin injury (Junkin & Selekof 2007), with the incidence of IAD being 20% and 27% (Junkin & Selekof 2007). In an Australian cross-sectional study of 376 participants in the acute care setting, the incidence of incontinence was 24% and of these, 38 developed IAD (Campbell, Coyer & Osborn 2016). On the other hand, almost 50% of many adult patients (n=5,342) admitted into American hospitals were incontinent of urine, stool, or both. One-fifth of the total sample were diagnosed with IAD (Gray & Giulano 2018).

### IAD in Aged Care services

In Australia, there are more than 3,000 aged care providers that offer care through approximately 9,000 services (Australian Institute of Health and Welfare 2019). This sector includes a mix of not-for-profit and for-profit organisations across all states and territories, with over 40% of RACFs being managed by for-profit providers (Australian Institute of Health and Welfare 2019). The Australian government spent \$18.4 billion in 2017-2018 to deliver care to 1.2 million people (Australian Institute of Health and Welfare 2019).

In 2016, over 366,000 aged care workers were employed in the community and residential sectors, with 240,000 of them being direct care workers, and 154,000 of these working in RACFs (Mavromaras et al. 2017). The Australian government spends a large proportion of its health budget in supporting the elderly living in RACFs (Australian Institute of Health and Welfare 2019).

IAD is a common problem for the elderly living in nursing homes; however, it is often misdiagnosed and poorly treated (Van den Bussche et al. 2018). IAD can be classified as an acute or chronic skin condition (Leung & Schnelle 2008) and is a global healthcare concern which should be correctly diagnosed and treated. IAD can be mistakenly identified as a pressure sore or pressure injury, and consequently, can be treated inappropriately (Francis 2019). Residents with IAD living in long-term care settings or in aged care facilities may experience burning sensations, itchiness, physical discomfort, pain, and can experience psychological distress and social isolation (Boronat-Garrido et al. 2016).

The nature of MASD in RACF residents and its progressive deterioration to IAD indicates that healthcare professionals should assess the person's cognitive and mobility status and take into consideration the individual's medical condition and their physical and psychological state (Van den Bussche et al. 2018).

Residents living in nursing homes are often incontinent of urine, faeces or both due to diagnosis of dementia; therefore, they are not able to distinguish when they need to visit the toilet and will become incontinent (Boronat-Garrido et al. 2016). In addition, residents with cognitive impairment are not able to seek help due to being incontinent, and as a result, their soiled continence pad will be in contact with the perineal skin for an extended period, with the acidity in the urine or faeces irritating the skin which could lead to IAD developing (Pather & Hines 2016).

Direct care staff working in nursing homes are often faced with challenging behaviours from residents with cognitive impairment (Boronat-Garrido et al. 2016), including, but not limited to, agitation, wandering, and verbal and physical aggression (Pather & Hines 2016). Accordingly, nursing staff may experience psychological distress or physical injuries while performing their duty of care.

On the other hand, cognitively intact residents living in RACFs with a physical impairment, such as a fractured hip, are able to identify the need to urinate or open their bowels, but their care needs are not attended to on time by the direct care staff (Leung & Schnelle 2008). As a result, these residents will become incontinent and if their personal hygiene is not attended to in time, IAD may develop (Leung & Schnelle 2008). Residents who are bed- or chair-bound are at higher risk of IAD development than those who can mobilise with help or independently (Leung & Schnelle 2008).

The prevalence of IAD in the older population is rising (Bliss et al. 2017a) and increases rapidly after 65 years of age (Boronat-Garrido et al. 2016; Leung & Schnelle 2008). Researchers predict that people affected by IAD will increase by 3% over the next 10 years (Campbell, Coyer & Osborn 2016). The evidence suggests that at least 5% of elderly people living in RACFs have IAD (Doughty et al. 2012), and of these, more than 70% require assistance with scheduled toileting. It has also been reported that incontinence is one of the main reasons for nursing home admissions, because resident's family members or carers cannot manage their continence needs at home (Boronat-Garrido et al. 2016; Cassells & Watt 2003; Georges et al. 2008; Leung & Schnelle 2008).

Early identification of IAD and treatment options have been studied in hospitals (Campbell, Coyer & Osborn 2016), but little is known about how IAD affects people living in RACFs or elderly people living in nursing homes (Leung & Schnelle 2008). As a result, staff providing direct care to residents need continuous education on appropriate management of IAD in the RACF setting. This can be provided by wound specialists from Wound Innovations, 3M, or the Royal District Nursing Service (RDNS). Furthermore, little is known about direct care staff and nursing staff perspectives and knowledge on the identification, reporting, management, and treatment of IAD in RACFs (Leung & Schnelle 2008). The research shows that misdiagnosis of MASD and incorrect treatment of IAD in RACFs can have a negative impact on the affected person's quality of life and on staff wellbeing (Holroyd 2015). Inappropriate classification of IAD can also have a negative impact on the organisation's reputation. For instance, poor wound or skin management for consumers living in an RACF can lead to Aged Care Quality and Safety Commission Standard 3 Personal Care and Clinical Care (Australian Commission on Safety and Quality in Health Care 2021) standards not being met. The application of appropriate assessment tools is required in order to improve IAD in the elderly with physical and/or cognitive impairments living in RACFs (Bliss et al. 2006). The same protocols should also be used in hospitals and in the home environment.

Corcoran and Woodward (2013) suggested that there is a need to develop an IAD assessment tool to help nursing staff differentiate IAD from PI. Other researchers have stated that there are not enough

continence nurses in the work field (Bostock & Kralik 2006), and that registered and enrolled nurses employed in RACFs do not receive professional assistance in relation to continence promotion and management. The application of IAD assessment tools and appropriate nursing interventions may improve patients' quality of life and direct care staff wellbeing (Corcoran & Woodward 2013).

#### Significance of the current study

IAD is a common problem in elderly people living in nursing homes which can lead to redness of the perineal skin or inflamed genital skin (Gray et al. 2007). If left untreated, IAD can even lead to broken and infected skin, which is associated with distress, discomfort, and increased pain (Bliss et al. 2017a). Unmanaged pain can often lead to increased confusion and challenging behaviours among residents with cognitive impairment (Boronat-Garrido et al. 2016). A painful genital area is associated with decreased walking ability, which can cause more incontinence episodes among the elderly due to being unable to reach the toilet on time. Furthermore, alert, and orientated patients with IAD can experience decreased mobility due to other health issues associated with cardiovascular, musculoskeletal, or neurological disorders. Therefore, residents with cognitive impairment and patients with decreased mobility need assistance with their toileting, continence, and skin regime provided by care workers.

It is difficult to estimate the cost of IAD management in RACFs; however, these costs are associated with correct diagnosis and appropriate treatment, improving the care worker staff ratio and knowledge, and educating nurses and personal carers on how to appropriately provide care to residents affected by IAD (Gray, McNichol & Nix 2016). This care also includes updating residents' care plans by providing scheduled toileting, regular washing of the perineal area, use of correct skin products, use of appropriate breathable continence aids. Regular repositioning of bed-bound residents, maintaining a wound management plan, obtaining photos of the affected skin area, and regular registered nurse, skin specialist, continence nurse, and GP reviews. Care workers are staff members who provide direct personal care to residents living in RACFs, including showering, toileting, oral hygiene, skin care, and assisting with mobility, meals, and lifestyle activities. An important part of their duties is to complete a monthly head-to-toe assessment which can identify any skin impairments including IAD (Cowdell 2020). Care workers provide 24/7 care to elderly residents living in nursing homes; however, many of them are task-oriented and tend to report new skin impairments to registered nurses (RNs) only when they complete the head-to-toe assessment for the residents. Head-to-toe-assessment are completed ones a month or when a resident return from hospital. This can cause delays in IAD diagnosis, incorrect classification of skin impairments, and consequently, inappropriate treatment. This delay can cause further discomfort or even pain for the resident with IAD and can lead to hospitalisation (Boronat-Garrido et al. 2016).

It is known that the nursing team is responsible for direct care and management of residents with any type of skin changes, including IAD (Beeckman et al. 2011). Nurses are expected to play an important role in the prevention and management of IAD; however, current levels of IAD-related knowledge, attitudes, and practices remain unclear (Tay et al. 2020). A consensus panel on IAD recognised that there was no standardised essential knowledge on the prevention and management of IAD (Doughty et al. 2012). A systematic review by Beeckman et al. (2016) also showed a lack of evidence-based knowledge and clear and structured strategies for the effective prevention and management of IAD. The significant gap in the literature regarding IAD-related knowledge, assessment, prevention, and management, particularly in RACFs, strongly suggest the need of an

exploratory study into IAD, specifically from the perspectives of direct care workers, to ascertain their knowledge and expertise on this topic of concern.

Aim of the study

***This project aims to determine the perspectives of direct care staff regarding the assessment and management of incontinence-associated dermatitis in the nursing home setting.***

The following research question was developed to answer the study aim.

Research question

***What are the perspectives of nurses and carers regarding the assessment and management of incontinence-associated dermatitis in the nursing home setting?***

The following objectives have been developed for the project:

- *To explore the existing knowledge and experience of RACF staff regarding IAD*
- *To describe barriers to, and enablers of, providing best practice care and assessments of IAD in RACFs*
- *To explore the further educational needs of RACF staff in relation to IAD*

Taking into consideration the above research question and objectives, the research has been developed and instigated as a qualitative study applying an Interpretive Description design (Thorne 2016). This study focuses on the quality, rather than the quantity, of direct care staff perspectives in relation to the assessment and management of IAD in RACFs. Semi-structured interviews were conducted to utilise the subjective experiences and knowledge of direct care staff in RACFs.

Overview of thesis chapters

This thesis contains five chapters. Chapter 1 outlines the background to the study, introducing definitions of IAD and describing the issue of the condition in acute care settings and in elderly people living in nursing homes. The introductory chapter also presents the aim and objectives of the current study.

Chapter 2 presents an integrative review of the literature related to IAD in the nursing home setting. The literature review includes a total of 12 qualitative and quantitative studies that have been critically assessed. Based on the literature review, 4 common themes related to IAD in RACFs emerged:

‘Epidemiology (prevalence and incidence) of IAD’, ‘Identifying the risk factors’, ‘Assessing IAD’, and ‘Preventing and managing IAD’.

Chapter 3 describes the methodology used to conduct the current research. The Interpretive Description approach was considered to be relevant to the proposed thesis as it facilitates the development of evidence-based knowledge derived from deep understanding of perceptions and experiences. The participants selected for the study, the data source in the form of semi-structured interviews, and the data analysis process are presented in this chapter.

Chapter 4 reports on the findings from the qualitative analysis, presenting a narrative description of the participants’ perspectives in relation to the assessment and management of IAD in people living in RACFs. The following four themes were identified, ‘Awareness of IAD in nursing home settings’, ‘Good practices for IAD management’, ‘Current challenges’, and ‘Areas for improvement’.

Chapter 5 focuses on a discussion of the thematic findings from the interviews in light of other relevant published literature around IAD in nursing homes. It highlights the implications arising from the current research for clinical practice, education, and future research, and draws conclusions to complete the thesis.

## CHAPTER 2 – Literature Review

This chapter presents an integrative review of the literature related to Incontinence Associated Dermatitis (IAD) in residential aged care and aims to identify common themes associated to this condition in the nursing home setting. The aim of the literature review is to identify gaps in the available evidence as an inspiration and influence for this research project.

The integrative literature review is also known as a narrative literature review and plans to develop knowledge of a topic through a synthesis of the practical and theoretical literature. It can include quantitative, qualitative, experimental, non-experimental studies, and can also include theoretical literature if it is relevant to the research topic (Thorne 2016). An integrative literature review was chosen for this study because it represents the current state of the research on the topic of concern (Thorne 2008), and because it enables the researcher to identify the gaps in the literature.

The literature identifies that assessment and management of IAD is challenging as its recognition and differentiation from pressure ulcers is complex and the two conditions are often mistaken (Beekman et al. 2009; Beekman et al. 2014).

A study by Barakat-Johnson et al. (2018) explored the connection between IAD and pressure injuries in 4 district hospitals in Australia, identifying those patients with decreased mobility can become incontinent, as they are not able to reach the toilet on time. They also found a high correlation between IAD and pressure injuries (PIs). Another study among critically ill patients aimed to distinguish IAD from (PIs) (Coyer, Gardner & Doubrovsky 2017). A total of 207 critically ill patients registered for the study, with 146 eligible for analysis, as they were mechanically ventilated and had some form of incontinence. Most patients were men in their 50s with similar demographic factors. The participants were divided into control and intervention groups. In all, 66 participants were in the control group and 80 participants in the intervention group, with both groups being observed for more than one year. The researchers identified that the prevalence of IAD was lower in the intervention group (15%) compared to the control group (32%) (Coyer, Gardner & Doubrovsky 2017).

Nursing homes are busy settings challenged by limited financial resources, regulations, and shortages of staff where healthcare providers must do more with less (Junkin & Selekof 2008). Nurses play an important role in the promotion and maintenance of healthy skin integrity in elderly people who are often fragile and suffer from chronic health problems, including incontinence (Beekman et al. 2011).

### Search strategy and selection process

The integrative literature review search was undertaken in May 2021 using four primary electronic databases – CINAHL, PubMed, MEDLINE, and Pro Quest through a combination of subject terms and keywords relevant to IAD in residential aged care. These databases were authoritative resources for nursing. Finally, a hand search of the reference lists of the manuscripts identified in the electronic search was conducted.

### Search keywords

Table 1. Overview of used search terms to identify studies reporting on IAD in nursing homes:

Search Number	Overview of search terms used	Theme of the search
1	“skin integrity” OR “dermatitis” OR “incontinence” OR “perineal” OR “urinary incontinence” OR “faecal Incontinence” OR “double Incontinence” OR “perineal dermatitis” OR “incontinence associated dermatitis” OR IAD	Incontinence-associated dermatitis (IAD)
2	“aged care” OR “residential care” OR “residential aged care” OR “residential aged care facilities” OR “homes for the aged” OR “home for the elderly” OR “nursing homes” OR “assisted living facilities” OR “long term care”	Nursing home setting
3	“nursing staff” OR “carer staff” OR “continence nurse” OR “registered nurse” OR “enrolled nurse” OR “personal carer” OR “personal assistant” OR “education” OR “knowledge” OR “educational”	Nursing staff/knowledge
4	1 AND 2 AND 3	IAD in nursing homes

#### Eligibility criteria

Studies published between 2007 and 2021 and for which the abstract and full-text in English were available were reviewed from the last 14 years. The timeframe of 14 years was chosen, because IAD is a reasonable new condition, which is often misdiagnosed as a pressure injury. Table 2 presents the detailed inclusion and exclusion criteria used to identify relevant studies.

Table 2. Inclusion and exclusion criteria

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> <li>• Studies published in English language</li> <li>• Primary peer-reviewed research articles</li> <li>• Incontinence Associated Dermatitis</li> <li>• Residential aged care facilities</li> <li>• Published between 2007 and 2021</li> </ul>	<ul style="list-style-type: none"> <li>• Articles published in languages other than English</li> <li>• Non-primary research articles</li> <li>• Incontinence Associated Dermatitis in children</li> <li>• Acute settings</li> <li>• Published before 2007</li> </ul>

#### Search outcomes

Electronic searches located 354 studies in CINAHL, 93 in PubMed and MEDLINE, and 97 studies in ProQuest Central. A hand search of the reference lists located one more potential study bringing the total to 544. There were 27 duplicates and after removing them, the titles, and abstracts of 517 studies were screened based on the inclusion and exclusion criteria. This process revealed a pool of 34 studies which were considered potentially relevant, and their full text was read. Further

application of the selection criteria left 12 full-text primary studies for inclusion in this integrative review. The main reasons for exclusion were related to studies carried out in settings other than nursing homes, such as intensive care units, long-term acute hospital units, or for people living in the community. Figure 1 presents a flow-chart of the selection process to identify studies on IAD in aged care settings.

#### Data extraction and analysis

Twelve studies were selected for inclusion based on the selection criteria. Each study was read several times by the researcher and analysed to identify the main outcomes relevant to the review's purpose.

The selected studies included three randomised controlled trials, five observational studies (two cohort and three cross-sectional), one quasi-experimental trial, two evaluation studies of mixed designs, and one qualitative study. The quality of the randomised controlled trials, the cohort studies, and the qualitative study were critically appraised using the Critical Appraisal Skills Program (CASP) tool (Critical Appraisal Skills Program 2018) – results shown in Appendix 1. Two out of the three RCTs reached enough power (80%,  $\alpha=0.05$ ), while one had not recruited the needed number of participants to reach 80% power. The critical appraisal of the two cohort studies and the qualitative study showed high validity based on their large sample size. The remaining studies had relatively small sample sizes (under 1,000 participants), affecting their power and validity. The data extracted included sample population and setting, study design and its limitations, and outcome measures – a summary is presented in Table 3, Appendix 4

Once all the study outcomes had been identified, they were thematically synthesized into four categories relevant to the purpose of the review: 'Epidemiology (prevalence and incidence) of IAD', 'Identifying the risk factors', 'Assessing IAD', and 'Preventing and managing IAD'. The main confounders were selection bias due to the voluntary nature of the participants involved, and missing information on potential predictors and risk factors.

The next section presents the four categories in detail.

#### Findings from the literature review

##### 1. Epidemiology of IAD

###### *Prevalence of IAD*

Prevalence is the number of new cases that have occurred in each period over the number of people at risk at that given period. The faster the disease is occurring the riskier it is for those people (Beekman et al. 2011).



Two studies reported on IAD prevalence as a proportion of the entire studied population, with one study reporting a prevalence of 2.6% amongst 696 nursing home residents (Kottner et al. 2014), and the other reporting a prevalence of 5.3% in 3,035 residents (Kayser et al. 2019). The latter prevalence rate described double the first one shows an inconsistency in rates. This situation was problematic, and part of the reason why the magnitude of the problem is unknown in many countries.

Five studies reported on the prevalence of IAD as a proportion of incontinent people, ranging from 3.1% amongst 583 people with incontinence (Kottner et al. 2014); 5.2% amongst 3,406 incontinent people (Boronat-Garido et al. 2016); 8.4% amongst 1,900 people with incontinence (Kayser et al. 2019); up to 21.3% (Van den Bussche et al. 2018) and 22.5% (Beeckman et al. 2011). The higher rates were reported in smaller pools of nursing home residents with incontinence (n=108 reported by Van den Bussche et al. 2018 and n=141 reported by Beeckman et al. 2011).

The prevalence of IAD among people with incontinence was more accurate, as IAD occurs only in people with incontinence (Kayser et al. 2019). However, the reported rates varied widely depending on the size of the population, and possibly also due to differences in the prevalence of the underlying type of incontinence (urinary, faecal, or double) in the different studies. This result emphasizes the lack of internationally consistent and comparable figures.

### *Incidence of IAD*

Incidence rate looks at the numbers of new cases during the study period over the duration of study period totalled for all individuals (Van Damme et al. 2017)

Limited evidence was found regarding the incidence of IAD in aged care. One large study (Bliss et al. 2017a) found an incidence rate of 5.5% amongst 10,713 nursing home residents with time to onset of 14 days. Van Damme et al. (2017) reported an incidence rate of 30% amongst 381 nursing home residents. Only one study reported incidence among people with incontinence – Bliss et al. (2007) evaluated 981 nursing home residents with incontinence and found that 33 developed IAD over a 6-week period with an estimated 3.4% incidence rate. Again, there was significant variability in the reported rates which could be due to differences in settings and the underlying type of incontinence. Furthermore, the limited number of studies reporting incidence shows a lack of sufficient insight into the problem in nursing homes.

#### 2. Identifying the risk factors

The main factor for developing IAD is the exposure to chemicals in the incontinence urine and faeces (Beeckman et al. 2014). However, identifying other risk factors can guide healthcare providers to implement timely preventative skin care interventions for people at high risk of IAD (Bliss et al. 2017a; Van Damme et al. 2017). Individual patient characteristics and health status require consideration as potential predictors for IAD (Bliss et al. 2017a).

Female gender and higher body mass index were identified by Boronat-Garrido et al. (2016) as personal characteristics significantly associated with the development of IAD, while cognitive deficits

and blood perfusion problems were health status predictors for IAD identified by Bliss et al. (2017a). Functional limitations and limited mobility were functional characteristics associated with IAD (Bliss et al. 2017a; Van Damme et al. 2017) and having a pressure injury was another predictor identified by Bliss et al. (2017a) and Boronat-Garrido et al. (2016). Meanwhile, the presence of erythema due to incontinence and friction and shear problems were independently associated with the development of IAD (Van Damme et al. 2017).

The review identified a variety of personal characteristics and health status factors as risk factors for the development of IAD, including higher body mass index, female gender, blood perfusion problems, pressure injuries, and limited mobility leading to friction and shear problems (Van Damme et al. 2017; Boronat-Garrido et al. 2016; Bliss et al. 2017a).

### 3. Assessing IAD

The early assessment of IAD risk was important for avoiding the complications and necessity of medical treatment (Gray, McNichol & Nix 2016). Identifying people at high risk of IAD and its timely assessment can help for precise diagnosis and correct differentiation from pressure ulcers in order to implement adequate preventative measures (Bliss et al. 2017a; Van Damme et al. 2017). Early identification of at-risk patients could help with the prevention of IAD in people with incontinence issues (Gray, McNichol & Nix 2016). Furthermore, the use of a valid and reliable instrument that provides objective IAD assessment could be an integral part of clinical practice to help health professionals in the timely and accurate clinical assessment of IAD (Braunschmidt et al. 2013).

The Incontinence Associated Dermatitis Intervention Tool (IADIT-D) is an instrument for the assessment of people at high risk of IAD, and the categorisation of the severity of IAD as early, moderate, or severe with or without complications. Braunschmidt et al. (2013) evaluated the reliability of the instrument and found good inter-rater reliability based on 381 nursing home residents, suggesting that the instrument would assist nurses with differentiation between IAD and pressure ulcers. Boronat-Garrido et al. (2016) conducted a study over 3 years in 78 German nursing homes, involving 3,406 residents with incontinence where IAD was assessed using the German version of the IADIT-D tool. The instrument proved to be an adequate tool to determine the prevalence of patients with high risk of IAD (25%) and its level of severity classified as early (2%), moderate (2%), or severe (0.2%).

A small study involving 12 residents compared 3 text-based IAD assessment instruments with a simple severity scoring system (SSS) using photographs for the grading of IAD (Clarke-O'Neil et al. 2015). The findings revealed that the 3 instruments were more time-consuming and linguistically complex to use compared to the SSS suggesting that a simple and easy-to-use instrument can be of significant benefit in routine clinical practice. Van den Bussche et al. (2018) developed the Minimum Data Set for Incontinence-Associated Dermatitis instrument to measure the prevalence of IAD in incontinent people and to assess the adequacy of IAD management. They found a low degree of inter-rater reliability for the assessment of cleansing products and moderate reliability for IAD prevalence.

This review identified that only a few assessment instruments have been developed and validated. Furthermore, only one larger scale evaluation study was identified in which the IADIT-D assessment instrument was assessed in clinical practice. This result suggests that further research is needed for

the implementation of standardised and reliable instruments as they have significant potential in IAD assessment.

#### 4. Preventing and managing IAD

Primary prevention of IAD can promote the health and comfort of incontinent people and avoid the costs of treating incontinence complications (Gray, McNichol & Nix 2016). Nurses play a central role in providing skin care for older people. They are the first health professionals to undertake skin assessment to identify people at risk in order to prevent the development of IAD (Cowdell 2020). The prevention of IAD should consist of three strategies – skin cleansing to remove irritants from incontinence, skin moisturising to repair the skin barrier, and application of a skin protectant to prevent further skin break-down (Beeckman 2017). However, the prevention of IAD is not very common in nursing homes – one study reported that only 0.12% of 10,713 nursing home residents received any IAD prevention (Bliss et al. 2017b). Meanwhile, only 4% of 84 people with incontinence were found to receive complete and correct prevention, while 70% received incomplete prevention and 26% received no prevention at all (Van den Bussche et al. 2018). No racial or ethnic disparities in IAD prevention were reported by Bliss et al. (2017b) suggesting equitability in care.

The use of a defined/structured skin care regimen is effective in the prevention and treatment of IAD. The application of a multifunctional skin protectant with moisturising and skin protectant properties in addition to standard care with a skin cleanser and moisturiser in 33 women living in a nursing home was found to reduce inflammation and improve hydration of the skin (Kon et al. 2017). Bliss et al. (2007) also found that the application of any of four different defined skin damage prevention regimens containing pH balanced skin cleanser and a moisture barrier among 981 nursing home residents with incontinence was associated with a low incidence of IAD (below 4%). A structured skin care regimen with a disposable washcloth and a cleansing agent, a moisturising barrier, and a 3% dimethicone skin protectant was more effective than water and pH balanced soap when used with 141 nursing home residents (Beeckman et al. 2011) – people who were treated with the structured skin regimen were significantly less likely to develop IAD (8.1% prevalence in the experimental group compared to 27.1% in the control group on day 120,  $p=0.003$ ). Furthermore, the IAD severity score significantly decreased in the experimental group, while it did not change in the control group. Regarding IAD treatment, Van den Bussche et al. (2018) reported that complete and correct treatment was provided to 9% of 23 people with IAD, while 87% received incomplete treatment and 4% received incorrect treatment.

This review found that prevention with a structured skin care regimen consisting of gentle skin cleansing, moisturising, and skin protection could be more effective than non-structured regimens using soap and water. However, only 4% of nursing home residents with incontinence received complete and correct IAD prevention suggesting the need for more prevention interventions (Van den Bussche et al. 2018). Furthermore, a high proportion of people with IAD received incomplete or incorrect treatment (Van den Bussche et al. 2018).

#### Discussion of findings from integrative literature review

This integrative literature review revealed that IAD is a common problem in nursing homes with prevalence rates ranging widely from 2.6% to 22.5% and incidence rates ranging from 3.4% to 30%. The high variance in the rates is related to the size of the studied population, with higher rates reported in smaller populations. Overall, the size of the population in the studies was relatively small

implying the need for research on a larger scale and in more countries in order to reach internationally consistent and comparable figures.

A variety of personal characteristics and health status factors were identified as risk factors for the development of IAD, including higher body mass index, female gender, perfusion problems, pressure injuries, and limited mobility leading to friction and shear problems (Boronat-Garrido et al. 2016). Addressing these factors where possible could reduce the risk of developing IAD. The development of IAD occurs quite rapidly with onset of IAD around 14 days after exposure to incontinence. Thus, the early assessment of IAD risk is important to avoid complications and the necessity for medical treatment. The development of standardised and validated instruments could also assist in the assessment of IAD (Van de Bussche et al. 2018). However, this review found there are not many such instruments, and they are not widely applied in clinical practice in nursing homes. Further research is needed on the implementation of standardised and reliable instruments as they have significant potential for IAD assessment.

The prevention of IAD can promote the health and comfort of incontinent people and avoid the costs of treating the complications of incontinence (Gray, McNichol & Nix 2016). Prevention with a structured skin care regimen was found to be more effective than using non-structured regimens. However, the very low proportions of people who received correct and complete IAD prevention (4%) or treatment (9%) suggest the necessity for more prevention and treatment interventions in nursing homes.

A consensus panel on IAD recognised that there was no standardised essential knowledge on the prevention and management of IAD (Doughty et al. 2012). A systematic review by Beeckman et al. (2016) also showed a lack of evidence-based knowledge and clear and structured strategies for the effective prevention and management of IAD. With nurses playing a central role in ensuring healthy skin integrity in elderly people, nurse education about the risks and primary assessment of IAD could be the first step in the prevention of the condition. This integrative review found no published studies concerned with knowledge or education of nurses on IAD in nursing home settings. This gap in the research determined the rationale for the proposed project which aimed to investigate nursing and carer perceptions of the assessment and management of IAD in the nursing home setting in Australia.

## Summary

In conclusion, the literature review revealed that IAD is a common problem in nursing homes with prevalence rates of up to 23% and incidence rates up to 30%. There is scant evidence concerning the prevention and treatment of IAD in nursing homes. Meanwhile, there were no studies investigating IAD in nursing homes in Australia and no studies related to knowledge or education of nurses on IAD in nursing home settings. This knowledge deficit should be addressed to close the gap between evidence and clinical practice.

## CHAPTER 3 - Methodology

The integrative literature review provided in chapter 2 revealed that IAD is a common problem in nursing homes with prevalence rates up to one in four people. Very limited evidence about the assessment, prevention, and management of Incontinence Associated Dermatitis (IAD) in nursing homes was found, and there were no studies related to any aspect of IAD in nursing homes in Australia. The lack of research evidence determined the aim of the current thesis, namely, to understand nurses' and carers' perspectives on assessment and management strategies used for people with IAD, also serving to guide the formulation of the research question and the design of the interview questions. This chapter defines the research question and describes the methodology used to conduct the research.

The research question formulated for the thesis was:

***What are the perspectives of nurses and carers regarding the assessment and management of Incontinence Associated Dermatitis in the nursing home setting?***

### Research Approach

Qualitative research and its traditional approaches

A qualitative research approach was deemed appropriate for this exploratory question as it enables the collection and analysis of non-numerical data that accounts for the complexity of individual human opinions and experiences to gain in-depth insights into a problem (Polit & Beck 2012). In-depth exploration of participants' perspectives can lead to a greater depth of understanding of a problem which, in turn, can improve service provision (Aromataris & Munn 2017; Singh & Bunyak 2019).

Qualitative research originates in three primary areas of the social and behavioural sciences: philosophy, sociology, and anthropology (Holloway & Todres 2003). An overview of the most traditional methodological approaches related to qualitative research and why they were considered not suitable for the current research is provided below.

The phenomenological approach has its roots in philosophy and assumed that there is an essential structure to human experience (Husserl 1962). Its aim is to investigate in depth the essence of a particular experience which participants have lived through (Polit & Beck 2012). The approach attempts to answer the question of what people's life experiences are and what they mean. Phenomenologists assume that there is an essential nature of a lived experience that can be understood and described.

Grounded theory comes from sociology and is focused primarily on the development of theoretical explanations of socially constructed events from real world social interactions and experiences (Glaser & Strauss 1967). Most studies based on grounded theory focus on the discovery of the basic social or psychological processes that characterise an event, as well as exploring which core variables are central in explaining that event. Ground approach is concerned with development of theory while the current research is concerned with use of qualitative data to gain deep understanding of perceptions of carers and nurses around management of IAD in aged care. Thus, the ground theory approach was not deemed suitable. Ultimately, the grounded theory approach is concerned with the development of theory.

The ethnographic approach is based on cultural anthropology with the primary goal being to understand and interpret human variations in particular social settings (Holloway & Todres 2010). This approach provided a framework for studying the lifeways, patterns, and experiences of a specific cultural group. The researcher used such an approach that assumed cultures exist and seek to learn from the members of a cultural group in order to understand this culture, customs, and worldview assuming inter-connectedness throughout the whole culture.

However, the current research does not rely on any preconceptions of shared understandings amongst nurses and carers regarding IAD in nursing homes. Instead, it's aimed to interpret and explain their perceptions, thus the ethnography approach was not utilised.

The unsuitability of phenomenology, grounded therapy and ethnography approach led to focusing on a different approach for the current research, namely the interpretive description.

Interpretive description

The current research is concerned with the use of qualitative data to gain a deep understanding of the perceptions of carers and nurses around the management of IAD in aged care. It does not rely on any preconceptions of shared understandings among nurses and carers regarding IAD in nursing homes; instead, it aims to interpret and explain their human perceptions and contextual variations. Thus, the Interpretive Description approach was used as the methodology for this study. Because the nature of nursing research is more of an applied or practical science rather than theoretical, it often requires stepping outside of traditional approaches applicable to theoretical science (Thorne, Kirkham & MacDonald-Emes 1997). The interpretive paradigm seeks to 'describe, explore and explain' a problem based on deep understandings of perceptions and experiences (Taylor, Kermode & Roberts 2007).

Interpretive Description emerged as a qualitative research approach which borrows the best from traditional science methods but uses theory as a tool rather than the ultimate purpose (Thorne, Kirkham & MacDonald-Emes 1997). The method emerged in the nursing sciences where the need was to extend beyond mere description and into what can be learned (what are the main messages) and how it can be applied to practice (Thorne, Kirkham & MacDonald-Emes 1997; Thorne 2016). Interpretive Description seeks to answer questions about health and illness experiences from interpretive and relational perspectives. It considers the complexity of human experience in identifying recurrent patterns and themes from a subjective perspective, while still accounting for variations between individuals (Hunt 2009). Because findings are derived from both individual and common experiences, they have the potential to develop new insights and knowledge that can assist in shaping the application of qualitative evidence into practice (Kalengayi et al. 2012; Thorne 2016).

The Interpretive Description approach was relevant to the proposed thesis as it facilitates the development of evidence-based knowledge derived from deep understandings of perceptions and experiences. The significant gap in the published literature around the assessment and management of IAD in the nursing home setting in Australia determined the focus of this research, that is to obtain an in-depth understanding of what is known and what is challenging to nurses and caregivers when looking after people with IAD. The findings from the Interpretive Description research can contribute to understanding the complexities of IAD in the nursing home setting. The derived insights can help identify what is needed to inform, improve, and advance nursing home clinical practice in relation to IAD.

## Research design

Interpretive Description methodology follows general principles for the design of qualitative research regarding study components such as sample selection of the participants, data collection and analysis, and accounting for rigour (Burdine, Thorne & Sandhu 2020). The procedures for selecting the study participants, data collection, data analysis, and accounting for bias in the current research were developed and applied according to the Interpretive Description methodology and are described in the following sections.

### Sample selection of participants

A relatively small number of participants who are knowledgeable and experienced about the topic of interest may still yield sufficient data to answer a research question (Marshall 1996; Kalengayi et al. 2012). Thus, this project intended to recruit nurses and carers with a minimum of one year of experience in the nursing home setting. To enable sample selection, the Facebook social media platform was used to post a recruitment flyer (see Figure 1 in Appendix 2). A total of 11 nurses and carers from 11 different nursing homes responded to the flyer. Once the potential candidates for participation in the research were identified, an email with a letter of introduction and an informed consent form was sent directly to each of them (the letter and the consent form are provided as Figures 2 and 3 in Appendix 2). The consent form acknowledged that participation was voluntary, and the participants had the right to withdraw at any point and included information on how data confidentiality would be assured. The nurses who signed the consent form were participants, and as such, were provided with details about the interview process via the interview information sheet provided as Figure 4 in Appendix 2. In total, 10 nurses and 1 carer practicing in the aged care sector in Australia were recruited with an average age of 39 years, with 82% being women, and aged care experience ranging from 4 to 26 years. All participants held qualifications in nursing ranging from a bachelor's in nursing to a Diploma in Enrolled Nursing. In all, 5 participants worked as registered nurses, 3 as enrolled nurses, 1 as a continence nurse, and 1 as an educator. One participant worked as a personal carer, even though she had a bachelor's in nursing degree. The number of residents with IAD was between 2 and 80, with some participants indicating that the residents with IAD were around 20% of all residents in their aged care facility. Full details are included in Appendix 3.

### Data collection

The primary data source for this research was the face-to-face semi-structured interviews. Semi-structured interviews give participants the opportunity to answer questions with more freedom in terms of what is important to them (Strauss & Corbin 1998), and to control the flow of the interview (Minichiello et al. 2004).

At the beginning of each interview, the participant was reminded of the purpose of the study, the right to withdraw at any time, and the protection of confidentiality. The interviews were audio-recorded and later transcribed in a MS Word document. Additional notes were taken by the researcher conducting the interviews to highlight the key points. Each interview consisted of a few demographic questions as well as research-related questions and took up to 30 minutes. Many questions asked the participants to 'describe' their experiences, allowing in-depth exploration of the phenomenon (Strauss & Corbin 1998; Minichiello et al. 2004). There were also open-ended questions used to encourage the participants to talk freely and respond openly to queries (Kvale 1996). A few extra questions such as "can you give an example" and "can you describe in more detail" were asked to prompt for more information. Each interview first collected the participants'

demographic information (age, gender, qualifications, years of experience in nursing homes, etc). After this, the participants were asked to describe how they defined IAD, what they considered to be risk factors for the condition, how the condition was managed in their nursing home, what good practices they had in place, and what challenges they encountered. A full list of the interview questions is provided in Table 1 in Appendix 2.

#### Data analysis

The analysis of qualitative data was both an active and an interactive process during which the researcher needed to become completely familiar with the data by reading and re-reading several times in order to find insights and meanings (Polit & Beck 2012). Data management in qualitative research is constructionist in nature, with data segments being put together into meaningful patterns. The generation of general concepts is an inductive process, with the interpretation of the raw data leading to the establishment of concepts and themes (Thorne 2016). The purpose of the data analysis was to identify what was expected and unexpected, what were the similarities and the differences in the data and how to work with them, and what meaningful story was emerged from the interviews to inform how to do things differently and better in practice.

Interpretive Description data analysis serves this purpose as it goes through 'pieces to patterns', 'patterns to relationships', and 'conceptualizing through thematic description' (Thorne 2016). In the initial phase of analysis in Interpretive Description, the researcher 'reacts' to the initial pieces of data that attract his/her attention (Thorne 2008). In the current research, this step was achieved in the process of transcribing the conducted interviews and re-reading the transcripts several times to enable the researcher to develop a good sense of the collected data. Each transcribed interview was then coded using the constant comparative approach to move 'from pieces to patterns' (Thorne 2008; Glaser & Strauss 1967), when similarities and differences in the data were identified and served as a basis for categorisation into patterns which were consistent and yet distinct (Marshall & Rossman 1989).

Coding allows not only the data to be sorted and organised into patterns, but also connections and relationships to be established (Miles & Huberman 1994). Thus, in the next phase of moving from 'patterns to relationships' (Thorne 2008), the coded interviews and the notes taken during the interviews were analysed so that the identified patterns could be grouped into various initial themes, after which the researcher tried to make sense of the relationships these various themes had to one another. Repeated themes and sub-themes were grouped together and re-named to reflect their content in the move from 'patterns to relationships'. Significant quotes and phrases were grouped around the identified themes.

The final stage of the data analysis was 'conceptualizing through thematic description', when the researcher used the identified patterns and relationships to develop a conceptual structure within which to present the thematic ideas (Thorne 2008). This structure needed to be practical and presented in an understandable and accessible manner to the target audience (Thorne 2008). In this study, the themes that had conceptual power both in individual cases and across the whole sample of participants were considered to have the best potential for analytic generalisation (Polit & Beck 2012). Themes that reflected common insights into the participants' perceptions and perspectives around IAD in aged care were solidified and conceptualised into higher level themes to allow interpretation and generalisation of the findings.



## Accounting for bias

The rigour in qualitative research is supported by the appropriateness of the research design and the adequacy of the selected participants (Jeon 2004). Thus, for the in-depth interviews, purposive sampling was adopted in which participants with a minimum of one year of experience in the nursing home setting were selected. In this way, it was ensured that they would have been exposed to care or management of residents with IAD. High-quality research needs to be trustworthy so that there is confidence in the interpretation of the data to generalise the findings (Polit & Beck 2012). One source of bias in the trustworthiness of a study could come from the researcher's subjectivity. To minimise any personal bias caused by the researcher, the participants were asked to restate and summarise the captured information as part of each interview. After transcription of the interviews, the participants were asked to review the content of their transcript for accuracy. Furthermore, important, and relevant quotes from the participants were included to substantiate the findings of the study (Maxwell 2005). Confidentiality of participants maintained by giving them a choice to select the date and place of the interview. The names of the participants and their place of work were deidentified.

## Ethics Approval

As this research involved human participants, it needed to comply with a code of ethics to protect human rights. In Australia, the National Statement on Ethical Conduct in Human Research was developed by the National Health and Medical Research Council (2007) in accordance with the National Health and Medical Research Council Act 1992 (Federal Register of Legislation n.d.). This research had ethics approval number 8344 issued by the relevant ethics committee, the Social and Behavioural Research Ethics Committee of Flinders University, in line with the National Statement on Ethical Conduct in Human Research (see Figure 5 in Appendix 2).

In summary, IAD is very common in nursing homes with one in four residents potentially affected (Beeckman et al. 2011). The integrative literature review revealed an evidence gap about the assessment, prevention, and management of IAD in nursing homes in Australia. This gap led to the formulation of the main research question, namely, to obtain an in-depth understanding of the perspectives of nurses and carers regarding the assessment and management of the condition. After careful consideration, the Interpretive Description methodology was selected as the most appropriate for the current research as it facilitated the development of evidence-based knowledge derived from deep understanding of perceptions and experiences. The findings from that data analysis can help to identify what is needed to inform, improve, and advance nursing home clinical practice in relation to IAD. Chapter 4 presents the research findings of the conducted interviews.

## CHAPTER 4 - Findings

This chapter reports the findings from the qualitative study conducted to answer the research question, 'What are the perspectives of nurses and carers regarding the assessment and management of Incontinence Associated Dermatitis (IAD) in the nursing home setting?' In total, 10 nurses and 1 carer practiced in the aged care sector in Australia were recruited for the study.

Demographics: The average age of the participants was 39 years, and 82% were women. Their aged care experience ranged from 4 to 26 years. All participants held qualifications in nursing ranging from a bachelor's in nursing to a Diploma in Enrolled Nursing, with 5 participants working as registered nurses, 3 as enrolled nurses, 1 as a continence nurse, and 1 as an educator. One participant worked as a personal carer even though she had a bachelor's in nursing degree. According to the participants the number of residents with IAD was between 2 and 80, with some participants indicating that the residents with IAD were around 20% of all residents in their aged care facility.

### Demographics of participants

Characteristics of the 11 participants	Number of people	Percent of all participants
Age group		
< 30 years old	1	9
30 to 40 years old	4	36
41 to 50 years old	3	27
> 50 years old	2	18
Gender		
Females	9	81
Males	2	18
Education		
Bachelors in nursing	8	72
Diploma in enrolled nursing	3	27
Current role in aged care		
Registered nurse	5	45
Enrolled nurse	3	27
Continence nurse	1	9
Educator	1	9
Personal care	1	9
Years of age care experience		
Less than 5 years	1	9
5 to 10 years	8	72
Over 10 years	2	18

The analysis resulted in 4 key themes that described the perspectives of the participants in relation to IAD in aged care. The four themes identified were, 'Awareness of IAD', 'Good current practices for IAD management', 'Current challenges', and 'Areas for improvement'.

This chapter presents a narrative description of the participants' perspectives related to the assessment and management of IAD in people living in nursing homes. The chapter describes four main themes and their sub-themes in narrative form, including relevant quotes in order to describe the thematic findings of the study.

#### Key theme 1: Awareness of IAD

The participants demonstrated good awareness of IAD, including the risk factors and causes associated with the development of the condition and its effects on residents' lives.

##### What IAD is and its effect on residents

All participants were aware that IAD was a form of dermatitis associated with episodes of incontinence. When chemicals from the urine or faeces came into contact with elderly and fragile skin, this causes irritation and redness due to the disturbed PH balance which leads to skin inflammation and damage. Long-term exposure to the moisture from the incontinence may cause the skin to break down and lead to skin damage, erosion, and loss.

*Incontinence Associated Dermatitis, it is a skin excoriation which are caused by incontinence. When the skin came into contact with the urine so you know the Alfie or the bacteria for example in the urine or faeces it disturbs the PH balance of the skin and then the skin it can get inflamed and then slowly starts breaking down (Participant 1).*

*Urine and faeces come into contact with fragile skin and that causes irritation and redness and because of the moisture - skin deterioration and break down (skin damage) (Participant 3).*

*Skin irritation in a resident with incontinence who is bed-bound most of the time; IAD is most common in the elderly especially in aged care (Participant 4).*

*Too much moisture on the skin for long periods of time; the skin breaks down very quickly and becomes a problem if unfound or untreated (Participant 5).*

*Skin irritation caused by incontinence aid and wet pads (Participant 10).*

*It's a breakdown of skin, of your normal skin, because that particular skin is constantly exposed to urine and bodily fluids, which have chemicals in them, which damage the skin, which damage the external skin (Participant 11).*

The participants indicated that they had received training on skin care and IAD provided by their workplace in the form of regular skin integrity sessions, with the education provided by a continence nurse or by companies supplying incontinence products. They also had some form of education in incontinence through organisational development at work.

IAD is a condition that can cause pain and unnecessary suffering to affect people due to skin irritation to the groin and perineal area. It is also a very sensitive topic and aged care staff must respect the dignity of the residents when dealing with IAD.

##### Risk factors for development of IAD

###### *Personal and health status factors*

IAD occurs only in people with some form of incontinence (urine and faeces). The participants perceived that IAD would be equally prevalent in urine and faecal incontinence. It most commonly

affects elderly people as their skin is drier and more fragile due to ageing, and thus is easy to damage. Female residents were considered more prone to IAD due to having more urinary tract infections and higher skin PH. Obesity was also perceived as a higher risk factor for IAD as overweight people could not clean themselves properly; they have more moisture where the skin folds which could lead to dermatitis associated with incontinence.

In terms of health status, people with reduced mobility were considered at high risk of IAD as they have reduced ability to access the toilet on their own.

*If someone has limited mobility, so that's reduced, obviously, ability to go the toilet. So, basically, they rely on other people to go the toilet. I think that it's a big problem, so when it comes to people haven't got the ability to move, to access to toilet by themselves (Participant 3).*

*If residents are unable to toilet themselves, they rely on the staff and they will always be sitting in a wet pad unless changed by a staff member (Participant 5).*

Another health status factor is dementia or cognitive deficit, even though some people with these conditions can walk, they cannot recognise the need, and so initiate the toileting process unexpectedly, cannot maintain proper hygiene, and might not recognise having had an incontinence episode.

*People with cognitive impairment, they cannot initiate tasks, they cannot even recognise the need to go to toilet, so they are incontinent, and they rely on staff, and it is completely up to the staff to attempt to those residents in a timely manner to prevent incontinence and then prevent IAD (Participant 1).*

*Scheduled toilet plays a vital role in prevention of IAD because, especially with aged care, with people with cognitive impairment and immobility, the staff needs to attend to toileting to reduce the moisture retention (Participant 7).*

*IAD is more common in residents who are less mobile, or a bed-bound - like palliative or dementia residents (Participant 4).*

*Some people can walk but if they have dementia - they have no idea that they have messed themselves and still at risk. So, someone can be mobile but still at high risk especially if they have dementia or cognitive deficit (Participant 2).*

*If someone is having dementia, they won't be able to explain what time they want to go to toilet ... They are not very able to explain what's going on (Participant 10).*

Furthermore, people with behaviour issues or challenging behaviours were also perceived as being at higher risk as they may refuse assistance and care. Once an incontinence episode occurs in people with limited mobility or dementia, the exposure of the skin to the incontinence residue poses a higher risk for the development of IAD. In comparison, people who are mobile or without cognitive impairment can go to the toilet by themselves or with the help of staff. They have no, or a low number of incontinence episodes and even if they have an incontinence episode, they move around, that provides enough blood supply to the skin to avoid irritation, and no pressure on the skin.

*Some residents have behavioural issues they refuse assistance, and they stay in pads for long hours and that can be very challenging and basically if they refuse care even if they refuse ADLs or toileting that can be quite challenging (Participant 1).*

*It can be challenging to stay on top of it when there are challenging behaviours (Participant 5).*

It is evident that not only urine or faecal incontinence can contribute to the development of IAD, but physical and psychological impairments, such as decreased mobility or cognitive impairment, can lead to IAD among the elderly living in nursing homes. Additionally, residents with challenging behaviours who refuse toileting and continence care are also at increased risk of the development of IAD. Furthermore, the participants identified that IAD among residents living in RACFs can develop due to other circumstances, as described below.

#### *Environmental factors*

The shortage of staff and resources were recognised by the participants as major risk factors for the development of IAD, as the staff may not have enough time to provide proper care and attend to people with IAD at the scheduled times. People with decreased mobility and cognition loss are very dependent on assistance from staff for toileting and hygiene, and if there is not enough staff, the residents are left to have incontinence episodes when they could have been toileted. The participants stated that even if the residents want to go to the toilet and ring the bell for assistance, they need to wait if there are no staff to help them. Some residents get impatient and try to get up on their own which increases the risk of falls. The risk of IAD also increases if wet incontinence pads are left for a long time because of the lengthy period of skin exposure to acid and chemical substances; the risk increases as well if people are not washed and cleaned often enough or if they are not repositioned frequently. Again, the participants indicated that this could be due to a lack of time by staff to provide proper care or due to cutting back on supplies of continence aids (for example, if only one continence aid is allowed overnight).

*Nowadays we know the staff is so busy and everywhere there is a shortage of staff. On their shift if they have to toilet 10 residents you know in those 2 hours' time they cannot get to everyone quick enough and then some of the residents will have incontinence and they are basically waiting or ringing the bell for assistance but they have to wait (Participant 1)*

*The limitation is the staff, there is not enough staff they do not have enough time you know they can't get to residents on time and some of them are sitting in the wet pad for long time (Participant 1).*

*Incontinence-associated dermatitis occurs because of shortage of staff, haven't got enough time to take people to toilet on time, just after the incontinence episode. So, I think that it's a big problem (Participant 3).*

*"Staff ratio not good enough – there is not enough staff to accommodate to the workload" (Participant 4).*

*Staff ratio to residents 30 residents to 4 carers - it is hard to stay on top of the toileting schedule sometimes (Participant 5).*

*There is not enough staff to attend the residents at scheduled times. Increase the staff and have the ratio to come down - less residents to more staff, then IAD will be more manageable (Participant 9).*

*Scheduled toileting does not happen as it should because of low staffing members - some people are left in incontinence aids a bit longer than what they should be. People are left to have incontinence episodes when they could have actually been toileted. There is low staff members and not enough time to actually give residents good care (Participant 6).*

A shortage of nursing staff is one of the main long-standing issues in nursing homes. As a result, personal care workers cannot keep up with residents' care plans, which include scheduled toileting, the application of clean continence aids, regular repositioning, and the use of skin moisturisers (Beeckman 2017). Additionally, increased exposure of the skin to heat is considered to be related to a higher risk of IAD. The heat could be due to hot weather in the summer months, or it could be related to internal body heat that builds up due to limited mobility and insufficient repositioning. Heat causes more sweating and a burning sensation around the pad area which can irritate the skin – the skin becomes more tender and if the top layer burns, the skin will start to peel off and can turn into severe damage. Heat exposure also creates a favourable environment for microorganisms to grow, which can cause dermatitis to become infected and spread causing more skin breakdown (Van Damme et al. 2017).

Poor nutrition and inadequate fluid intake were identified as factors leading to IAD if residents were not well nourished or hydrated resulting in skin issues taking longer to heal. An inappropriate diet (for example in people with food intolerances) can cause loose bowels and more incontinence episodes. Poor hygiene or use of poor quality or inappropriate products were also identified as risk factors for the development of IAD (Boronat-Garrido et al. 2016).

Key theme 2: Good current practices for IAD management

IAD was considered by the participants to be an easily preventable condition. Good practices were mainly about prevention rather than treatment. Timely toileting, good hygiene, and use of skincare products were identified as the best prevention strategies. Education and training of staff is also important for the proper management of IAD.

Scheduled toileting

The purpose of scheduled toileting is to assist people who cannot reach the bathroom on their own. All the participants recognised that scheduled toileting played a vital role in the prevention of IAD. This regime is very important especially for people with limited mobility and cognitive impairment as it minimises episodes of incontinence which will save lots of staff time and cost. This in turn will minimise the rate of IAD or completely prevent it. However, if an incontinence episode happens, the wet pads should be changed promptly to avoid lengthy skin exposure to moisture and substances from the urine or faeces.

*If you have scheduled toileting on time, if you had the staff to accommodate your residents, then you will prevent IAD, or minimise the rate (Participant 4).*

*Scheduled toileting is very important, especially for those ones that aren't mobile themselves. If they miss out on the scheduled toileting, they could sit in a wet pad for a long period of time (Participant 5).*

*Scheduled toileting has a vital role in prevention of IAD, because, especially with aged care, with people with the cognition impairment and immobility, the staff needs to attend to toileting to reduce the moisture retention (Participant 7).*

Scheduled toileting played an important role for residents' wellbeing, dignity, and social continence. Scheduled toileting can reduce incontinence episodes and IAD among residents with cognitive or physical impairments. Scheduled toileting would further prompt the care staff to clean residents' perineal area and apply fresh continence pads and skin barrier cream on time. This good skin regime practice will minimize the risk of IAD development.

Good personal hygiene

Proper hygiene is very important as a prevention strategy for IAD.

*What we're trying to push with our care staff is really good hygiene practices – make sure that genital areas are really well washed and dried, and preferably, like air dry, so give people time to air dry that area and just pat dry, and then moisturise really well, so that you have a good barrier (Participant 6).*

*I suppose bigger thing is, you know, good hygiene. Which we do that every day. Make sure you clean and dry it properly (Participant 3).*

*I think the main thing is hygiene. Good, proper hygiene will avoid IAD (Participant 4).*

Skin needs to be properly cleansed with quality cleansing agents. The use of soap and water was considered as a suitable cleansing technique, with soapy water described as 'best practice' to remove any residue on the skin (Participant 3). However, a mild PH neutralised soap that helps with the PH balance should be used, as some soaps can be aggressive and irritate the broken skin. After cleansing, the skin must be properly dried; air drying is preferred to drying with a cloth or flannel as they are rough and hard and can damage fragile skin (Beekman et al. 2015). One practice trialled the use of specific incontinence wipes which are designed to not damage the skin, but to maintain the moisture and PH level of the skin – they are very soft on the skin and prevent friction, and furthermore, the skin does not have to be dried as the wipes are designed to dry off in the air. It was recognised that if the skin is damaged, the use of too much soap or frequent washing can cause more damage than acting as a cure. The need of regular checks and changes of incontinence aids and scheduled repositioning of people with reduced mobility was also pointed out (Beekman et al. 2011).

Use of good skincare regimens

After cleaning the skin, the participants indicated the need for moisturising and protection of the skin to maintain skin integrity and repair damaged tissue. Certified skincare products should be used to maintain skin condition and protect against further damage. Skin softeners, skin hydration creams, and skin barrier creams (Molicare, Coloplast) should be used to keep the skin well moisturised and protected, that will create a good environment to keep skin integrity intact and reduce the risk of skin breakdown and tears by 50%. Skin barrier creams also prevent sweating; however, they should not be overused, as this can worsen skin issues and need to be washed off appropriately. Creams with zinc or zinc spray were good skin protectors as the zinc actually creates a protective layer on the skin, prevents fractions, and promotes skin health (Kon et al. 2017).

## Clear skincare plans

Personal carers were responsible for the daily hygiene of residents while nurses were responsible for the application of skincare products. The participants indicated that their aged care facilities had clear care plans for people with incontinence, where the required scheduled toileting, the daily thorough cleaning and drying, and skin product application was stated. Carers needed to document the daily hygiene activities, while the nurses needed to sign the resident's medication chart when a cream is applied. Nurses were required to undertake skin integrity checks regularly and review and follow-up on people with IAD. If the care plan was appropriate and followed accordingly, then IAD would be prevented.

*We have very clear care plans, that state the scheduled toileting required for those specific residents, and also, we do skin integrity checks very regularly, and work closely with the carers (Participant 5).*

*Write into the resident's care plan with incontinence diagnosis to make sure thorough cleaning and drying to groin and perineal area (Participant 3).*

*Thanks to BUNZL training staff know now how to identify IAD and follow the care plan or report if they think someone is developing it to prevent it from getting worse. If someone is incontinent and has a pad and is all rugged up - then the heat will cause more severe IAD especially if they are not mobile. But if they have scheduled toileting as per plan, the risk is less (Participant 2).*

*Staff has to stick to care plans and it's the job of the clinical nurses to check that the plan is working - if it is working, then IAD won't happen (Participant 8).*

When the nursing homes have an unannounced visit from the Aged Care Quality and Safety Commission, the management, nurses, and direct care staff should be able to demonstrate that residents' care plans are being followed. This evidence includes repositioning charts, which will prevent or minimise the development of skin impairments in patients with decreased mobility, good hygiene practices which include washing or wiping the perineal area front to back, the application of skin products, and regular skin checks known as 'head-to-toe assessments.

## Appropriate education and good teamwork

Education of staff on IAD was very important to enable early recognition and management of the condition. Some nursing homes provide education and training for carers and nurses upon induction, while others provide regular education to improve the knowledge of existing staff and to induct new staff. This could be in the form of pictures or pamphlets with information to assist with recognising the condition and what to do in order to properly cleanse and protect the skin in people with IAD.

*We give our staff very good education on IAD. We also have continence nurses in the workplace that can be called on to advise staff (Participant 6).*

*Continuing regular education for new staff and improving the knowledge of old staff and just make sure everybody is scheduled toileting (Participant 5).*



IAD is very common in aged care. Personal carers are responsible for monitoring the skin, while nursing staff are responsible for instructing on the management of the condition. Carers and nurses need to work closely as a team for best outcomes. Good communication between care staff and nurses is needed for early identification and proper management of any potential skin integrity issues. IAD is treatable and resolvable, but it “has to be a team effort” (Participant 11).

Good reporting and regular monitoring

The participants stated that personal carers were the first people who can find any skin impairment as they do all the personal care. If they come across any skin issues or abnormalities, they need to report it to the enrolled nurses (ENs). The ENs will check the skin integrity and report to the registered nurses (RN) who then need to do a skin assessment and determine what is happening to the damaged area and what is causing it. The RN needs to document the condition and complete a report or incident form as IAD is considered a skin injury – the condition needs to be monitored regularly until it is healed. The RN needs to create a care plan for the resident and instruct on the best treatment, which needs to be reviewed regularly and adjusted accordingly if needed. Some aged care facilities had continence nurses who can be called upon to advise. The doctors get involved if there is a fungal infection or discharge from the affected skin area.

*The carers most of the time will identify, will ask the nursing staff if there's something out of order, out of place, if there's some redness or that, and then the nurse will go and do a head-to-toe assessment, and then, obviously, it goes higher up the rank and the RN will come and assess as well and then a plan will be made from there (Participant 4).*

Episodes of IAD are monitored closely and if there is an increase in the number of people with IAD, a clinical audit will be held on site to determine why it is happening and what practices could be undertaken to better manage the IAD.

*We actually monitor incidents of IAD and if there's an increase in the numbers, we will go and have a look at that site, so we'll audit that site, we'll have a clinical audit and see why it's increased at that site and see what practices we can do better to manage it (Participant 6).*

An increased rate of skin impairments, including the development of IAD, can be due to gastroenteritis or influenza outbreaks, where residents must remain isolated in their own rooms, and staff do not have the capacity to adhere to care plans due to increased time for personal protective equipment application and removal and shortages of staff. Therefore, maintaining appropriate staffing in RACFs is essential to providing a safe work environment for all staff and for safe resident's care. Challenges directly associated with this research are described below.

Key theme 3: Current challenges

Two major challenges were identified by all the participants: the shortage of staff in nursing homes and the difficulty in distinguishing between IAD and pressure injuries.

Shortage of staff

The participants recognised that there was a major challenge to manage people with IAD adequately when there is not enough staff: the staff need to ensure that residents with incontinence are toileted on time (scheduled toileting); however, not enough staff members (care staff and nursing staff) and a low staff-to-resident ratio means that there is not enough staff to actually provide residents with IAD with adequate care. Scheduled toileting may not happen as it should

because of low staffing members. One participant indicated that there were 4 carers to 30 residents (Participant 5); another participant emphasised that a carer needs to toilet up to 10 residents in 2 hours which made it very difficult to stay on top of the toileting schedule (Participant 1). Staff need to “cut corners as they are really pushed for time”.

*There's just not enough staff, care staff and nursing staff, to be able to give, well, the time to residents that they deserve. So, I think, there's a lot of cutting corners, so some of the challenges I have, as an educator working in aged care space, is, here I am, like, pushing for good practice, take your time, dry well, use good skincare, you know, practices, but then there's care staff are really pushed for time, so they're cutting corners (Participant 6).*

The shortage of aged care staff is a well-known issue in Australia. Aged care organisations struggle to fill many carers and nurse shifts not only with their own staff, but also by staff employed by nursing agencies. Direct care staff struggle to follow residents' care plans when there is a 1:6 staff-to-resident ratio. Therefore, when there is a shortage of staff, other tasks such as medication management and assisting residents with meals take priority over following skin, continence, and toileting care plans.

Moreover, many aged care and nursing staff are from culturally and linguistically diverse backgrounds with English as their second language. While RNs and ENs need to pass an English test with a certain score to be able to obtain their professional registration with the Australian Health Practitioner Regulation Agency, there is no language test for carers. Consequently, there is an increased risk of miscommunication between direct care staff and nursing staff. On the other hand, nurses face difficulties in distinguishing IAD from pressure injuries, because both conditions affect the patient's buttocks and/or perineal areas and they often look very similar.

Differentiation between IAD and pressure injuries

The participants indicated that it was a significant challenge to differentiate IAD from pressure injuries (PIs), pointing out that IAD is not an injury. It is like dermatitis where there is no obvious skin damage or skin loss, and more like a rash or dry itchy skin; if it becomes severe, it can lead to skin sores, ulcers, and skin tears. IAD is known to be a skin condition as opposed to a pressure condition (Junkin & Selekof 2007; Beeckman, Woodward & Gray 2011). PI is a pain point that will start small and then become larger. PI is different in colour and shape and there will be at least partial skin loss, especially when it comes to stage two of the condition. PI goes further down into the dermal layers, and if a person is left immobile or sitting in one place for too long, this will cause trauma and bony prominence of the area exposed to the pressure (Alcoforado et al. 2019; Van Damme et al. 2017).

Even though the participants demonstrated good understanding of both conditions, they recognised that much of the time, it is “quite difficult to distinguish between them as they can look quite similar”. The participants admitted that it could be confusing to see the difference between the two conditions, and sometimes they needed to re-visit and re-evaluate the patient. When no-one at the site was able to diagnose the condition, they needed to involve a continence nurse or a doctor.

*A lot of the time it can become quite difficult because it looks quite similar. So, to be honest, most of the time, I do get confused with those two (conditions) (Participant 3).*

One of the regular monthly reports scheduled to be completed in the aged care sector is related to various skin impairments classified in different categories; for example, bruises, grazes, skin tears,

chronic wounds, surgical wounds, diabetes ulcers, pressure injuries, and IAD. For every skin impairment, the nurses must complete an incident report, create a wound chart, and monitor the skin impairment until it is healed. Wound photos and reviews must be completed at least once a week by an RN. If the skin impairment does not improve, a review of the current wound management plan and a referral to a wound specialist should be considered.

#### Key theme 4: Areas for improvement

The areas for improvement identified by the participants are closely related to the major challenges described in the section above.

##### Addressing the staff shortage

Improvements in the staff-to-resident ratio will allow an adequate number of staff to have enough time to assist residents in need in a timely manner. Extra carers and extra nurses on every single shift would mean having more time to spend with residents and keeping an eye on any early skin issues in people with incontinence to prevent the development of IAD. Having more time per resident allows staff to provide better care for residents requiring incontinence care in terms of regular scheduled toileting, changing of wet pads on time, proper cleaning, application of skincare products, and frequent repositioning to improve blood supply. This plan will contribute to a decrease in the number of incontinence episodes and reduce the development of IAD. Having an incontinence nurse would also be useful to assist and advise on IAD management.

*It would be great if there were more staff to give people more time and take more care when they do incontinence care, because I think that's one of the main key reasons there's an increase in incidents in IAD (Participant 6).*

Increasing the staff ratio would not only improve resident's skin, toileting, and continence care, it would also improve their quality of life.

##### Improving staff awareness

Even though most nursing homes provide regular education, the participants recognised that some carers still "lack a fair bit of education" (Participant 4). More education sessions, training, and promotion of products and continence pads are needed to ensure that carers know how to take proper care of people with incontinence. Promoting staff awareness is very important as IAD is a preventable condition. Better knowledge on how to use treatment products under regular supervision was also pointed out as an important factor for quick IAD resolution. On the other hand, some of the participants reported that education could lead to over-diagnosis of IAD in people with incontinence.

*Every little bit of skin rash (Participant 1).*

Furthermore, distinguishing between IAD and pressure injury was also found to be quite difficult as the two conditions are characterised by redness and inflammation of the skin.

*IAD and pressure injury can look quite similar (Participant 3).*

The participants admitted that sometimes they assumed a skin issue in someone with incontinence to be IAD, and if it was proven not to be, then it was assumed to be a pressure injury. Some staff could not distinguish between the two conditions immediately, so the patient would need to be re-visited and re-evaluated.

In summary, nurses and carers showed a good awareness of IAD in the nursing home setting. They were aware of the associated risk factors such as personal characteristics, health status, and environmental factors. IAD was considered by the participants to be an easily preventable condition. Good practices were mainly about prevention rather than treatment. Timely toileting, good hygiene, and the use of skincare products were identified as the best prevention strategies. Education and training of staff were also considered important for proper IAD management. However, two major challenges were identified by all the participants: staff shortages in nursing homes and the difficulty in distinguishing between IAD and pressure injuries. Addressing these challenges would improve clinical practice.

## CHAPTER 5 – Discussion

Two major challenges were identified. Shortage of staff represented as a low staff-to-resident ratio means lack of enough staff to provide residents with timely and adequate incontinence care. Another major challenge was the difficulty in differentiating between Incontinence Associated Dermatitis and pressure injury as they can look quite similar.

In Chapter 5, the main findings from the research were discussed to provide insights into the perspectives of nurses and carers in relation to the assessment and management of Incontinence Associated Dermatitis (IAD) in the nursing home setting. The need for this research emerged from the fact that IAD is very common in nursing homes with one in four residents potentially affected. However, an integrative literature review revealed an evidence gap in relation to the assessment, prevention, and management of IAD in the nursing home setting anywhere in the world, including in Australia.

The Interpretive Description methodology was selected to underpin this research as it sought to ‘describe, explore and explain’ a problem based on deep understanding of perceptions and experiences (Taylor, Kermode & Roberts 2006). It served the need to extend beyond mere description and into what can be learned (what are the main messages) and how it can be applied into practice (Thorne, Kirkham & MacDonald-Emes 1997; Thorne 2016). Thus, the focus of this research was to obtain an in-depth understanding of what is known, what works well, and what is challenging to nurses and caregivers when looking after people with IAD in nursing homes. The derived insights are interpreted within the context of what else is known from the relevant literature about the assessment and management of IAD. Finally, the main implications are discussed to improve and advance nursing home clinical practice regarding IAD.

### Assessment of IAD in nursing homes in Australia

This study found that the participants had a good awareness of the essence of IAD, which was defined by them as dermatitis associated with incontinence episodes, when the skin exposure to chemicals from the urine or faeces causes irritation and redness due to the disturbed PH balance and led to skin inflammation and damage. This definition is in line with the expert definition of IAD as skin damage associated with prolonged urinary or faecal exposure (Beeckman et al. 2015). A good understanding of the nature of IAD is very important to recognise and assess the condition early and to take measures to prevent it. Nurses and caregivers are part of the health teams responsible for direct care of nursing home residents, including their skin integrity (Beeckman et al. 2011). Thus, they need to have a very good understanding of skin structure to assess any skin changes associated with IAD (Alcoforado et al. 2019). The participants indicated they received training on skin care and IAD provided by their workplace in the form of regular skin integrity sessions, education by a continence nurse, or by companies supplying incontinence products.

The participants were aware that a variety of risk factors were associated with higher risk of IAD, such as obesity, poor nutrition and inadequate fluid intake, and lengthy exposure of the skin to acid and chemical substances as well as heat after an incontinence episode. Furthermore, the participants acknowledged that reduced mobility and cognitive deficit also contribute to the development of IAD, as once an incontinence episode occurred in people with limited mobility or dementia, the exposure of the skin to the incontinence residue poses a higher risk for IAD

development. This finding is consistent with numerous published studies which identified the same risk factors for IAD (Bliss et al. 2017b; Boronat-Garrido et al. 2016; Van Damme et al. 2017). The early assessment of IAD risk is important to avoid the complications and necessity of medical treatment (Gray, McNichol & Nix 2016). Timely identification of risk factors can guide nurses and caregivers to implement adequate preventative skin care interventions for people at high risk of IAD (Beeckman 2017). For example, promoting a healthy diet, good hydration, frequent movement of people with mobility issues, and assisting people with cognitive impairment with their toileting can reduce the occurrence of incontinence episodes and significantly reduce the development of IAD.

Correct differentiation of IAD from pressure ulcers is part of the assessment and needed for the precise diagnosis of IAD to implement adequate preventative and treatment measures (Beeckman 2017; Van Damme et al. 2017). The integrative literature review presented in Chapter 2 showed that the use of a valid and reliable instrument that provides an objective IAD assessment could be an integral part of clinical practice to help health professionals in the timely and accurate clinical assessment of IAD (Braunschmidt et al. 2013). However, the current research found no evidence of any classification or assessment tool being used in the nursing home setting to assist in the assessment of IAD, and with the differentiation between IAD and PI. Nurses relied mostly on their own knowledge and skills to distinguish between the two conditions, and sometimes there was a need to re-visit and re-evaluate the patient as it was difficult to correctly assess the condition at hand.

#### Prevention of IAD in nursing homes in Australia

IAD is a skin condition occurring due to urinary and faecal incontinence (Beeckman et al. 2015). Prevention strategies are recognised as effective strategies to promote the health and comfort of incontinent people and avoid the costs of treating the complications of incontinence (Gray 2014; Gray, McNichol & Nix 2016). There were two means of prevention – proactive, when the focus is on reversing the causes leading to the condition (i.e., avoiding incontinence and exposure of the skin to the harmful substances), and reactive, when the focus is on skin care and protection once an incontinence episode happens (Gray 2014; Gray, McNichol & Nix 2016).

IAD was considered by the participants to be an easily preventable condition. Good practices were mainly about prevention rather than treatment. Addressing the reversible causes of incontinence (proactive prevention) is one of the best ways to eliminate the occurrence of incontinence episodes and IAD. All the participants recognised that scheduled toileting plays a vital role in the prevention of IAD in people with restricted mobility and impaired cognition. Scheduled toileting minimised episodes of incontinence which saves staff time and cost as it reduces the rate of IAD or completely prevents it.

Once an incontinence episode occurs, there was a need for adequate skin care to avoid worsening skin damage (Gray 2014; Gray, McNichol & Nix 2016). Proper hygiene was considered by the participants to be vital as a reactive prevention strategy and included skin cleansing with proper cleansing agents (mild PH neutralised soap and water, or specifically designed continence wipes) and proper skin drying (preferably air drying). After this, practice structured skincare regimens with certified skincare products (for example skin barrier creams, such as ABENA, Cavilon, or Moli Care) needed to be used to moisturise and protect the skin to maintain skin integrity and repair damaged tissue. Regular checks, timely changing of continence aids, and scheduled repositioning and toileting

of people with reduced mobility were also considered important to avoid, or limit, exposure of the skin to residues from incontinence and to improve blood supply.

The reactive prevention strategies identified by the participants are in accord with the integrative literature review presented in Chapter 2. Structured skin care regimens consisting of gentle skin cleansing, moisturising, and skin protection are reported to be effective prevention strategies as they protect the skin from the damaging effects of incontinence chemicals (Beeckman et al. 2011; Beeckman et al. 2016; Bliss et al. 2007b; Kon et al. 2017). It is evident that the participating nurses from nursing homes in Australia are using appropriate and recognised strategies for IAD prevention, such as scheduled toileting, good hygiene, and structured skin care regimens.

#### Multidisciplinary management of IAD in nursing homes in Australia

Ensuring skin integrity in people with incontinence is a multidisciplinary effort (Flanagan 2020). The participants indicated that their residential aged care facilities had good reporting systems and clear care plans for management of people with incontinence, where the required scheduled toileting, the daily thorough cleaning and drying, and skin product application was stated. Regular monitoring and good teamwork between care staff and nurses was needed for proper management of any potential skin integrity problems. Physiotherapists, personal carers, and enrolled, registered, and continence nurses all play important roles in a multidisciplinary team when it came to the management of people with IAD. They were closely involved in all steps of management, from assessment of skin integrity in people with incontinence for early detection of skin abnormalities through to the implementation of best treatment measures to avoid worsening of skin damage. Regular monitoring and reviews are highlighted as important management strategies allowing the adjustment of the care accordingly until the condition is healed. Doctors are usually involved if there is fungal infection or discharge from the affected skin area to prescribe targeted treatment for secondary infections.

#### Challenges around IAD in nursing homes in Australia

A major challenge identified by the participants is how to differentiate IAD from pressure injury (PI). Misclassification between the two conditions frequently occurs, which impairs the quality of care (Beeckman 2017). The correct differentiation of IAD from pressure ulcers is needed for the precise diagnosis of IAD to implement adequate preventative and treatment measures (Beeckman 2017; Van Damme et al. 2017).

Even though the participants showed good understanding of both conditions, they recognised that it is quite difficult to distinguish between them as they can look quite similar. It was admitted that, at times, it could be confusing to see the difference between the two conditions, and initially, a skin issue in incontinence residents is assumed to be IAD, and if it is proven that it is not, then it is assumed to be a pressure injury. The use of a valid and reliable instrument would assist with the objective and accurate assessment of IAD (Braunschmidt et al. 2013); however, the participants implied that no classification or assessment tool was used in the nursing home setting to assist with the assessment of IAD, and the differentiation between IAD and PI.

While some nursing homes provided education and training for carers and nurses in the form of pictures or pamphlets with information to assist with the recognition of IAD, nurses relied mostly on their own knowledge and skills, and sometimes there was a need to re-visit and re-evaluate the patient or to involve a continence nurse or a doctor. The participants pointed out that more education sessions and training were needed to ensure that carers know how to differentiate

between the two conditions. There was one unexpected finding by some participants reporting that education could lead to over-diagnosis, as “every little bit of skin rash” is identified as IAD in people with incontinence.

A second major challenge recognised by the participants is how to adequately manage people with IAD when there is a shortage of staff. Low staff numbers and a low staff-to-resident ratio prevents residents with incontinence being toileted on time, changed as needed, or repositioned frequently. This ratio affected the quality and adequacy of care for people with IAD. A study by Moore and Price (2004) also found that a lack of staff and time were identified by a majority of nurses as important barriers to carrying out risk assessment and pressure ulcer prevention. Addressing staff shortages would allow an adequate number of staff to have enough time to assist residents with IAD in a timely manner.

Furthermore, many personal care workers employed in RACFs are from culturally and linguistically diverse backgrounds with English as their second language. Many of them need additional education regarding IAD and its management. Many registered and enrolled nurses need ongoing training in the diagnosis, management, and treatment of IAD. However, there was a lack of wound specialists and continence nurse advisors across the whole healthcare industry. There were only a few continence nurse advisors working in RACFs, and evidently, their numbers are not enough to provide evidence-based practice education to the workforce.

## Implications

Based on the findings of this study, the implications for clinical practice, education providers, and future research are highlighted below.

### Implications for clinical practice

IAD is a skin condition due to urinary and faecal incontinence. Its prevalence in nursing home settings is high with one in five developing the condition. Prevention strategies are recognised as effective ways to promote the health and comfort of incontinent people and avoid the costs of treating the complications of incontinence. It is evident that participating nurses from nursing homes in Australia are using appropriate strategies for IAD prevention; however, clinical practice could benefit from the introduction of unified protocols and practice recommendations for IAD prevention focusing on the concept of a structured skin care regimen based on the principles of cleansing, moisturising, and protecting.

Furthermore, to facilitate the easy and early assessment of IAD, as well correct differentiation from pressure ulcers, the use of a valid, simple to use, and reliable classification instrument/technology that objectively assesses the severity of IAD could be an important part of clinical practice. This would help health professionals with timely and accurate clinical assessment of IAD and its differential diagnosis from pressure ulcers. An accurate diagnosis of IAD would promote high quality management strategies.

Ensuring an adequate staff-to-resident ratio is important for providing high quality care to residents with IAD. Having enough carers and nurses’ results in having more time to spend with residents and keeping an eye on any early skin issues in people with incontinence to prevent the development of IAD. Having more time per resident allows staff to provide better care in terms of regular scheduled toileting, changing of wet pads on time, proper cleaning and skincare, and frequent re-positioning to



improve blood supply. This approval would decrease the number of incontinence episodes and will reduce the development of IAD.

#### Implications for education providers

Educating nurses about the complete list of potential risk factors and how to identify residents at risk of IAD is the first step in prevention. Promoting staff awareness is very important as IAD is a preventable condition. Education of nurses and carers about the common clinical manifestations of IAD and how to differentiate IAD from Stage I and II pressure ulcers will improve their ability to recognise and properly manage IAD. Standardised essential knowledge that IAD is a 'top-down' form of damage vs a 'bottom-up' form of damage due to pressure ulcers needed to be achieved. The implementation of a clinically reviewed education/assessment tool to teach nurses about classification skills for the differentiation of IAD from pressure ulcers will help with the timely and correct diagnosis of IAD and the determination of appropriate management.

Regular education sessions, and training and promotion of products and continence pads are needed to ensure that carers know how to take proper care of people with incontinence. Such education sessions could be organised either as a part of induction or as part of regular and ongoing skin integrity sessions. In addition, continence management should be part of nursing training, and continence care and prevention of IAD should be at the forefront of the nursing agenda, because good continence care can lead to the prevention of IAD. Furthermore, better knowledge on how to use skincare products and a good understanding of the benefits of moisture barriers was an important factor for quick IAD resolution. Consequently, nursing staff should use appropriate skincare products to prevent or treat IAD.

#### Implications for future research

Further research is needed to investigate what is currently implemented for IAD management in Australia's nursing homes. Looking into best practices for assessment, prevention, and treatment can inform the development of standardised clinical guidelines for IAD in nursing homes. More research is also needed to enhance knowledge and skills in the differentiation of IAD from pressure ulcers, and to inform the development of a validated assessment tool to be used in clinical practice in Australian nursing homes.

#### Limitations

The limitations of the study relate to sample size and the interview method. The study reflects the perceptions of 10 nurses and 1 caregiver on the assessment and management of IAD. The small sample size may not be representative enough to provide a complete picture of comprehensive assessment and management techniques; however, the tertiary degree qualification of most of the participants, the variety of roles they fill in nursing homes, and the fact that 90% of them had over 5 years of exposure to the care and management of nursing home residents implies that the findings could indeed be generalised.

The data for the study were gathered through face-to-face interviews of around 30 minutes each in length. The limited time of the interviews may have had an impact on the level of detail provided by the participants. In addition, a single researcher reviewed the literature, conducted the interviews, and transcribed and interpreted the collected data, which may have introduced some level of subjective bias.

## Conclusions

This study is the first to research the perspectives of nurses and carers in relation to the assessment and management of IAD in nursing homes in Australia. The aim of the study was underpinned by the recognition in the published literature of a lack of standardised evidence-based knowledge and clear and structured strategies for the effective prevention and management of IAD, not only in nursing homes but in any type of setting. The knowledge gained from this study may have relevant implications for clinical practice and for further research.

This study has provided insight into nurses' and carers' awareness of IAD and the risk factors for the condition in the Australian nursing home setting. Timely assessment of incontinent people at risk of developing IAD is important to implement adequate preventative skin care interventions. IAD was considered by the participants to be an easily preventable condition. The prevention of IAD can promote the health and comfort of incontinent people and avoid the costs of treating the complications of incontinence. There were two main principles involved in the prevention of IAD, namely avoiding contact with, and protecting the skin from, the damaging substances in incontinence. This study showed that the participants were used appropriate and recognised strategies for IAD prevention, such as timely toileting, good perineal hygiene, and the use of structured skincare regimens. Nursing homes had in place clear care plans and well-established multidisciplinary practices for the management of people with IAD.

The main contribution of the current research is that it has identified two major problems associated with IAD in nursing homes: staff shortages and diagnostics. Staff shortages were emphasised as a significant issue, negatively affecting the quality of care for people with incontinence and IAD. The second problem was nursing staff difficulties in distinguishing between IAD and pressure ulcers, with the two conditions often being confused.

Based on the research findings, the following recommendations have been made in order to improve clinical practice: 1) The introduction of unified protocols, guidelines, and practice recommendations for IAD prevention and management across all nursing homes in Australia which can further improve the quality of clinical practice; 2) Ensuring a proper staff-to-resident ratio which will allow enough time per resident to provide adequate care in terms of addressing the reversible causes of incontinence and the implementation of best prevention and management strategies for IAD; and 3) The implementation of a valid, simple to use, and reliable IAD classification instrument could facilitate the early and accurate clinical assessment of IAD and its differential diagnosis from pressure ulcers to promote adequate prevention and management strategies.

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## Appendix 1

### Results of the critical appraisal

**Table 1. Critical appraisal questions for RCT**

1	Did the study address a clearly focused research question?
2	Was the assignment of participants to interventions randomised?
3	Were all participants who entered the study accounted for at its conclusion?
4	Were the participants 'blind' to intervention they were given?
5	Were the study groups similar at the start of the randomised controlled trial?
6	Apart from the experimental intervention, did each study group receive the same level of care (that is, were they treated equally)?
7	Were the effects of intervention reported comprehensively?
8	Was the precision of the estimate of the intervention or treatment effect reported?
9	Do the benefits of the experimental intervention outweigh the harms and costs?
10	Can the results be applied to your local population/in your context?
11	Would the experimental intervention provide greater value to the people in your care than any of the existing interventions?

**Table 2. Critical appraisal of the included RCT studies**

Study	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q.10	Q11
Beeckman et al. 2011	Y	Y	Y	N	Y	Y	Y	Y	Can't tell	Y	Y
Kon et al. 2017	Y	Y	Y	Y	Y	Y	Y	Y	Can't tell	Y	Y
Van Damme, et al. 2017	Y	N	Y	N	Can't tell	Y	Y	Y	Can't tell	Y	Y

**Table 3. Critical appraisal questions for Cohort studies**

1	Did the study address a clearly focused issue?
2	Was the cohort recruited in an acceptable way?
3	Was the exposure accurately measured to minimise bias?
4	Was the outcome accurately measured to minimise bias?

5	Have the authors identified all important confounding factors? Have they take account of the confounding factors in the design and/or analysis?
6	Was the follow up of subjects complete enough? Was the follow up of subjects long enough?
7	What are the results of this study?
8	How precise are the results?
9	Do you believe the results?
10	Can the results be applied to the local population?
11	Do the results of this study fit with other available evidence?

**Table 4. Critical appraisal of the included cohort studies**

Study	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q.10	Q11
Bliss 2017a	Y	Y	Y	Y	Y	Y	Incidence Onset Predictors	Y	Y	Y	Y
Bliss 2017b	Y	Y	Y	Y	Y	Y	Prevention Racial disparities	Y	Y	Y	Y

**Table 5. Critical appraisal questions for qualitative studies**

1	Was there a clear statement of the aims of the research?
2	Is a qualitative methodology appropriate?
3	Was the research design appropriate to address the aims of the research?
4	Was the recruitment strategy appropriate to the aims of the research?
5	Was the data collected in a way that addressed the research issue?
6	Has the relationship between researcher and participants been adequately considered?
7	Have ethical issues been taken into consideration?
8	Was the data analysis sufficiently rigorous?
9	Is there a clear statement of findings?
10	How valuable is the research?

**Table 6. Critical appraisal of the included cohort studies**

Study	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q.10
Kayser et al. 2019	Y	Y	Y	Y	Y	Y	Can't tell	Y	Y	Y

## Appendix 2

Figure 1. Recruitment flyer

**CAN WE IMPROVE MANAGEMENT OF INCONTINENCE ASSOCIATED DERMATITIS?**



**Would you like to be involved in a nursing exploratory study?**

**It will involve a face to face interview at a time and place of your convenience.**

**Information can be sent to you and any questions you may have answered.**

**If you are interested please contact:**  
**Petya Zhelezarova**  
email: [zhe10001@flinders.edu.au](mailto:zhe10001@flinders.edu.au)  
Telephone: 0415 933 978

*This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee in South Australia (Project number 8344). For queries regarding the ethics approval of this project, or to discuss any concerns or complaints, please contact the Executive Officer of the committee via telephone on +61 8 8201 3116 or email [human.researchethics@flinders.edu.au](mailto:human.researchethics@flinders.edu.au)*

Figure 2. Letter of introduction



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### LETTER OF INTRODUCTION

Dear Sir/Madam,

This letter is to introduce Petya Zhelezarova who is a Master student (by coursework and research) in the College of Nursing and Health Sciences at Flinders University. She will produce her student card, which carries a photograph, as proof of identity.

She is undertaking research leading to the production of a thesis and other publications on the subject of Incontinence Associated Dermatitis in Residential Aged Care – an exploratory study of staff perspectives.

She would like to invite you to assist with this project by agreeing to be involved in an interview, which covers certain aspects of this topic. No more than 1 hour on 1 occasion would be required.

The research will be conducted at a convenient time and place for you. The interview might be undertaken over the telephone for interstate participants, or face to face if in metropolitan Adelaide.

Be assured that any information provided will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting thesis, report or other publications. You are, of course, entirely free to discontinue your participation at any time or to decline to answer particular questions.

Since she intends to make a tape recording of the interview, she will seek your consent, on the attached form, to record the interview, to use the recording or a transcription in preparing the thesis, report or other publications, on condition that your name or identity is not revealed and the recording will not be made available to any other person other than the researcher and supervisors.

Any enquiries you may have concerning this project should be directed to me at the address, telephone or email address given above. Thank you for your attention and assistance.

Yours sincerely,

Dr Anita De Bellis

*This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee in South Australia (Project number 8344f). For queries regarding the ethics approval of this project, or to discuss any concerns or complaints, please contact the Executive Officer of the committee via telephone on +61 8 8201 3116 or email [human.researchethics@flinders.edu.au](mailto:human.researchethics@flinders.edu.au)*

Figure 3. Consent form



CONSENT FORM FOR PARTICIPATION IN RESEARCH (Interview)

Incontinence Associated Dermatitis in Residential Aged Care – an exploratory study of staff perspectives

- I .....  
being over the age of 18 years hereby consent to participate as requested in an interview for the research project with the title listed above.
1. I have read the Information provided.
  2. Details of procedures and any risks have been explained to my satisfaction.
  3. I agree to audio recording of my Information and participation.
  4. I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.
  5. I understand that:
    - a) I may not directly benefit from taking part in this research.
    - b) Participation is entirely voluntary and I am free to withdraw from the project at any time; and can decline to answer particular questions.
    - c) The information gained in this study will be published as explained, and my participation will be anonymous and confidential.
    - d) I may ask that the audio recording to be stopped at any time, and that I may withdraw at any time from the session or the research without disadvantage.
  6. I understand that only the researchers on this project will have access to my research data and raw results; unless I explicitly provide consent for it to be shared with other parties
  7. Whether I participate or not, or withdraw after participating, will have no effect on my current employment.

Participant's name.....

Participant's signature..... Date.....

I certify that I have explained the study to the volunteer and consider that she/he understands what is involved and freely consents to participation.

Researcher's name.....

Researcher's signature..... Date.....

*This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee in South Australia (Project number 8344). For queries regarding the ethics approval of this project, or to discuss any concerns or complaints, please contact the Executive Officer of the committee via telephone on +61 8 8201 3110 or email [human.researchethics@flinders.edu.au](mailto:human.researchethics@flinders.edu.au)*

Figure 4. Interview information sheet



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## INFORMATION SHEET

### Interview

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**Title:** 'Incontinence Associated Dermatitis in Residential Aged Care – an exploratory study of staff perspectives'

#### Researcher

Mrs Petya Zhelezarova  
College of Nursing and Health Sciences  
Flinders University  
Tel: ~~xxxx xxxx~~  
Email: [petya.zhelezarova@flinders.edu.au](mailto:petya.zhelezarova@flinders.edu.au)

#### Supervisors

Dr Anita De Bellis  
College of Nursing and Health Sciences  
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Tel: 8201 3441  
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Dr Nina Sivertsen  
College of Nursing and Health Sciences  
Flinders University  
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Email: [nin.sivertsen@flinders.edu.au](mailto:nin.sivertsen@flinders.edu.au)

#### Description of the study

This study is part of the project titled 'Incontinence Associated Dermatitis in Residential Aged Care – an exploratory study of staff perspectives'. This project will investigate the association between Incontinence and Dermatitis from the perspective of direct care staff. This project is supported by Flinders University, College of Nursing and Health Sciences as part of a Masters research project.

#### Purpose of the study

This project aims to explore and define the existing knowledge and experiences of Direct Care Staff in Residential Aged Care Facilities in relation to Incontinence Associated Dermatitis.

#### What will I be asked to do?

You are invited to attend a one-on-one interview with a researcher who will ask you a few questions regarding your views about Incontinence Associated Dermatitis in Residential Aged Care. Participation is entirely voluntary. The interview will take up to 60 minutes. The interview will be audio recorded using a digital voice recorder to help with reviewing the results. Once recorded, the interview will be transcribed (typed-up) and stored as a computer file but will be anonymous and not identified your interview.

#### **What benefit will I gain from being involved in this study?**

The sharing of your experiences will contribute to early identification of dermatitis caused by incontinence, better selection of skin and continence products, more effective treatment, a potential reduction in costs and reduced hospitalisations. This research will generate new knowledge and will allow direct care staff to better advocate for patients and provide the best possible care. Staff can apply their new knowledge that will promote evidence-based care. Also, this study can guide further research and education of direct care staff.

#### **Will I be identifiable by being involved in this study?**

We do not need your name and you will be anonymous. Any identifying information will be removed, and your comments will not be linked directly to you. All information and results obtained in this study will be stored in a secure way, with access restricted to relevant researchers. Please note that the Interviews will not be taken at the workplace and your employment will not be affected in any way.

#### **Are there any risks or discomforts if I am involved?**

The researcher anticipates few risks from your involvement in this study, however, given the nature of the project, some participants could experience emotional discomfort. If any emotional discomfort is experienced please contact Crisis Care 1300 512 409 or Lifeline on 13 11 14 for support or counselling that may be accessed free of charge by all participants. If you have any concerns regarding anticipated or actual risks or discomforts, please raise them with the researcher.

#### **How do I agree to participate?**

Participation is voluntary. You may answer 'no comment' or refuse to answer any questions, and you are free to withdraw from the interview at any time without effect or consequences. A consent form accompanies this information sheet. If you agree to participate please read and sign the form and bring it to the interview.

#### **How will I receive feedback?**

On project completion, outcomes of the project will be published and can be summarised for participants on request.

Thank you for taking the time to read this information sheet, and we hope that you will accept our invitation to be involved.

Please contact: Petya Zhelezarova by telephone on: 0415933978 or by email at [petya.zhelezarova@flinders.edu.au](mailto:petya.zhelezarova@flinders.edu.au) to arrange a convenient interview time and place.

*This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee in South Australia (Project number 8344). For queries regarding the ethics approval of this project, or to discuss any concerns or complaints, please contact the Executive Officer of the committee via telephone on +61 8 8201 3110 or email [human.researchethics@flinders.edu.au](mailto:human.researchethics@flinders.edu.au)*

**Table 1. Interview questions**

Type	Question
<p><b>Demographic related</b></p> <p>:</p>	<p>What is your age range?</p> <p>What is your gender?</p> <p>What is your highest educational qualification?</p> <p>How long have you been working in aged care?</p> <p>Do you have any education on continence?</p> <p>Do you have any formal training around skin care and prevention of IAD in elderly?</p> <p>Could you estimate how many residents with IAD you have worked with in the past 3 months</p>
<p><b>Research related</b></p>	<p>Tell me how do you define IAD?</p> <p>Can you describe what you know about IAD?</p> <p>What are the challenges about working with clients with IAD?</p> <p>Can you describe the severity of the IAD?</p> <p>Is IAD more prevalent in residents with urinary or faecal incontinence or both?</p> <p>Can you tell me more about what you believe causes IAD?</p> <p>From your experience what are the factors associated with IAD in aged care?</p> <p>Can you tell me about the different types of treatments you have experienced for IAD?</p> <p>Can you tell me something around the association between IAD and resident's mobility, heat exposure, scheduled toileting, obesity, use of soap and water or use of skin barrier cream?</p>



	<p>How do you manage IAD at your RACF?</p> <p>Can you describe how you distinguish IAD from a Pressure injury?</p> <p>Can you describe the reporting and documenting of IAD?</p> <p>Can you tell me something around what you think would be useful around working with IAD in aged care? What is already working well? What could be improved?</p>
<b>Additional</b>	<p>Do you have any other comments or is there anything else that you would like to add?</p>

## Figure 5. Ethics approval

### APPROVAL NOTICE

Project No.:

8344

Project Title:

Incontinence Associated Dermatitis in Residential Aged Care - an exploratory study of staff perspectives

Principal Researcher:

Miss Petya Zhelezarova

Email:

[zhel0001@flinders.edu.au](mailto:zhel0001@flinders.edu.au)

Approval Date:

18 June 2019

Ethics Approval Expiry Date:

1 July 2022

The above proposed project has been **approved** on the basis of the information contained in the application, its attachments and the information subsequently provided.

### RESPONSIBILITIES OF RESEARCHERS AND SUPERVISORS

#### 1. Participant Documentation

Please note that it is the responsibility of researchers and supervisors, in the case of student projects, to ensure that:

- all participant documents are checked for spelling, grammatical, numbering and formatting errors. The Committee does not accept any responsibility for the above mentioned errors.
- the Flinders University logo is included on all participant documentation (e.g., letters of Introduction, information Sheets, consent forms, debriefing information and questionnaires – with the exception of purchased research tools) and the current Flinders University letterhead is included in the header of all letters of introduction. The Flinders University international logo/letterhead should be used and documentation should contain international dialling codes for all telephone and fax numbers listed for all research to be conducted overseas.

- the SBREC contact details, listed below, are included in the footer of all letters of introduction and information sheets.

*This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 'INSERT PROJECT No. here following approval'). For more information regarding ethics approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email [human.researchethics@flinders.edu.au](mailto:human.researchethics@flinders.edu.au).*

## 2. Annual Progress / Final Reports

In order to comply with the monitoring requirements of the *National Statement on Ethical Conduct in Human Research 2007 (updated 2018)* an annual progress report must be submitted each year on the **18 June** (approval anniversary date) for the duration of the ethics approval using the report template available from the [Managing Your Ethics Approval](#) web page.

**Please note** that no data collection can be undertaken after the ethics approval expiry date listed at the top of this notice. If data is collected after expiry, it will not be covered in terms of ethics. It is the responsibility of the researcher to ensure that annual progress reports are submitted on time; and that no data is collected after ethics has expired.

If the project is completed *before* ethics approval has expired please ensure a final report is submitted immediately. If ethics approval for your project expires please either submit (1) a final report; or (2) an extension of time request (using the modification request form).

First Report due date:

**18 June 2020**

Final Report due date:

**1 July 2022**

### Student Projects

For student projects, the SBREC recommends that current ethics approval is maintained until a student's thesis has been submitted, assessed and finalised. This is to protect the student in the event that reviewers recommend that additional data be collected from participants.

## 3. Modifications to Project

Modifications to the project must not proceed until approval has been obtained from the Ethics Committee. Such proposed changes / modifications include:

- change of project title;
- change to research team (e.g., additions, removals, researchers and supervisors)
- changes to research objectives;
- changes to research protocol;
- changes to participant recruitment methods;

- changes / additions to source(s) of participants;
- changes of procedures used to seek informed consent;
- changes to reimbursements provided to participants;
- changes to information / documents to be given to potential participants;
- changes to research tools (e.g., survey, interview questions, focus group questions etc);
- extensions of time (i.e. to extend the period of ethics approval past current expiry date).

To notify the Committee of any proposed modifications to the project please submit a Modification Request Form available from the [Managing Your Ethics Approval SBREC](#) web page. Download the form from the website every time a new modification request is submitted to ensure that the most recent form is used. Please note that extension of time requests should be submitted prior to the Ethics Approval Expiry Date listed on this notice.

**Change of Contact Details**

If the contact details of researchers, listed in the approved application, change please notify the Committee so that the details can be updated in our system. A modification request is not required to change your contact details; but would be if a new researcher needs to be added on to the research / supervisory team.

**4. Adverse Events and/or Complaints**

Researchers should advise the Executive Officer of the Ethics Committee on 08 8201-3116 or [human.researchethics@flinders.edu.au](mailto:human.researchethics@flinders.edu.au) immediately if:

- any complaints regarding the research are received;
- a serious or unexpected adverse event occurs that effects participants;
- an unforeseen event occurs that may affect the ethical acceptability of the project.

Kind regards

Andrea **OR**

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Andrea Mather and Rae Tyler

Executive Officers, Social and Behavioural Research Ethics Committee

Research Development and Support

P: (+61-8) 8201 3116 | [andrea.mather@flinders.edu.au](mailto:andrea.mather@flinders.edu.au)

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Sturt Road, Bedford Park, South Australia, 5042

GPO Box 2100, Adelaide, South Australia, 5001

[http://www.flinders.edu.au/research/researcher-support/ebi/human-ethics/human-ethics\\_home.cfm](http://www.flinders.edu.au/research/researcher-support/ebi/human-ethics/human-ethics_home.cfm)



*Proactively supporting our Research*

### Appendix 3

<b>Characteristics of the 11 participants</b>	<b>Number of people</b>	<b>Percent of all participants</b>
<b>Age group</b>		
< 30 years old	1	9
30 to 40 years old	4	36
41 to 50 years old	3	27
> 50 years old	2	18
<b>Gender</b>		
Females	9	81
Males	2	18
<b>Education</b>		
Bachelor in nursing	8	72
Diploma in enrolled nursing	3	27
<b>Current role in aged care</b>		
Registered nurse	5	45
Enrolled nurse	3	27
Continence nurse	1	9
Educator	1	9
Personal care	1	9
<b>Years of age care experience</b>		
Less than 5 years	1	9
5 to 10 years	8	72
Over 10 years	2	18

## Appendix 4

Table 3. Summary of literature search results

Reference	Sample	Study design	Outcomes	Limitations
Beeckman et al. 2011	141 nursing home residents in Belgium	Randomised controlled trial	1) IAD baseline prevalence of 22.5% in incontinence patients 2) Prevention and treatment of IAD – use of structured skin regimen significantly decreased the prevalence of IAD as well as its severity, compared to use of water and pH neutral soap	Post-hoc power analysis instead of prospective power analysis. The frequency of change of under pads was not standardised
Bliss et al. 2007	981 nursing home residents in the USA	Quasi-experimental study	1) IAD incidence of 3.4% in residents with incontinence 2) Prevention with 4 different defined regimens containing skin cleanser and a moisture barrier were associated with low incidence of IAD	The 6-week surveillance period may not be long enough to capture the long-term effectiveness of the prevention regimens
Bliss 2017a	10,713 long-term care residents in the USA	Cohort study	1) Incidence of 5.5% in all residents 2) Onset of IAD – 14 days 3) Predictors for IAD – greater functional limitations, lesser cognitive deficits, not receiving preventative interventions, etc.	Missing information on other possible predictors to be included in the models, such as knowledge and attitudes of nursing staff
Bliss 2017b	10,713 long-term care residents in the USA	Cohort study	1) Proportion of residents with new incontinence who received IAD prevention: 0.12% 2) There were no racial or ethnic disparities in IAD prevention for any minority group	May not have captured all relevant predictors for prevention, such as the culture in the nursing homes
Boronat-Garrido et al. 2016	3,406 nursing home	Cross-sectional study	1) Prevalence of 5.2% in incontinent people 2) Assessment of severity and risk for IAD with	Potential selection bias due to voluntary participation on

	residents in Germany		Incontinence Associated Dermatitis Intervention Tool-D (IADIT-D) instrument 3) Risk factors for IAD – female gender, pressure injury, and higher body mass index	institutional and individual level
Braunshmidt et al. 2013	381 nursing home residents in Germany	Cross-sectional study	1) Incontinence Associated Dermatitis Intervention Tool-D (IADIT-D) for risk assessment and severity classification of IAD showed good inter-rater reliability	The use of convenience sample can result in biased results if the participants are atypical for the population
Clarke-O’Neil et al. 2015	12 nursing home residents in the UK	Evaluation study	1) Assessment of severity of IAD with 4 instruments – three text-based instruments and one photograph-based. The photograph-based was easier to use and less time-consuming	Time constraints and use of photographs rather than examination of patients’ skin in person
Kayser et al. 2019	3,035 long-term care residents in the USA and Canada	Quantitative study	1) Prevalence of 5.3% in all patients 2) Prevalence of 8.4% in incontinence patients	Potential sampling bias which could have inflated prevalence as the participating facilities were more likely to track skin issues
Kon et al. 2017	33 long-term care residents in Japan	Randomised controlled trial	1) Use of multifunctional skin barrier cream reduced inflammation, improved hydration, and could be considered to be effective for treatment of mild IAD	The enrolled patients were women with only mild IAD which limits generalisation of the results
Kottner et al. 2014	696 nursing home residents in Austria	Cross-sectional study	1) Prevalence of 2.6% in all patients 2) Prevalence of 3.1% in incontinent patients	Selection and non-response bias due to the voluntary participation of institutions and people

Van Damme et al. 2017	381 nursing home residents in Belgium	Randomised controlled trial	1) Incidence of 30% in all residents 2) Risk factors for IAD – limited mobility, erythema due to incontinence, and friction and shear problems	Lack of information of other unknown risk factors in the models such as the ratio of staff-to-residents
Van den Bussche et al. 2018	108 nursing home residents in Belgium	Evaluation study	1) Prevalence of 21.3% in incontinent residents using the Minimum Data Set for IAD (MDS-IAD) instrument 2) Assessment of adequacy of IAD management: 96% received incomplete or no prevention; 91% received incomplete or incorrect treatment	The study could not recruit a representative sample of nursing homes as the participation was voluntary – the smaller sample of residents means that the results should be interpreted with caution



## Appendix 5

**Figure 1.** PRISMA Flow chart of electronic database search (Page et al. 2021)

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