Impact Incontinence.

Can We Put the Ambulance at the Top of the Cliff?

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Abstract

Incontinence is a prevalent issue affecting over a quarter of the New Zealand population, yet it is a taboo subject - with many people suffering in silence. This research focuses on the development of a specialised assessment tool tailored for ambulance clinicians, aiming to facilitate the identification of continence concerns in the context of falls in the community. The aim of this research is to answer the research question:

> *How can the development of an assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community?*

Ambulance clinicians play a crucial role in responding to incidents of slips, trips, and falls. While there are many reasons a person falls, and ambulance clinicians are taught to assess for risk factors associated with a fall, one cause of falls that is not generally discussed is incontinence or continence concerns. A survey was designed and conducted to gain insights into ambulance clinicians' knowledge and education regarding incontinence and their understanding of the relationship between falls and incontinence. This evaluation provided an in-depth overview of their comprehension of the sometimes-complex link between falls and incontinence. Following an analysis of the survey, an assessment tool was designed to identify continence concerns. This tool aims to streamline the assessment of continence-related issues in the context of falls within the community.

The methodology used for this research was critical participatory action research (CPAR), characterised by the active involvement of an action research working group (ARWG). Born from the early works of Lewin in the 1940s, CPAR entails iterative cycles of planning, implementing changes, observing outcomes, reflecting on processes, and re-planning. The ARWG was comprised of co-researchers who collaborated at multiple decision-making stages, thus empowering them to adopt a thoughtful approach to self-transformation, refining their practices, and enhancing the conditions under which they practice.

This study's significance lies in the potential role of ambulance clinicians as a link in the identification of continence concerns and subsequent referral to healthcare services. By addressing this gap, the research aims to provide a voice for people enduring the often-silent burden of incontinence. The empowerment of people through increased awareness and access to assistance can address their concerns, and as a result, there is the potential to reduce the risk of falls associated with incontinence or continence concerns. This comprehensive approach aligns with the broader goal of enhancing the overall well-being of individuals experiencing the multifaceted challenges of living with a continence concern.

Key findings from this research detail that ambulance clinicians support the inclusion of a clinical assessment tool to screen for continence concerns in their daily practice. They feel it should be integrated into an electronic reporting process for ease of use and referrals to specialist services. The ambulance clinicians felt that the time spent completing this tool with a patient is valuable and that it could make a difference for people who have fallen and experience a continence concern.

Reflections from the ARWG, ambulance clinicians and the researcher all demonstrate critical changes within their clinical practice that have occurred because of their involvement in this research project. This highlights the translation of research into practice, a key outcome of a CPAR project.

Research Outputs

Dissemination of this research and raising awareness of continence concerns and falls is crucial to establishing change in clinical practice. The following is a list of research outputs, publications, and presentations I achieved through out of my doctoral studies.

Williams, C. (2024). The lived experience of access to continence care in New Zealand. A community perspective. International Continence Society 2024 Conference. Retrieved from https://www.ics.org/2024/abstract/749

Fear, L., & Williams, C. (2023). Continence NZ Service Users | Service Review and Research Project.

Williams, C., & Fear, L. (2023). The lived experience of access to continence care in Aotearoa, New Zealand: A community perspective.

Williams, C. (2023). Impact incontinence: Can the ambulance be at the top of the cliff?. In DEMO-ECR (Demography - Early Career Researcher) symposium / 2023 New Zealand Population Conference. Auckland: Population Association of New Zealand. Retrieved from https://population.org.nz/nzpopcon/

Williams, C. (2023). An exploration of ambulance clinicians' knowledge and experiences to help develop a tool to assess urinary incontinence in the community. A New Zealand perspective. In Continence Vol. 7. Toronto: Elsevier. doi:10.1016/j.cont.2023.100904

Williams, C. (2023). Impact incontinence: Can the ambulance be at the top of the cliff?. In College of Gerontology Nursing Conference 2023. Wellington: Paula Armstrong.

Williams, C. (2021). Paramedic student engagement in palliative care. How did we reframe their fear to privilege?. In College of Paramedics International Education Conference. Online. Retrieved from https://collegeofparamedics.co.uk/InternationalConf

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Austin, D., Ferkins, L., Williams, C., Morrison, T., & Orr, E. (2020). Looking for the 'ah ha' moments in action research understanding. In ALARA-BALT Australasian Action Learning, Action Research Conference 2020. Online. Retrieved from https://www.alarassociation.org/?q=about-us/conferences-and-congresses/alara-balt-2020/program

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Attestation of Authorship

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

Signature:  Date: 13.09.2024

List of Abbreviations

ACC – Accident Compensation Corporation

ACOVE-2 – Assessing Care of Vulnerable Elders

APP – Application for smartphone devices

AR – Action Research

ARWG – Action Research Working Group

AUT – Auckland University of Technology

AUTEC – Auckland University of Technology Ethics Committee

BPAC – Best Practice Advisory Centre

CART – Clinical Audit and Research Team

CNZ – Continence NZ

COVID-19 – The COVID-19 pandemic

CPAR – Critical Participatory Action Research

CPG – Clinical Practice Guidelines

DHB – District Health Board

E Coli – Escherichia Coli

EMS – Emergency Medical Service

ePRF – Electronic Patient Report Form

GP – General Practitioner

HHSJ – Hato Hone St John

HQSC – Health Quality and Safety Commission

IAD – Incontinence Associated Dermatitis

iOS – iPhone Operating System

MPDS – Medical Priority Dispatch System

MS – Multiple Sclerosis

PAR – Participatory Action Research

PD – Parkinsons Disease

POP – Pelvic Organ Prolapse

PU – Pass Urine

RACGP – Royal Australian College of General Practitioners

RTA – Reflexive Thematic Analysis

TA – Thematic Analysis

TUG – Timed Up and Go

UI – Urinary incontinence

US – United States

UTI – Urinary Tract Infection

3DHB Region – '3DHB region' includes Wellington, Kapiti Coast, Hutt Valley and Wairarapa localities

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I would like to acknowledge the commitment and dedication of my supervisory team, Associate Professor Gael Mearns, Dr Graham Howie and Professor Lesley Ferkins. I would also like to acknowledge the contribution to my supervision made in the early days of my research project by Dr Diana Austin and Dr David Parker for his expert proofreading services.

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To my action research working group, you are really what made this project the amazing journey it was for me, and I will always be thankful for your infectious enthusiasm and clinical expertise.

I dedicate this thesis to my whānau —Byron and Mitchell, Tony and Maria, Sharon and Leigh, and my late grandparents June and Ron. Thank you for everything you have done to support me throughout this journey.

Ethics Approval and Locality Review

Ethics approval for this research project was granted by Auckland University of Technology Ethics Committee (AUTEC) on the 20th of September 2019, approval number 19/309. A copy of this correspondence can be found in Appendix A. Further ethics amendments were required as per AUTEC's protocol for action research projects. An additional two ethics amendments and subsequent approvals were completed on the 7th of September 2021 and the 26th of July 2023. A copy of this correspondence can be found in Appendix A.

The AUT School of Clinical Sciences Māori Committee was consulted on the 17th of June 2019 with a view to ensure a culturally inclusive research project adhering to Te Tiriti o Waitangi was being undertaken. The consultation also aimed to provide guidance and advice to ensure this project did not cause further disparity in research or healthcare delivery while the research was being conducted. A copy of the correspondence associated with the Mātauranga Māori Committee consultation can be found in Appendix B.

Locality approval was sought from the Hato Hone St John (HHSJ) Māori Locality Review Committee and was approved on the 6th of November 2019 by Dr Bridget Dicker, Head of the Clinical Audit and Research Team (CART) at HHSJ. A copy of this approval can be found in Appendix C. Under the direction of HHSJ CART, further approval was sought from HHSJ management in Horowhenua, the study location. This was to ensure the research project did not interrupt business as usual and daily station duties. Approval was obtained from the Horowhenua Territory Manager and later the Horowhenua Area Operations Manager. A copy of this correspondence can be found in Appendix D and Appendix E.

Ethical challenges associated with this research

While planning this research project and working with AUTEC and the Māutangura Māori committee I took steps to mitigate two potential ethical dilemmas from arising. The first was around the potential position of power that I was in due to my employment at AUT University as a lecturer, the second was around recruitment of Māori participants in the research project.

My position as a lecturer meant that prior to the start of the research project, before I began recruiting participants from the Horowhenua Ambulance Operations group, I elected to remove myself from all of the academic assessments for people who worked in the Horowhenua area. I did this because of the potential for a conflict of interest to occur, and for me to be in a position of power that could be seen to influence people's ability to complete their academic coursework. By removing myself from this situation, it meant that those who choose to participate in the research project, could do so without fear of their involvement in the research project influencing their academic journey at AUT University.

Another key consideration that I tried to address was that I wanted to recruit representatives from the Māori population in the Horowhenua, however despite my best efforts, I was unable to do so. As a result, I later learnt that the problem I had with recruiting Māori representatives was with my approach. This prompted some extensive critical self-reflection, and it is this reflection that prompted me to explore my own journey toward understanding Māori culture and how this would impact my ability to engage and prioritise recruitment of Māori participants in future research.

My positionality and my role as an insider/outsider and how this impacts my position of power and my journey toward understanding Māori culture are expanded on further throughout the thesis and can be found in Chapter 3.11 – Researcher Positionality – and Chapter 7.2 – My journey toward understanding Māori cultural values.

Chapter 1 Introduction

1.1 Introduction

This thesis investigates the link between incontinence and falls. It explores whether an assessment tool developed through critical participatory action research (CPAR) can be implemented for use by ambulance clinicians. The aim of the research reported here was to answer the research question:

> *How can the development of an assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community?*

Further aims were to identify links between urinary incontinence and falls, the complexity of falls and the impact of urinary incontinence. This is supported by an exploration of how the assessment and management of people who experience continence concerns and falls in the community can be improved.

In Aotearoa New Zealand, ambulance clinicians (in their ambulance response capacity) frequently respond to people who have had a slip, trip or fall in the community (Hato Hone St John, 2022; Watkins et al., 2021). Incontinence, particularly urge incontinence, is often overlooked as a key contributor to accidental falls within the community. A person rushing to the toilet to manage their incontinence may not take the usual caution with mobilising – thus increasing their risk of falling (Brown et al., 2000).

Identifying the risk of falls associated with incontinence and subsequently offering follow-up support may be a step toward mitigating a contributing factor to falls. If ambulance clinicians were to include an assessment of incontinence or a continence concern, they could refer the person for appropriate support to prevent another fall.

The rationale for this research is that ambulance clinicians are uniquely positioned to further assess a person who has fallen, because they already complete advanced patient assessments and as part of this, they frequently ask difficult and personal questions (Carnicelli et al., 2024). Therefore, it would seem reasonable for them to conduct further clinical assessment around incontinence or continence concerns and whether this contributed to a person's fall.

This chapter discusses the personal and professional background of the study, the study context, study rationale and significance. It also includes a discussion about what urinary incontinence is, the assessment of a person who falls, the cost of falls, and the role of the ambulance clinician. A brief outline of the research approach is discussed, along with the study aims, and an overview of the thesis structure.

1.2 Personal background to the study

A personal journey with continence concerns, sheer frustration, and the sadness I experienced as a clinician drove me to this thesis topic. These emotions occurred from many years of working in an ambulance caring for people who had fallen, and I felt that something needed to change. Given my passion for care in the community, continuing to watch others go through similar experiences was heartbreaking, and I wanted to make a positive change for people who had a fall in the community.

My own journey with continence concerns started in 2015 when I lost the function of my bladder and bowel. I was told this condition would improve with time. Unfortunately, due to the nature of the injury, the function of my bladder and bowel was not recoverable.

When carrying out my duties as an ambulance clinician, I noticed a trend when people fell. Often, people had fallen when they were rushing to use the toilet. When transporting these people to the hospital, I, as the clinician, knew some of them were never going to return home. But the people themselves often had no idea of the difficult and emotional journey they were about to embark on.

I have seen many traumatic events as an ambulance clinician. However, these are not the horrific car accidents or deaths of children and babies. Rather, it is the simple act of holding someone's hand as they die without their loved one beside them – or taking someone away from their home for the last time because they have fallen rushing to the toilet and broken their hip.

Hayman et al. (2012), Kerse and LiLACS NZ (2014) and Teh et al. (2014) noted that, as people age, they live with increasing disability but improved quality of life. Many disabilities are invisible, and people become good at hiding those that seem too awkward to talk about. One of these disabilities is incontinence or continence

concerns. Estimations show that a quarter of New Zealand's population has a continence concern (Esplin et al., 2017). However, few people are aware that while there are risk factors for developing incontinence, it is not normal to leak urine because you have had a baby, and it is not a normal part of ageing (Abreu et al., 2015; Dantas et al., 2019; Duralde et al., 2016).

This situation is further compounded for those who are brave enough to seek help for their continence concern from their General Practitioner (GP) but get told that it is normal (Fear & Williams, 2023). There are many reports of this occurring, possibly because the GPs do not have the knowledge of services or the confidence to stand up and say to their patients that there is help available to solve the problem (Dovey et al., 1996; Fear & Williams, 2023; Stitely, 2019).

1.3 Why does this research matter?

In society, incontinence of urine or faeces (hereafter referred to as incontinence) is seen to be an embarrassing condition. It has a significant impact on quality of life for millions of people around the world (Esplin et al., 2017; Matthews, 2009; Wagg, 2018). Urinary incontinence is known to be a risk factor for falls, with the link between urinary incontinence and falls likely to be associated with the need to rush to the toilet (Chiarelli et al., 2009). Pahwa et al. (2016) noted that 48% of women over the age of 65 with urinary incontinence were at high risk of falls. It is also known that once someone has fallen, they develop a fear of falling, which can further impact the risk of falls, especially when coupled with the complexities associated with incontinence (McKay et al., 2020).

A longitudinal study by Sims et al. (2011) identified the impact of incontinence and how it influenced people's quality of life in relation to depression, happiness, positive and negative affect, social activity, and independence. It was noted that the more severe the incontinence, the more a person's quality of life was impacted, with an increase of functional dependency and an impact on "a person's ability to live a social and independent life" (Sims et al., 2011, p. 1395).

The impact on quality of life can include withdrawal from social activities, not leaving the house, an inability to afford continence products and the development of functional dependency (Esplin et al., 2017; Matthews, 2009; Sims et al., 2011). Many

people with incontinence are housebound and rely on others to complete tasks outside of their house. This is due to the fear they have of being away from the toilet or wetting themselves in public. As a result, they become socially isolated and vulnerable (Esplin et al., 2017; Matthews, 2009; New Zealand Continence Association, 2009). Vulnerability, social isolation and loneliness are known to negatively impact a person's health and wellbeing (Holt-Lunstad & Steptoe, 2022). When people become socially isolated, not only can they become lonely, but they can also become dependent on others (Beach et al., 2017).

When vulnerability is considered in relation to incontinence, this can include self-neglect and acceptance that living in their own faeces or urine is 'normal'. Furthermore, when people are reliant on others for care, they can be at risk of abuse and neglect. This can occur through failure to provide care by caregivers, other professionals, or their family and friends (Beach et al., 2017). People living with incontinence also have a higher risk of poor health outcomes and an increased mortality rate (Dong et al., 2009). In the case of an older adult, social isolation and loneliness can increase mortality (Jamieson et al., 2018; Matthews, 2009).

These factors are important considerations when thinking about the impact this research has on people in the community, particularly those who are suffering in silence with incontinence. A key rationale for this research was to empower not only our ambulance clinicians but also the people they see, to encourage those people to get help for incontinence.

This research is significant because it could produce outcomes that can be translated into practice and produce a positive change. The research process involved the people who are at the coal face doing the work every day – the ambulance clinicians. I believe that ambulance clinicians can be empowered to create positive change by expanding their knowledge, understanding and education around the assessment of falls and continence concerns.

1.4 What is urinary incontinence and why is this relevant to this research project?

Urinary incontinence is defined by the International Continence Society as an "involuntary loss of urine experienced during the bladder storage phase" (International

Continence Society, 2023). The same terminology can be applied to the loss of bowel contents, which is called faecal incontinence. Urinary and faecal incontinence can co-exist, with a concern in either organ impacting the control of the other. A normally functioning bladder should hold 300 to 500 millilitres of urine between voids. What this means in layperson's terms is that a person should be able to hold the contents of their bladder and not leak urine in between trips to the toilet to empty the bladder (Continence Foundation of Australia, 2022). Unfortunately, for many people, incontinence can have an impact on their life (Williams & Fear, 2023).

The focus of the research reported in this thesis was urinary incontinence. The severity and duration of symptoms associated with incontinence depends on the impact incontinence has on each individual. Some people are not bothered by their incontinence, but for some people, it can be debilitating (Fear & Williams, 2023). For Māori, incontinence is seen as Whākama[1], and it is known that it has an impact on their ability to participate in activities on the Marae[2] (Forster & Ratima, 1997). Regardless of ethnicity, every person's experience of incontinence matters, whether they are bothered by it or not, and it is important that people understand that while incontinence is common, it is not normal to experience incontinence (Shaw et al., 2019).

Urinary incontinence can have many different aetiologies. Confusion around incontinence is thought to come from the many different types of incontinence people experience. Sometimes, incontinence is just a small leak, and sometimes, it is a complete loss of bladder control (International Continence Society, 2023). There are many risk factors for incontinence that people perceive as normal in their lives. It is this perception that is one of the reasons many people believe incontinence is normal and something they must live with. These risk factors are:

- pregnancy (both pre-and post-natal women),
- younger women who have had children,
- menopause,
- obesity,

[1] Whakamā is a Māori term used to describe the feeling of being ashamed, shy or embarrassed.

[2] Marae is the traditional meeting place of Māori people.

- urinary tract infections,
- constipation,
- specific types of surgery such as prostatectomy (removal of all or part of the prostate) and hysterectomy (removal of all or part of the uterus and/or ovaries),
- reduced mobility preventing the individual from getting to or using the toilet,
- neurological and musculoskeletal conditions such as multiple sclerosis and arthritis,
- health conditions such as diabetes, stroke, heart conditions, respiratory conditions, and prostate problems, and
- some medications.

(Chan & Tse, 2013; Continence Foundation of Australia, 2022; Esplin et al., 2017).

Many of the risk factors for incontinence can be managed, often by simple interventions that improve people's quality of life (Chan & Tse, 2013). But for this to happen, first, there needs to be a change in the perception and embarrassment associated with incontinence. The change needs to happen because currently, these emotions stop people from seeking help or, worse still, cause them to fall, resulting in a life-changing injury (Fear & Williams, 2023).

1.5 Assessment of a person who has fallen

Assessing the patient who falls in the community can be complex. This complexity is not only isolated to the person who falls but also extends to the health professionals involved at the time of their fall. Entering a person's home at the time of an unexpected injury or illness is a privilege few other health professionals have. In Aotearoa New Zealand, ambulance clinicians are the primary response to someone who falls. In this context, ambulance clinicians assess and treat people in their environment and are fortunate to be trusted to do so (Research New Zealand, 2017, 2020). It is this trust and rapport that provides a unique opportunity to ask a person if they have any continence-related concerns.

Although there are many documented causes of falls, what is less researched and discussed is how incontinence can lead to a fall. Batchelor et al. (2013) discussed this

and highlighted many different mechanisms for falls secondary to incontinence, including, but not exclusive to:

> Slips on wet surfaces; rushing to the toilet resulting in tripping; symptoms of a urinary tract infection that predispose an individual to falls, such as delirium, drowsiness, urinary frequency; and nocturia in conjunction with impaired vision and balance, as well as postural hypotension due to medication. (p. 211)

Soliman et al. (2016) also discuss lower urinary tract symptoms as a prevalent cause of falls. Lower urinary tract symptoms include urinary incontinence, lower urinary tract infection and overactive bladder. Knowing the impact that incontinence can have on a person's life, I believe ambulance clinicians should routinely assess if incontinence or a continence concern could be a contributing cause of a person's slip, trip, or fall.

Although ambulance clinicians may seem an unusual group to assist with assessing and managing continence concerns, ambulance clinicians already ask seemingly 'difficult questions' regarding a person's medical history and their views for or against treatment. Discussions include past surgical procedures, medication use and abuse, allergies, and wishes regarding organ donation, death and dying. These are all important parts of a thorough patient assessment and are part of developing a treatment plan.

1.6 The cost of falls

In Aotearoa New Zealand, the leading cause of admission to hospital in older adults is falls (Injury Prevention Research Unit | Te Huka Rakahau Ārai Whara, 2019). Those who fall in the community are at risk of never returning home again, with a fall being the leading cause of injury resulting in death in an older adult (Injury Prevention Research Unit | Te Huka Rakahau Ārai Whara, 2019; Watkins et al., 2021). Furthermore, when an older adult has a fall, it is considered a predictive factor for entry into long-term care (Holdaway et al., 2021). When there is a hip fracture associated with a fall, 20% of people will require rest-home level care, and 27.6% of people will die within one year (Australian & New Zealand Hip Fracture Registry, 2022).

There are substantial costs, financially, physically and psychologically, associated with falls. Fall-related injury claims and costs are increasing each year because people can fracture their neck of femur, shaft of femur, or hit their head and sustain a traumatic

brain injury or a spinal cord injury (Abey-Nesbit et al., 2021; Accident Compensation Corporation, 2019). In 2022, the injury cost from falls was $1,811,741,104 (Accident Compensation Corporation, 2023).

While it is not known exactly how many people are falling because of incontinence, what is known is that they are falling, sometimes repeatedly, and are risking their lives at home without an intervention to prevent further falls (Chiarelli et al., 2009; Duralde et al., 2016).

1.7 Study context

To understand the role ambulance clinicians might have in improving falls and continence assessment, it is first necessary to know that ambulance clinicians are part of a unique group who work autonomously in the patient's own environment in a time of unexpected injury or illness (Al-Shaqsi, 2010). For this thesis, the term 'ambulance clinician' (or 'paramedic') applies to any ambulance personnel of any qualification working in the response capacity of an ambulance vehicle. This term does not include ambulance clinicians working in general practice, clinics, pharmacies, vaccination centres or other places of work outside of an ambulance (Kaunihera Manapou - Paramedic Council, 2023a).

The ambulance clinician profession has developed substantially over the last 20 years. With this development has come the expansion of the paramedic's 'scope of practice', meaning the range of skills an ambulance clinician is expected to perform has increased. Nowadays, ambulance clinicians are highly qualified, registered professionals who have completed a minimum of three years of study prior to attaining a Bachelor of Health Science in Paramedicine (Kaunihera Manapou - Paramedic Council, 2023b). To expand their scope of practice and develop further clinical skills, they need to complete postgraduate education. In January 2020, ambulance clinicians had the opportunity to be formally recognised and registered under the Health Practitioners Competence Assurance Act (Kaunihera Manapou - Paramedic Council, 2022). Current ambulance education is different to earlier models where ambulance qualifications were obtained via vocational training pathways run by industry, such as the National Ambulance Officers Training School in Auckland (Al-Shaqsi, 2010).

Ambulance clinicians need to be adaptable, not only to all the different aspects of acute medicine and trauma but also to preventative and routine care in the community. With their advanced patient assessment, diagnostic and treatment skills, experienced ambulance clinicians can quickly develop a rapport with a person in need, often within a matter of minutes. Furthermore, ambulance clinicians have both the leadership and teamwork skills to work alongside many different practitioners (Collaborative Aotearoa, 2024; Kaunihera Manapou - Paramedic Council, 2023c).

1.8 Ambulance clinician education about incontinence

In 2017, I informally reviewed the content of teaching material made available to me from the three ambulance education providers in Aotearoa New Zealand, namely Auckland University of Technology (AUT), Whitireia New Zealand and Hato Hone St John New Zealand (HHSJ) – institutions that deliver either the National Diploma in Ambulance Practice, Diploma in Paramedic Science, or Bachelor of Health Science in Paramedicine. From this review, I was able to establish that there was a gap in falls assessment and incontinence education.

The teaching material explained in depth what is important in falls assessment, including the Timed Up and Go (TUG) test, Romberg's test, and investigating other medical causes of a fall. However, I noted there was no teaching material that encouraged people to ask even simple questions about incontinence and whether this could have been a factor toward the cause of a fall (Costa-Scorse, 2018; Glover, 2018; New Zealand Qualifications Authority, n.d.).

Because ambulance clinicians already ask what could be seen as sensitive and intimate questions (Minnesota Department of Health, 2016), and as the assessment of incontinence can be a sensitive subject to discuss, this is a place where they could contribute further. I propose ambulance clinicians could become advocates to change the 'taboo' associated with talking about incontinence (Esplin et al., 2017).

By incorporating the assessment of incontinence into a standard assessment of falls, an opportunity is created for ambulance clinicians to participate in health promotion. They can drive this health promotion by making a change in their practice and including a continence assessment for patients. Doing this as part of standard patient

assessment would not be dissimilar to routine questioning for other medical conditions such as chest pain, headache, and dizziness.

1.9 Ambulance clinician assessment of falls and incontinence in the community

While ambulance clinicians are educated to perform advanced patient assessment, the assessment of the patient who has fallen encompasses two simple tests. These assess a patient's stability on their feet and risk of falls. These tests are the TUG test and the Romberg's test (Costa-Scorse, 2018; Glover, 2018; New Zealand Qualifications Authority, n.d.). There is no required ambulance assessment that is specific for incontinence or a continence concern.

I hypothesise that people who fall and are seen by ambulance clinicians may have urinary incontinence and may be suffering in silence. This is not only because of a lack of information and education around incontinence but also the feeling of embarrassment people have about incontinence (Esplin et al., 2017; Matthews, 2009; Northern Regional Age Concern Councils, 2019). Furthermore, incontinence is normalised through exposure to magazines, television and internet advertisements such as those for Poise® and Tena products for light bladder leakage (Asaleo Care, 2019; Kimberly-Clark Australia, 2019).

This normalisation process also extends into primary healthcare practice. For example, when patients are comfortable or brave enough to disclose to their GP or practice nurse that they are having problems with incontinence, many people are told it is just a normal part of aging or an expected result of childbirth (Shaw et al., 2007). Because of this and many other compounding factors, incontinence is significantly under-reported to clinicians involved in patient care (Esplin et al., 2017; Shaw et al., 2007).

1.10 The impact of incontinence

Understanding how incontinence impacts falls is essential. Without this understanding, the significance of this study may not be fully appreciated. Batchelor et al. (2013) and Duralde et al. (2016) discussed incontinence as a possible cause of falls. It is thought there is a high prevalence of incontinence in Aotearoa New Zealand, and continence care could be better (Esplin et al., 2017). Therefore, any research or health promotion,

including management or discussion of incontinence, is likely to reduce the occurrence of falls.

Continence NZ (previously known as The New Zealand Continence Association) made a call to action in 2009. The call to action was made after research detailed the history, services, costs and impacts of incontinence (New Zealand Continence Association, 2009). A review report by Esplin et al. (2017) revealed that, in eight years, little progress was made in the provision of continence services in Aotearoa New Zealand. The lack of progress has affected the assessment, management, and treatment of continence concerns.

Of even greater worry, Esplin et al. (2017) demonstrated there are ongoing problems with lack of access to continence products and services. While the Ministry of Health had set a mandatory service specification for the allocation of continence care and continence management items (Ministry of Health, 2012), reportedly this was not always adhered to due to local District Health Board (DHB) staffing and decision making (J. Thackray, personal communication, December 10, 2018; L. Keedle, personal communication, March 19, 2019).

Because of the lack of access to appropriate products, people were struggling to cope when managing their incontinence and were rewashing pads, using children's nappies and sometimes going as far as using folded newspaper as pads (Esplin et al., 2017).

1.11 The role of the ambulance clinician when a person falls

As part of the assessment of a person who falls, ambulance clinicians have the option to refer a patient who is at risk of another fall (National Ambulance Sector Clinical Working Group, 2020). This referral is to a fall's prevention programme such as the In Home Strength and Balance Programme (Live Stronger for Longer, n.d); however, the referral pathway requires two assessments to be completed to make the referral. The assessments are the TUG test and Romberg's test. These tests are compulsory, and the referral cannot be sent through without completing the compulsory field for each of these tests on the referral form (Gagliardi & Smith, 2018).

Conducting a falls assessment using the TUG test and Romberg's test could be problematic because it could make the person even more nervous about falling than

they were prior to the falls assessment. Research suggests that completing a falls assessment without follow-up may make people more at risk of falling (Hoang et al., 2017; Kempen et al., 2009; Lavedan et al., 2018). The rationale is that people who fall became scared of falling again because a clinician is performing an assessment to see if they are at risk of falling again (Hoang et al., 2017).

We know that people at risk of falls are at risk because they have a fear of falling, often caused by a prior fall (Hoang et al., 2017; Kempen et al., 2009; Lavedan et al., 2018). Therefore, it appears that not only are the TUG and Romberg's test a barrier to ambulance clinicians making a falls referral (because they are a compulsory field on the referral form), but they could be provoking fear in people and increasing an already existing fear of falling.

In some project planning conversations, I met with the fall's referral coordinator and the local subject-matter expert from HHSJ to understand what happens once a falls referral is made. The meeting provided an opportunity to instigate the first steps toward building an understanding of the problem with falls referrals, and the development of a relationship that could lead to a change in clinical practice. We also discussed the effectiveness of the current fall's referral pathway.

At the time of meeting in January 2020, it took on average 12 to 16 weeks from a referral being made by ambulance clinicians to a patient having a full falls risk assessment. I was also concerned to learn that few of my ambulance clinician colleagues were referring patients who had fallen in the community. Compliance notification reports highlighted very few people per week were being referred (Hato Hone St John, 2023a).

To understand how many people were not being referred for further assessment after a fall, I asked HHSJ to provide data for people over the age of 55 who fell in the Horowhenua region. The location of the fall was selected as either their home or an aged-care facility, and data was obtained for the three years from January 1, 2020, to December 31, 2022. During this time, a total of 3,009 calls were received for people who had fallen. Of those, 1,566 (52.0%) were considered unique count (people who only fell once, as identified by their national hospital identification number). Therefore, the other 1,443 calls (48.0%) were people who had fallen at least once previously. Of

the people who fell, the majority of patients (1,752, 58.2% versus 1,244, with 13 'unknowns') did not require transport to a medical facility. However, despite having a falls referral pathway in place, only 146 people (<5% of the total cases) were referred for further intervention and falls assessment in the community (Hato Hone St John, 2023a). These statistics highlight there may be barriers to making a falls referral in the community. Given this, I felt there was an opportunity to open the conversation about what the barriers might be for ambulance clinicians to complete a falls referral.

I was fortunate that as I was conducting pre-project meetings, HHSJ decided to implement a change in the standard practice for the assessment of falls in the community and elected to remove the TUG and Romberg's test as compulsory requirements for a referral. They did this through their continual quality improvement goals because of evidence-based medicine. This highlights that my research project had already started creating increased awareness around falls and ambulance clinician referrals (National Ambulance Sector Clinical Working Group, 2020). It is also reflective of translation into practice through raising awareness and constructive collaboration with other clinicians.

1.12 Research approach

To ensure I had the ability to translate the research into practice and involve people as co-researchers in the research project and my study, I needed to find a methodology that would allow this to happen. When exploring different research methodologies, I was finding it a challenge to find a methodology that fitted my ethos. Then I discovered action research (AR).

I remember this moment as everything I wanted to do finally made sense. Each component of AR spoke to me and made me feel that I was able to accomplish what I wanted while working together with knowledgeable and passionate people who also wanted to make a positive change for people living with a condition that was not well discussed within the medical or general community. I was pleased to find that translating research into practice is strongly aligned with AR and that it meshed well with my values and beliefs as a researcher.

Reason and Bradbury (2008) detail AR as "a family of practices of living inquiry that aims, in a great variety of ways, to link practice and ideas in the service of human

flourishing" (p. 1). In this way Reason and Bradbury (2008) suggest that action research is not a methodology as such but a way of doing research that involves participative communities that are engaged, curious, and pose questions about significant practical issues.

Action research focuses on ways to link practice and ideas to make humans flourish. Action research worked for me as a researcher for this research because it was a seemingly good fit with my views of the current continence situation. Working collaboratively in a research team is essential, and it is important to ensure that there are close links between practice and theory (Grant & Giddings, 2002). This resonated with me, as I had the desire to change things for the better. However, it took quite some time for me to understand where I wanted to go with my research, and how I wanted to do it. I learnt I am a radical researcher, and that the goal of a radical researcher is seen as an overtly political role because of a perceived need for emancipation from oppressive or unjust social structures through rational transformation (Grant & Giddings, 2002).

By empowering others to be engaged in transformational actions, a change in consciousness can occur. The change is "produced by the process of praxis, involving cycles of collaborative planning, acting and critical reflection" (Grant & Giddings, 2002, p. 19). The cyclical approach described fits with participatory action research (PAR). The history and philosophical underpinnings of PAR are discussed further in Chapter 3 – Philosophy, Theoretical Underpinning and Methodology.

1.13 Study aim

The aim of the research reported here was to answer the research question:

> *How can the development of an assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community?*

Further aims were to identify links between urinary incontinence and falls, the complexity of falls and the impact of urinary incontinence. This is supported by an exploration of how the assessment and management of people who experience continence concerns and falls in the community can be improved.

A further aim was to develop a clinical assessment tool for ambulance clinicians and verify this tool to understand how it could be applied into clinical practice. This aim is achieved through using critical participatory action research as an approach to answering the research question.

1.14 Terminology

In this thesis, I have written in the first-person using the terms 'I' or 'the researcher'.

The terms 'we' or 'us' or 'our' refer to the Action Research Working Group (ARWG) or the study participants. As this terminology changes throughout the project, this will be updated for the reader to maintain an understanding of who is involved in what stages of the research project.

The phrase Horowhenua Ambulance Operations Group – refers to people who work for Hato Hone St John Ambulance in the Horowhenua Region, Aotearoa New Zealand. The Horowhenua Ambulance Operations Group consists of three ambulance stations, in Foxton, Levin and Ōtaki.

The term ambulance clinician (or 'paramedic') – applies to any ambulance personnel of any qualification working in the response capacity of an ambulance vehicle. This term does not include ambulance clinicians working in general practice, clinics, pharmacies, vaccination centres or other places of work outside of an ambulance (Kaunihera Manapou - Paramedic Council, 2023a).

Study participants have remained anonymous throughout this thesis, unless permission was given to utilise an individual's name and/or qualification.

A summary of the terminology used throughout this thesis can be found in the Glossary.

1.15 Overview of the thesis

Chapter 1 of this thesis has introduced the personal background to this study and why the research matters. It also discusses urinary incontinence, falls and the impact incontinence can have on a person's life. Furthermore, the role of the ambulance clinician in the community has been introduced. Chapter 1 concludes with a summary of the research approach.

Chapter 2 explores the literature about education for falls and incontinence and the lessons learned from hospital and nursing falls prevention programs. It also explores literature about assessments and interventions to see what tools exist to prevent further harm from falls. This chapter concludes with a discussion of the literature regarding the use of specialist advice for continence care and how this could be integrated into the clinical setting.

Chapter 3 explores the philosophy, theoretical underpinning and methodology of critical participatory action research which is used throughout this research project. The four cycles of action research are introduced and summarised as they occurred throughout this research project.

Chapter 4 details the cycles of action research. These cycles included the planning cycle (cycle one), survey development (cycle two), assessment tool development (cycle three) and verification of the assessment tool (cycle four). The chapter concludes with initial reflections on the research project.

Chapter 5 presents and discusses the findings. The findings are introduced in chronological order from each of the four research cycles.

Chapter 6 details the reflections of the research project's participants including a discussion of how this research was transformative for their clinical practice. Considerations of the continence assessment tool for Māori are also discussed. This chapter concludes the thesis with implications for practice, priorities for further research and a discussion about how doctoral research influences practice change.

Chapter 7 contains my personal reflections on this research project, with a narrative about my journey toward understanding Māori culture, facilitating cultural change, and identifying the pathway forward.

Chapter 2 Literature Review

2.1 Introduction

This review examines the literature published about urinary incontinence, preventing falls, and education. It also identifies the impact, cost and complexity of falls. The aim was to identify the gaps in the literature on the subject of ambulance clinician education regarding urinary incontinence and how this relates to preventing falls. A further aim was to specifically identify if there is any literature available regarding the role of emergency medical services or ambulance staff in the assessment of a person who falls in the community who may be experiencing incontinence.

The literature analysed in this review was identified as part of a structured and systematic search from published journals and articles. A further search for articles cited in the reference lists of the articles reviewed was conducted to ensure all relevant literature was included in this review. As part of this review, key themes are identified within the articles found, and the discussion of these themes is synthesised throughout this chapter. In the conclusion section of this literature review, the gaps in knowledge are identified as the focus for this research.

2.2 Literature review method

On May 28, 2019, the following electronic databases were searched: CINAHL complete, Science Direct, PubMed via EBSCO, MEDLINE, Cochrane, Scopus and Google Scholar. The following limitations were applied: full text, peer-reviewed, English only publications and publication dates of 2002-2018. This date range was selected as ambulance clinicians' clinical autonomy in Aotearoa New Zealand, developed around the year 2000, with the introduction of degree-level training after the closure of the National Ambulance Officers Training School (Swarbrick, 2023). It was also thought that this date range would give a good synopsis of recent and relevant clinical tools available which could be applied for use by ambulance clinicians.

The search terms and results obtained are as follows. The primary search using the following search terms yielded no results: "falls prevention or preventing falls or prevent falls or reduce falls" AND "ems or prehospital or emergency medical services

or paramedic or medical service" AND "urinary incontinence or urinary leakage or urinary urgency" AND "education" AND "slip trip falls".

A further search was conducted using the terms "paramedic or ems or emergency medical service or prehospital or pre-hospital or ambulance or emergency medical technician or emt" AND "incontinence" which returned two results, neither of which were relevant to the topic, with the first discussing electro-muscular stimulation for urinary incontinence and the second childhood incontinence.

This initial literature search highlighted there is insufficient research evidence and little knowledge available regarding the role of the ambulance clinician in the assessment of urinary incontinence in relation to falls. This means that my research provides new information and a new approach to the assessment of urinary incontinence by ambulance clinicians. It highlights for the first time the issues, complexities and impact of urinary incontinence on falls, as seen by this group of clinicians.

2.3 Education about falls and incontinence

To understand the importance of this research project and investigate whether other researchers and clinicians may have already researched this subject, a further literature search was conducted regarding what is known about the impact of incontinence on falls, and what knowledge is already available in terms of falls prevention, urinary incontinence and education.

The terms "ems or prehospital or emergency medical services or paramedic or medical service" and "slip trip falls" were removed from the primary search described above, and this new search used the following terms in searching the same databases: "falls prevention or preventing falls or prevent falls or reduce falls" AND "urinary incontinence" AND "education".

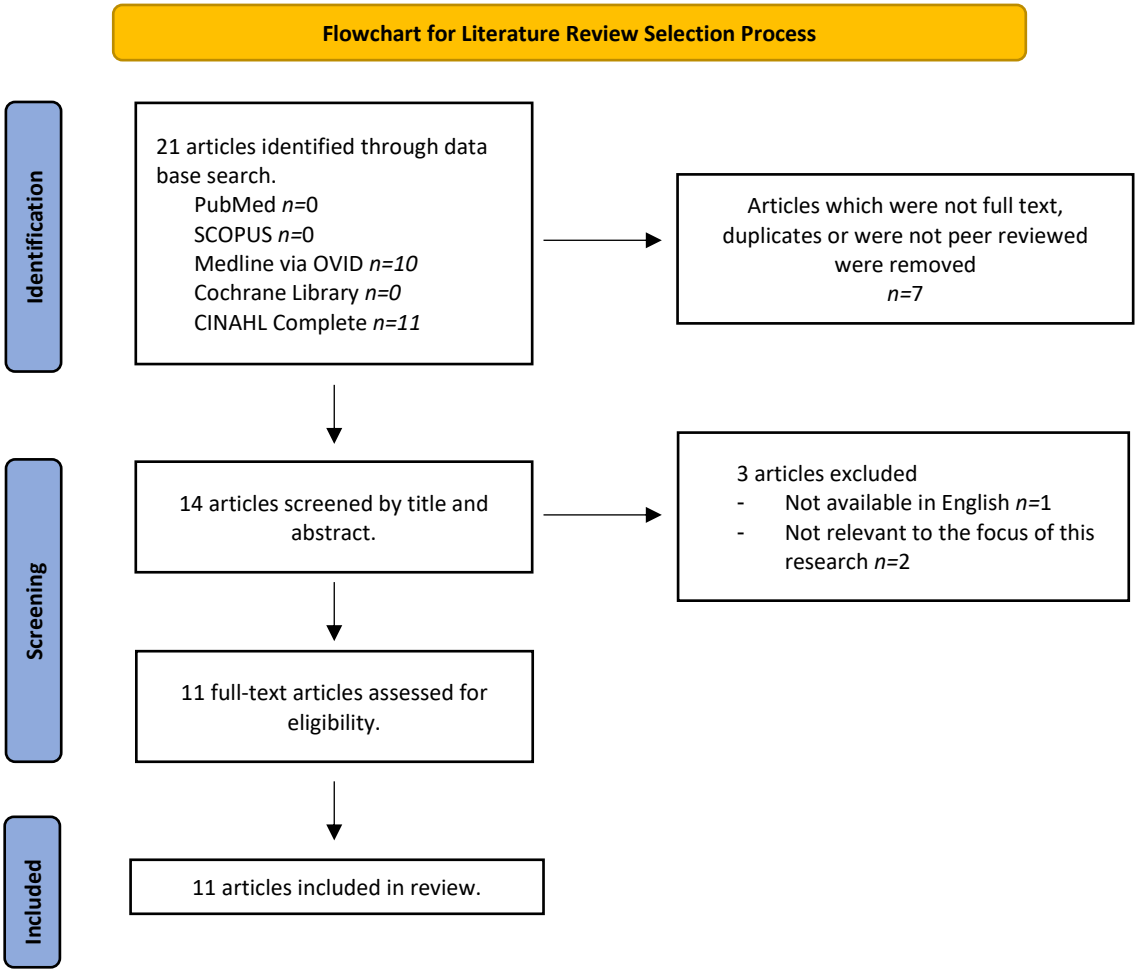
This search returned 21 results; however, not all articles were available as full text, and some duplicates were returned. After removing articles that were not full text, duplicates, and articles that were not peer-reviewed, there were 14 results remaining. Of those 14, one was not in English, another concerned the use of therapeutic patient education programmes for stroke survivors, and a third was an analysis of a training project that gave care-home staff the tools to reduce falls and pressure sores to help

avoid unnecessary general practice and community nurse visits. These articles were excluded from the review as the content was not relevant to the focus of this research project.

The remaining 11 articles focused on the cause of falls and how urinary incontinence can be a contributing factor. Of these 11 articles, eight were original research studies, one was a systematic review, and two were position papers. Although these articles do not specifically relate to ambulance clinician assessment of the patient who falls, they do highlight the impact urinary incontinence has on falls. Some articles discussed the education of students and staff and the implementation of continence management strategies in rest homes or daycare programmes. They are, therefore, relevant to the literature review in providing background information about the research question. The following figure highlights the review process, including inclusion and exclusion decisions:

Figure 1

PRISMA Flowchart for Literature Review Selection Process



The 11 articles obtained from the literature search are discussed in the review which follows. The literature was organised systematically by sorting the information into related concepts and topics. Common themes were identified when reading through the literature and these provide a solid approach to structuring and discussing the articles. The articles also highlight information essential for understanding the importance of the research study design, which is explored in further depth as part of the methodology chapter.

2.4 Lessons learned from hospital and nursing home falls prevention programmes

Around the world, the prevention of falls in the hospital environment is becoming a focus for inpatient healthcare. My attendance at the biennial falls prevention conference in 2018 highlighted the attention falls prevention in hospitals has in the falls research community (Williams, 2018). I noticed a lack of research about the prevention of falls in the community. While lessons can be learned from hospital falls prevention programmes, there needs to be more research into the prevention of falls in the community. Fortunately, we can draw parallels from other settings and apply key components of this research into practice.

Abreu et al. (2015) estimated the incidence and predictive factors associated with falls among older hospital inpatients. In their prospective cohort study, they recruited 221 hospital inpatients who were over 60 years of age. These patients were followed until discharge, death or a fall occurred. Abreu et al. (2015) found that the incidence of falls was equivalent to 12.6 falls per 1,000 patients per day. Factors that predicted the occurrence of a fall were low educational level, polypharmacy, visual impairment, gait and balance impairment, urinary incontinence, and the use of laxatives and antipsychotics. Recommendations were made that measures to reduce falls in hospitals should focus on addressing the contributing factors identified to reduce the incidence of falls. The authors noted that “urinary incontinence was prominent as the main factor associated with falls of older inpatients” (p. 5).

The research by Abreu et al. (2015) is relevant for my project as they observed that one of the factors that predict falls was urinary incontinence. However, the context of this research is clearly different as it was focused on the incidence and predictors for

falls in hospital and my research is focused on falls in the community. While there is discussion in this article about factors that predict falls, including urinary incontinence, there is no discussion of the importance of clinician education and how an assessment tool for incontinence could be used as part of a falls risk screening process. The authors recommended more research be conducted on falls of older inpatients in hospital environments and that fall prevention measures should involve all healthcare professionals, managers, patients, and families alike.

A systematic review conducted by Oliver et al. (2010) highlighted the impact of falls within hospitals and described how common falls are in the hospital setting, why they occur, and the importance of preventing falls. The discussion includes environmental risk factors for falls, and the attitude, skills, and availability of staff as factors that contribute to falls. Multifactorial interventions as part of falls prevention techniques help prevent falls by up to 31% when these interventions are well-structured and supported by all staff, not just clinical staff (Oliver et al., 2010). However, single interventions such as continence management and promotion were not been studied enough to understand if they make a difference to reducing harm from falls (Oliver et al., 2010).

Oliver et al. (2010) also highlighted that if a falls prediction tool is to be used, it must be tested to see if it is applicable to the organisational setting it is to be used in, noting that a one-size-fits-all approach does not work in the setting of falls prevention. These points are essential to note for the introduction of, acceptance of, and ongoing compliance with a new clinical tool to be used as part of routine care and assessment by ambulance clinicians.

Further to the recommendation by Oliver et al. (2010) which details the need for multiple interventions to make a difference in reducing harm from falls, it is also concluded that clinicians and researchers alike should not be surprised that falls prevention in any setting is a complex situation. Interventions need to be tailored to each individual patient's needs, and staff must respect their wishes. Furthermore, Oliver et al. (2010) recommended that staff be empowered as leaders and work together with their colleagues to ensure each patient is kept safe from falls when in hospital. This is important, and when translated into the community sector, highlights

the importance of health professionals across sectors working together to keep at risk people in the community safe from falls.

Rapp et al. (2008) discussed similar themes in their research. Their secondary analysis of a cluster-randomised, controlled trial aimed to evaluate the effectiveness of a multifactorial falls prevention programme in pre-specified subgroups of nursing home residents. The focus was on whether the establishment of a staff and resident education programme can delay the time to first fall and total number of falls during a 12-month period. The trial was conducted in six nursing homes throughout Germany, with 725 residents over the age of 60 invited to be enrolled in the study. Education was provided to the staff and residents about fall prevention, environmental adaptations, and hip protectors, alongside balance and resistance training.

The study was conducted over a period of 12 months, with the primary endpoint being time to first fall. The total number of falls was measured then analysed using univariate regression analyses. It was noted in this study that the intervention deployed, staff and resident education, was more useful at reducing falls in those with cognitive impairment, prior history of falls, urinary incontinence and no mood problems. It was hypothesised that people with no mood problems did better in this study because they had more motivation to participate in the intervention programmes. This highlights the subgroups who are more likely to benefit from the implementation of an intervention strategy and can help to direct the most cost-effective strategy to the right place first time (Rapp et al., 2008).

It is important to note that few studies have included people with cognitive impairments in falls prevention programmes. Given the results produced by Rapp et al. (2008), it has been shown that with the implementation of fall prevention measures, including education, those people with cognitive impairment can still have a delay in the time to the first fall. Although there is no discussion about specific continence management strategies within this article, the study noted that 60% of those enrolled in the study reported having urinary incontinence. It was found that those patients who had urinary incontinence had a greater benefit from the programme than those who did not. This research highlights the importance of the implementation of an

intervention tool when educating staff to perform a continence assessment as part of falls prevention techniques which can delay the time to first fall (Rapp et al., 2008).

2.5 Assessment of the older adult to prevent further harm from falls

Holistic patient assessment is essential to prevent further harm from falls. To understand a holistic patient assessment, it is necessary to know how functional decline impacts older adults, and then how this functional decline can influence a patient's risk of falling.

A case study by Colón-Emeric et al. (2013) discussed the impact of functional disability in older adults; they specifically focused on one older adult who experienced episodic functional decline. In their discussion, they noted the associated general health decline that can result in severe disability, but also how disability can be impacted by external factors. These include social and financial support, the environment, and how comorbidities often result in greater disability than expected. All these factors are also known to impact a patient's risk of falls. Of the disabilities discussed, it was noted that care received for incontinence, falls, dementia and nutrition was routinely poor, when compared to the care received for other medical concerns such as diabetes or screening for lipid disorders (Colón-Emeric et al., 2013; Reuben et al., 2003).

Health conditions identified as causing functional decline included cardiopulmonary disease, musculoskeletal conditions, affective or cognitive disorders, neurologic conditions, endocrine conditions, vision problems and anaemia. Colón-Emeric et al. (2013) noted that disability which resulted from the accumulation of different chronic diseases was both dynamic and episodic.

An understanding of the interactions between impairments, contextual factors, and the assessment of new or progressive disability was noted as being essential in developing a treatment plan for a new or progressive disability. There is a role for the interdisciplinary assessment of the patient who has a new or progressive disability, and it should include continence assessment (Reuben et al., 2003). Colón-Emeric et al. (2013) concluded that comprehensive geriatric evaluation and treatment programmes conducted by an interdisciplinary team should be considered for all patients with unexplained or progressive disability, with Wenger et al. (2009) also noting that "intervention is more effective for conditions identified by screening than for

conditions identified through usual care" (p. 547). Colón-Emeric et al. (2013) recommended the implementation of an evaluation tool and treatment programmes to provide an intervention to improve the impact of disability on functional decline in older adults. This is further supported by Wenger et al. (2009) and Oliver et al. (2010), who detailed how multifactorial interventions help to prevent functional decline and disability from falls.

While Colón-Emeric et al. (2013) discussed an important assessment process for an older adult, there is no specific discussion about incontinence in their 'comprehensive geriatric evaluation'. Knowing the prevalence of incontinence in older adults, I find it very surprising this is not mentioned. It is, however, relevant to note that patients who have a dynamic and episodic decline in their functional state are at risk of further functional decline. This is important, as we know from the literature regarding fear of falling that an older adult who was previously fit and well, with no comorbidities or previous injuries, can develop a fear of falling from a slip, trip or fall (Sharaf & Ibrahim, 2008). This could be classified as a contextual factor resulting in a progressive functional decline. It is my anecdotal experience that if an older adult slips, trips or falls, and an ambulance is called, they are often being re-exposed to the healthcare system after what can be a prolonged period with no, or minimal, health system contact. Therefore, an opportunity is presented to conduct a comprehensive geriatric evaluation, outside of the standard questioning ambulance clinicians complete regarding medical conditions such as diabetes, strokes, seizures and other 'commonplace' presentations associated with aging.

2.6 Interventions for incontinence to reduce falls and changing practice to improve care

With Wenger et al. (2009) and Oliver et al. (2010) highlighting a multifactorial assessment and intervention is required to improve care, it is interesting to note the case series by Jones and Perese (2003) who investigated whether behavioural interventions tailored to a person could improve urinary incontinence. The study was conducted in a psychogeriatric day treatment programme with older adults from age 65 to 85. Those who participated had severe mental illness and residual disabilities, and when not in the day programme lived in group homes. The case series was very small, with only three participants, with each participant interviewed in a face-to-face

interview to assess the impact of urinary incontinence on their day-to-day life. In the interview, they were asked a series of 21 questions about their ability to pass urine and move their bowels, their food and fluid intake, and their ability to dress independently (Jones & Perese, 2003).

After the assessment, simple non-invasive interventions were implemented for each participant over a six-week period. Interventions included introducing Kegel exercises, assessment of diet, and medication related to the management of urinary incontinence. Furthermore, urinary tract infection was assessed for and treated if found. The participants kept a voiding log, and this was reviewed by the researcher to create an appropriate voiding schedule for the participants. The participants were then monitored throughout the study by the researcher, who provided positive reinforcement with verbal praise and noted whether any change in urinary incontinence was achieved. At the end of the six-week programme, all three participants had improvement in their urinary incontinence (Jones & Perese, 2003).

The results demonstrate that within a psychogeriatric day programme, all participants with urinary incontinence should be assessed and encouraged to change their voiding habits with the development of a personalised continence management plan. With monitoring, praise, and positive reinforcement, there will likely be an improvement in the urinary incontinence experienced by the participant (Jones & Perese, 2003).

Although this study was aimed at those who frequently attend a day programme, it highlights that a simple non-invasive change in care, such as the introduction of a voiding schedule, can make a big change for those who experience urinary incontinence. The questionnaire used as part of this survey may have some relevance for the potential development of a continence questionnaire in my research project.

It is interesting to note that this study was conducted with people who live with severe mental illness and other disabilities. I was pleased to read that, despite disability, simple interventions were able to improve continence concerns in this patient population. Wenger et al. (2009) also discussed similar points in their study, which aimed to determine if a practice-based intervention could improve care for falls, urinary incontinence and cognitive impairment.

The study by Wenger et al. (2009) was conducted for 19 months and enrolled 644 community-dwelling patients over the age of 75. Patients identified as needing care for falls, urinary incontinence or cognitive impairment were enrolled in the study. They were divided into two groups, a series of control sites which continued to receive standard care and a series of intervention sites which involved the use of the Assessing Care of Vulnerable Elders (ACOVE-2) intervention (Wenger et al., 2009).

The ACOVE-2 intervention was used to improve care for older adults by integrating a change in daily clinical practice. This change was focused on the delivery of improved care for those who were at risk of falls, had a gait impairment, urinary incontinence, or cognitive impairment. The intervention included education of the physicians involved in the care of older adults, as well as the provision of resources to patients for community-based care. Additional resources were developed and provided for specific conditions, and information sheets were distributed to those identified at risk of falls, urinary incontinence, or cognitive impairment (Wenger et al., 2009).

It was noted in this study that if falls, urinary incontinence and cognitive impairments could be identified, a substantial improvement in care could be made through the early implementation of primary care interventions (Wenger et al., 2009). This is an excellent discussion point, as it shows there is the potential for an assessment tool to identify incontinence and make a difference for people who live with it.

It is important to note that low tech and inexpensive interventions, as used in this study, have the potential to improve care and care processes without introducing additional consultants or care venues. Participants enrolled in the study because they were at risk of falls, and those enrolled because of urinary incontinence had better results from intervention when compared to those with cognitive decline (Wenger et al., 2009).

Although an intervention improved care overall, the overall frequency of care processes was low, even in the intervention group. An example of this was the patients who were at risk of a fall, and those with incontinence. Even when the patient was identified as having had a fall, only one-third of these patients were examined. This also extended to those who expressed a fear of falling, with only one-third of these patients having a gait and balance assessment. Similarly, only one in three patients

with incontinence had a complete assessment done, including history, examination and testing performed (Wenger et al., 2009). Fortunately, in the ambulance context, if someone has had a fall and requires ambulance attendance, they will, at a very minimum, have an assessment of their vital signs and past medical history completed.

Wenger et al.'s (2009) study highlights that practice-based interventions should be integrated into standard clinical care because if they are not, patients who are at risk may not be assessed and may not get the support they need. By including this assessment in standard clinical care, the patient outcomes for falls and urinary incontinence can be improved. To ensure these assessments occur, Wenger et al. (2009) recommended that these interventions be embedded in the electronic medical record used by clinicians. This is interesting and seems like a simple approach to solving a potential problem that might arise with ambulance clinicians remembering to complete an assessment that is not currently routine.

The importance of embedding interventions into electronic medical records is very relevant to my research, as it highlights the pitfalls and challenges of integrating care for falls and incontinence assessment in the primary care setting. The recommendation by Wenger et al. (2009) could be translatable into clinical practice for my research project.

The importance of changing practice to improve clinical care is an essential part of an action research study. My study must be translatable and easy to implement if it is going to work for clinical staff who are busy and always operate under pressure. An evaluation of the ACOVE-2 (Assessing Care of the Vulnerable Elders) intervention, produced by Reuben et al. (2003) has some relevance to this research project.

Reuben et al. (2003) evaluated whether the ACOVE-2 intervention can improve care provided by primary care physicians for the assessment and management of falls, urinary incontinence and cognitive impairment, including dementia. The ACOVE-2 intervention is used to improve care for older adults by integrating a change in daily clinical practice. The four methods of changing practice include an efficient collection of condition-specific clinical data, and medical record prompts to encourage the performance of essential care processes. These prompts include reminders to distribute patient education material and reminding the patient of their responsibility

to follow-up. The two remaining methods of changing practice are physician decision-making support and physician education (Reuben et al., 2003).

Reuben et al. (2003) also observed that the recognition of obstacles which contribute toward changing clinical practice is essential. These obstacles are not isolated to the patient but also extend to the physician involved in the patient care. It is essential to recognise barriers to providing care and to address these barriers through education of both the patient and the clinician. The removal of barriers should enhance follow-up care, while minimising the disruption of practice and procedure (Reuben et al., 2003). While this study was targeted toward physicians, it can be translated into the education of ambulance clinicians as, anecdotally, similar barriers exist when initiating a change in clinical practice.

The ACOVE-2 intervention utilises organisational and educational principles that have been demonstrated to change provider behaviour. It uses avenues such as community resources, and health systems change to create a situation for the patient in which they feel informed and empowered to approach their care provider.

There are limitations for the ACOVE-2 model of care, with the first limitation being that the change was introduced as part of a research project. Therefore, the engagement of the physicians was as a result of the study and did not arise from the physicians' own innovation of knowledge. This point is important and highlights where my project is different, as using critical participatory action research (CPAR) will give ambulance clinicians the opportunity to innovate their own knowledge.

It was also noted by Reuben et al. (2003), that the ACOVE-2 model changed care delivery and that visit length may be extended slightly. However, the change in care delivery is thought to have an overall positive impact and reduces revisits for the patient if the right assessment is done for the condition first time (Reuben et al., 2003). It is important to be aware of this when introducing a new assessment tool for use in the ambulance sector, and while time pressure exists, ultimately taking more time to complete a thorough patient assessment and making a referral will save time, because it may stop repeat falls and therefore repeat ambulance attendances.

The report on the ACOVE-2 study by Reuben et al. (2003) provides an interesting history of the project development and testing phase, which was conducted prior to the implementation of the study. This information was a useful contribution toward the study design for my research project and has given me a good insight into the challenges that we might encounter throughout the research journey.

One of the challenges for a study of this nature that I am aware of, is the will of ambulance clinicians to engage in continuing clinical education of any sort, let alone around a subject as taboo as incontinence. Fortunately, several studies within my literature search have highlighted the importance of evidenced-based teaching in changing clinical practice. The following section provides a review of the importance of promoting positive change through mentored education programmes.

2.7 Promoting positive change through education programmes

McConnell et al. (2009) provided a rationale for the identification, interpretation and implementation of evidence-based best practice care for acute pain, delirium, dehydration, oral hygiene, urinary incontinence and falls in the care of geriatric patients. McConnell et al. (2009) identified a gap in undergraduate nursing education and knowledge for this patient population. This is not too dissimilar to the undergraduate ambulance clinician training in Aotearoa New Zealand, with my preliminary findings highlighting there is minimal training around delirium, oral hygiene, urinary incontinence and falls in the undergraduate curriculum (personal communication, M McAuley, August 30, 2020).

McConnell et al. (2009) noted that it had been difficult to engage staff, once they have graduated, to implement continuing education programmes to introduce important changes in patient care. This is a situation I am personally familiar with; it can be a struggle to maintain engagement whilst delivering continuing clinical education to graduates who are now employed full-time by an ambulance service.

One way of addressing this problem is through the implementation of a training package that is learner-driven with a focus on empowering staff as leaders for change. When a similar delivery method was completed as part of McConnell et al.'s (2009) study, it resulted in an attitude change toward the clinical education provided to improve best practice patient care.

McConnell et al.'s (2009) study demonstrated that, when staff were empowered as leaders for change, attitudinal change occurred. It was highlighted that after participating in training promoting best practice care for acute pain, delirium, dehydration, oral hygiene, urinary incontinence and falls, staff who previously had a low awareness of these best practice guidelines learnt how important these practices were for geriatric patients.

Furthermore, the staff became highly satisfied with using these guidelines in their practice. The training programme utilised face-to-face sessions and online learning to develop leadership skills, reflective practice and learner-centred instructional techniques which resulted in improved clinical practice. This was achieved through mentored application of new evidence-based practice care for geriatric nursing. This interpersonal approach to the implementation of change was seen to be effective in making a sustainable change in practice which was widely accepted by staff. By using a learner-centred approach, the majority of staff and students participated fully and found value in the training for themselves and those they care for (McConnell et al., 2009).

This is relevant to my research as it highlights that the implementation of new evidence-based best practice needs to utilise a collaborative learner-centred approach. To implement a change in clinical care, those involved need to be encouraged as leaders and empowered to learn and to be passionate about making change for the greater good of all people they are caring for. This is important, as making a change in any clinical education for ambulance clinicians can be challenging. Often this is because they cannot see sense in the change and are not supported to implement the change in practice, despite it being evidence-based practice. The analysis of the techniques discussed by McConnel et al. (2009), was valuable for the implementation stage of my research project.

Another article by Feng et al. (2018) relates strongly to Reuben et al.'s (2003) work and looked to complete a cluster randomised control trial across 14 nursing homes in China. The aim of this trial (still to be completed) is to implement an intervention in seven nursing homes and compare that intervention with standard care in another seven. This is in order to test the hypothesis that an aged care clinical mentoring

model creates and sustains evidence-based quality improvement in priority areas and is cost-effective in nursing homes in a Chinese province.

Feng et al.'s (2018) study aims to recruit 40 staff from each nursing home and provide them with a training intervention. This training is to be an evidenced-based quality improvement education programme to facilitate knowledge and improve education about urinary incontinence, pressure injuries and falls prevention. As discussed by Feng et al. (2018), the same aged care clinical mentoring model has been previously tested in Australia as an effective model to bring positive change as part of the ACOVE-2 study (Reuben et al., 2003). The model implemented in Australia used interventions which included education to improve staff knowledge of urinary incontinence, pressure injury and falls prevention, all of which have been recognised as barriers to providing high-quality care. It was noted in Reuben et al.'s (2003) study that the provision of education enabled staff to deliver high-quality care for their residents.

Although not specifically working with the same group of patients all the time like nursing home or aged care staff do, ambulance clinicians should also be able to deliver high-quality care for their patients with improved education around incontinence, pressure injury prevention and falls prevention. It was highlighted by Feng et al. (2018) that improving the education of clinical staff about falls and urinary incontinence is essential to improve outcomes associated with falls in the community. This article is very relevant to my research as it provides good background information on how the study was designed and rationale for this, and it illustrates how the use of mentorship for clinical care education to change practice can make a positive impact on those involved in my research. I await the results of Feng et al.'s (2018) research with real interest.

Feng et al. (2018) highlighted another important point. Even the best educational programmes producing optimal changes in clinical practice can be limited by socioeconomic factors present in the community. This is something to be aware of when assessing the impact of an intervention strategy such as this, and the observation is very relevant to my research.

The consideration of access to resources is essential because the community my doctoral project is located in is considered to be of lower socioeconomic status, with a

health equity data report from MidCentral DHB highlighting that “in general, people living in the Horowhenua and Ōtaki experience greater socioeconomic deprivation” (MidCentral District Health Board, 2018, p. 31). For some in the area, this means that access to healthcare services is limited by the cost.

The development of Te Whatu Ora | Health New Zealand regions is likely to further impact access to healthcare. From my own personal experience as a clinician and patient in the healthcare system, I have seen services further restricted by clinic funding or availability. Other confounding factors occur when a patient is waiting to be seen by a specialised programme such as continence services, with some services not accepting referrals from GPs until a mid-stream urine specimen and a pelvic ultrasound have been completed (Fear & Williams, 2023).

Furthermore, distance to a major treatment centre such as a hospital is also known to be a barrier to care (MidCentral District Health Board, 2018). This is a well discussed concern among the older adult population of Horowhenua and is something that is highlighted every month in meetings I attend as part of the Older Persons Networking group we have in the Horowhenua.

2.8 Can specialist continence advice shift stigma and reduce harm from falls?

Tannenbaum et al. (2015) detailed a study, which aims to evaluate whether a continence intervention improves incontinence symptoms. Results of this study were not available at the time the literature review was completed. The study is using the Patient Global Impression of Improvement questionnaire 12 months after implementation of an intervention and making a comparison with a control group. Data will be collected using a mixed-methods open-label two-arm parallel cluster randomised controlled trial with 1,000 participants. The study participants will be recruited from Canada, France and the United Kingdom, which will give a multicultural perspective on the impact of incontinence.

Although Tannenbaum et al. (2015) discussed a study protocol document, the background information included as part of the research protocol highlights some key themes associated with urinary incontinence. One such theme is the stigma associated with incontinence which can lead to delays in accessing care. This can be costly to the

patient, not only financially but also emotionally, with potential consequences being depression, social isolation, reduced quality of life, falls and other comorbidities (Matthews, 2009). The proposed study by Tannenbaum et al. (2015) aims to use community-based continence promotion programmes as a cost-effective strategy to reduce urinary incontinence, stigma, and falls among older women with untreated incontinence, to improve quality of life (Tannenbaum et al., 2015).

Much like the aims for the research project reported in this thesis, Tannenbaum et al. (2015) hope that the impact of continence promotion in the community will help those who have untreated incontinence. Their article discusses the suggestion in previous research that interventions combining constructivist learning and evidence-based self-management tools are effective at reducing urinary symptoms. Ideally, this will be applicable to different cultural settings, which will be examined through the testing of the intervention across three countries where the populations speak English and/or French (Tannenbaum et al., 2015).

The knowledge translation expected from this study should help to reduce the stigma associated with incontinence through a general awareness initiative. There is a recommendation to make the intervention accessible in a 'train-the-trainers' format to community organisations and primary care institutions. Furthermore, it is suggested that public health campaigns need to be increased to improve continence among older women. This is to change the negative beliefs and loss of functional independence associated with incontinence (Tannenbaum et al., 2015).

This article is very relevant to my research and identifies the key factors that are associated with the shame and taboo of incontinence. Furthermore, it highlights the use of a community-based programme to improve identification, awareness, and management of incontinence in the community. The discussion helps to build the background rationale for my research project and highlights how the provision of specialist continence care may help reduce falls and other concerns that are associated with incontinence.

2.9 Use of a continence specialist

Klay and Marfyak (2005) conducted a study to determine if the use of a continence nurse specialist in an extended care facility could decrease the number of episodes of

incontinence for elderly females. The focus of this study was the creation of an individualised continence programme in a long-term care facility for 42 female residents with incontinence or urgency from an overactive bladder.

As part of the initial assessment to quantify the problem, the total number of incontinence episodes over a week was recorded, then an individualised plan put in place for each study participant by a continence specialist. The plan was implemented for at least a year. This study found that a significant decrease in the number of overall urinary tract infections occurred – from 31 to six, a drop of over 80%. The overall number of pressure ulcers decreased from 15 to two, and the total number of falls was decreased by more than 50%, from 18 to seven (Klay & Marfyak, 2005).

In this small study, these results detailed how a continence nurse specialist can be used in a long-term care facility to successfully improve patient outcomes related to urinary tract infection, pressure sores and falls, which will reduce the overall cost of care. Furthermore, this study showed that an intervention to manage urinary incontinence was associated with a decrease in the number of falls occurring (Klay & Marfyak, 2005).

While this study was not specifically about clinician education around incontinence and used a clinician who already had knowledge about continence management, it is important to note that the clinical outcomes recorded in this study prove that a continence intervention plan for female patients with incontinence can result in a reduction of harm, and in particular a reduction of falls. This is important in supporting the rationale for my research, and the argument for ambulance clinicians to routinely conduct continence assessments to reduce harm from falls. Hopefully, this will reduce the impact of incontinence on the lives of our patients in the communities that we serve.

2.10 Discussion

Currently, when an ambulance responds to assess a patient who has slipped, tripped, or fallen, there is an opportunity for the ambulance clinician to complete a falls risk assessment and make a referral to support services as appropriate. Although this assessment is not a comprehensive and focused geriatric evaluation, it is likely it could be extended to include an assessment for incontinence. The assessment could then

flow into an element of patient education about a simple intervention or how to seek further help to manage incontinence. In turn, this could prevent incontinence from becoming a problem that leads to a person falling. Simple interventions for incontinence to reduce harm from falls are discussed in several studies found in this literature review and are noted to have improved overall quality of life and reduced the number of falls.

Current research demonstrates the link between incontinence and falls. Abreu et al. (2015) also detailed that advanced assessment for incontinence and raising awareness about treatment for incontinence can reduce falls. Research by Klay and Marfyak (2005) is aligned with the findings of Abreu et al., having demonstrated a 50% reduction in falls when incontinence was managed with simple interventions. Further, Feng et al. (2018) noted that falls, urinary incontinence and pressure areas can be prevented, and that "prevention of these adverse events has been identified as a priority quality improvement" (p. 2) because of the impact on the lives of people and the associated healthcare costs (Kwong et al., 2016).

Although more research is recommended by Abreu et al. (2015), discussions about the assessment of incontinence by Klay and Marfyak (2005), Specht et al. (2002), Colón-Emeric et al. (2013), Feng et al. (2018) and McConnell et al. (2009) have noted that implementing an assessment tool, whether it is for functional disability, incontinence, or geriatric conditions, can improve the assessment of incontinence and help prevent falls. This demonstrates that raising awareness improves the ability of people to get further help for their incontinence and reduce harm from falls.

Research by Reuben et al. (2003) showed that engaging clinicians as part of a clinical change process will help them be on board with accepting and using a new assessment instrument. It helps if the new instrument is embedded into an electronic assessment platform. Reuben et al. (2003) also noted that the cost of implementing a screening tool can be low and that it is feasible to reduce further harm. What is not known is whether this can be achieved by ambulance clinicians in the time-pressured environment they work in. Although this time pressure is generally a perception of ambulance staff, we do need to be mindful that the publicly perceived role of the

ambulance service is to provide an emergency response, and lifesaving interventions will always have priority over life changing assessment tools.

Given that the educational research discussed in this chapter demonstrated the importance of engaging clinicians as part of any change in assessment processes and to help them get on board with using a new assessment tool, it is important that a methodology promoting clinician engagement is utilised in the development of a new incontinence assessment tool for the ambulance service. In the case of my research, participatory action research is well known as a participatory method and in the present study it was expected to engage the end users of the assessment tool as part of development processes. It was also important to make sure that the ambulance clinicians felt heard and validated regarding a potential change in clinical assessment, because if they are not, they will not engage with a change intended to improve patient care.

The gap identified by this literature review is that there is no specific assessment tool for use in the out-of-hospital setting for a patient experiencing falls, to identify if they have urinary incontinence. The suggestion of asking a single question, made by Reuben et al. (2003), seems a logical starting point, but the question they used was about whether the incontinence was bothersome enough for a person to want to know it could be treated. However, if this one-question approach were used, it is likely many people would not be screened for incontinence, and therefore no referral or intervention could be provided and no reduction in harm. Therefore, it was important to develop a more advanced and focused assessment tool, one that can encompass the more subtle signs of urinary incontinence or other urinary complaints that people may feel are ‘normal’ and that may not be ‘bothersome enough’ to warrant them seeking help.

2.11 Conclusion

To conclude, there are several useful strategies discussed throughout this literature review that are relevant to the research project. Although none of the literature found in the literature search is specifically about the role of ambulance clinician education or the assessment of incontinence and falls by ambulance clinicians, as the researcher driving this study, I have found that the lessons learnt from others who have travelled

this path before me have assisted with the study development. The literature has also provided the action research working group with information about what we can do to empower my ambulance clinician colleagues to make a change. Assessing the impact of incontinence on falls attended by ambulance clinicians could make a real difference in the provision of healthcare to the Horowhenua community in Aotearoa New Zealand.

Chapter 3 Philosophy, Theoretical Underpinning and Methodology

3.1 Introduction

In this chapter, I discuss participatory research, how critical participatory action research (CPAR) meshes with my philosophical beliefs, my understanding of CPAR and the methods I used to establish the research project. There is also a discussion about changing practice and an introduction to the study participants, including a summary of the process of how they were recruited. The cycles of action research are briefly summarised and then expanded further in Chapter 4 – Cycles of Research. This chapter also considers the establishment and importance of public spheres, communicative action, and communicative spaces and presents an initial synopsis of the research project. It is concluded with an introductory discussion on reflexive thematic analysis, which was used for data analysis.

3.2 Why I am using critical participatory action research

Critical participatory action research is an approach to research that emphasises participant collaboration in the project. It can involve a variety of research methods, and instead of conducting research *on* participants, this approach invites participants to be involved *in* the research process (Isenberg et al., 2004). Involving participants in the research process allows them to feel empowered, be heard and make informed decisions while being part of positive change (Reason & Bradbury, 2008). These things are important to me as a researcher who wants to make a change for the greater good by involving people who may not usually get the opportunity to participate in the varying stages of a research project.

One of many participatory research methodologies is CPAR. I have chosen to use CPAR as described by Kemmis et al. (2014) as my research methodology because it meshes with my epistemological and philosophical beliefs. I am a people person, and above all else, I will always first be a human and be kind, and then a researcher or clinician. Because I live this way, I treat people as people, not subjects or participants, when I involve them in day-to-day conversations, life events, and change processes. Involving

people in change processes means their opinions and views can be heard, and they can help make a positive change while just being themselves.

I have found the way I work, and practice is often seen as unusual by others; however, I have developed this stance after many years of having change imposed in my working life without consultation and in my personal life without choice. Experiencing change in this way led me to develop a desire to allow other people's perspectives to be heard and for their own identities and opinions to be valued throughout change processes. Involving people in research that is participatory in nature gives them the opportunity to be heard. In the ideal situation, people involved in a CPAR project will experience an emancipatory and empowering effect resulting in a change in their life, no matter the outcome of the research project (Mackay, 2016).

3.3 What is participatory research?

Participatory research is a research approach that engages participants in as many steps of the research process as possible, including tasks and activities which facilitate participation, decision making and learning in a mutual way. A participatory research project is generally structured to involve key participants as co-researchers and strives for collaboration with them throughout critical parts of the process (Isenberg et al., 2004; Maguire, 1987; Maguire et al., 1993). Brydon-Miller et al. (2020) further refined participatory research and noted the importance of "a respect for people's knowledge and ability to participate as equal partners in the research process and a commitment to taking action leading to positive social change" (p. 106).

Many methodologies can be used within participatory research, but the methodology of choice depends on the degree of co-participation sought and the data to be collected. Abma et al. (2019) summarised the aim of participatory methods as offering "the ability to speak up, to participate, to experience oneself and be experienced as a person with the right to express yourself and have the expression valued by others" (p.127). These points really match with what I, as a researcher, believe is important in research.

3.4 How does the research methodology mesh with my philosophical beliefs?

Understanding the different research paradigms is an essential step toward understanding why I have chosen to use CPAR. A "research paradigm is a set of assumptions about the nature of reality and how knowledge is created" (Davies & Fisher, 2018, p. 24). It can be further defined as "a model or framework for observation and understanding, which shapes both what we see and how we understand it" (Babbie, 2008, p. 34), and is influential in determining research questions and methodology. This is significant, as there needs to be congruence between the research methodology and research approach.

If the researcher does not understand their assumptions about reality (ontology) and how knowledge is created (epistemology), then they can struggle to understand the research paradigm they sit in. The choice of paradigm will affect everything a researcher is and does, and the choice needs to be made with insight as to why the researcher is choosing that paradigm (Titchen, 2015).

I initially struggled to understand which research paradigm I belonged in. After much investigation and deliberation, I believe I sit in the radical paradigm (Grant & Giddings, 2002). I am a radical researcher as I want to work toward social change. The change I want to help make will hopefully impact on people in more than just one context.

So, what makes a radical researcher? A radical researcher has the stance that their views and beliefs about certain social structures are powerful. Ultimately, they want to make transformational changes in social structures in the world, and they want to do this for the greater good. Radical researchers are often working with people who are in marginal or disempowered social groups, and the radical researcher's focus is on the voices of these people (Grant & Giddings, 2002). These research concepts really resonate with me.

I believe that people who suffer with continence concerns may have been overlooked by many medical professionals, resulting in a feeling of disempowerment and shame through a lack of support and direction. This situation is further complicated by the fear and embarrassment people feel about asking for help with a continence concern. So how does this relate to the paradigm of a radical researcher?

A radical researcher uses a research methodology in which there is collaboration between the researcher, co-researcher participants and any other participants who may be involved in the project. A description highlighting the benefits of participants as co-researchers is detailed by Given (2008), who states:

> Participants as co-researchers is an approach that promotes participant involvement in the research process. Participants have the opportunity to tell their own stories and give an insider perspective to the process of being the object or subject of research. Participants are also able to offer their own interpretation of the researcher's findings, voicing their opinion in response to the researcher, thereby giving voice to the community or group that is being researched. Together, the researcher and participant work to come to conclusions, engaging in dialogue and offering each other feedback. (p. 2)

Working collaboratively in a research team that involves the participants is essential to a research project that uses participatory research. It is important to ensure that there are close links between practice and theory (Grant & Giddings, 2002). This really speaks to me as a researcher, as I have a desire to change things for the better.

It took some time for me to understand where I wanted to go with the research and how I wanted to do it, especially in regard to the research paradigm I was in. Thankfully, I found guidance that detailed the radical paradigm in relation to the 'researcher and researched' relationship. Grant and Giddings (2002) discuss how the goal of a radical researcher is seen as an overtly political role because there is the need to empower others to be engaged in transformational actions. This occurs through a change in consciousness "produced by the process of praxis, involving cycles of collaborative planning, acting and critical reflection" (Grant & Giddings, 2002, p. 19). I felt that, to achieve what I want as a radical researcher, the research approach I should use would be a form of participatory research, and the best fit is with the family of methodologies known as action research (AR).

When first reading about AR, I found a series of statements that resonated with me. These statements are important to me because of my experiences in life, but also due to my beliefs as a person and a researcher. Kemmis et al. (2014) detailed key points about change, and one that really made sense to me is the discussion about when change occurs in our life, it is often imposed. It is noted that sometimes the change is

random or ill-considered, and can generate frustration, unrest, disruption, and sometimes even alienate people.

This is something I have experienced in both my personal and working life. Another statement I read was specifically about AR; it observes that AR, and CPAR in particular, is a disciplined way of making change (Bradbury, 2015). Critical participatory action research is one way people can reshape their lives and work to change an arrangement they have found themselves in, which is why it rings so true to me as a research methodology (Kemmis et al., 2014).

3.5 Understanding critical participatory action research

Critical participatory action research falls under the 'AR umbrella' as a methodology. Action research has grown from very diverse intellectual traditions within what was considered "mainstream academic research traditions in the social sciences" (Herr & Anderson, 2015, p. 11). Tracing back to the work of Kurt Lewin, who challenged researchers to create knowledge through real-life problem solving, AR is understood to have developed from Lewin's early work throughout the 1940s (Herr & Anderson, 2015).

At that time, Lewin's studies focused on minority groups, particularly those who were working in industries where discrimination existed. However, Lewin's early work on AR took two different paths. The first was the way it was adopted in the United States (US) by professionals who used it to conduct research in which they could control the results. While this is not what would now be considered 'typical' AR, it was a way of conducting AR that was employed for over 40 years. This approach used what was known at the time as a positivist approach and allowed the manipulation of isolated variables. This type of AR still occurs today and is now known as technical AR (Herr & Anderson, 2015; Merriam & Tisdell, 2016).

The second path for AR that developed from Lewin's early work arose in Europe. Here, it was given grounds to develop in a more participatory form. Unlike the control of the research action in the US, this more participatory form of AR occurred and was embraced as a social movement to make social change (Bradbury, 2015). It was the ability to make social change that developed AR as an emancipatory practice, with an aim to help those with an oppressed voice be heard. The emancipatory practice

occurred by involving people as co-researchers, which allowed them to participate in research, creating participatory research. Involving people as co-researchers was important, as action was required to manage social policies and practices which had resulted in the development of unequal power relations. It is understood that it was here that Paulo Freire's critical pedagogy first became involved (Dale, 2010; Freire, 1972).

Freire's *Pedagogy of the Oppressed* became utilised more widely after an English translation of his book was published. This quote from Freire (1972) details how the book clarifies the pedagogy:

> This book will present some aspects of what the writer has termed the 'pedagogy of the oppressed', a pedagogy which must be forged *with*, not *for*, the oppressed (be they individuals or whole peoples) in the incessant struggle to regain their humanity. This pedagogy makes oppression and its causes objects of reflection by the oppressed, and from that reflection will come their necessary engagement in the struggle for their liberation. And in the struggle this pedagogy will be made and remade. (p. 25)

Freire's way of working focused on solving problems to transform consciousness and, ultimately, society (Freire, 1972). One way this problem solving was completed was to work with communities. Working with communities enabled people to identify generative themes – or problems that the community agreed needed a resolution as a matter of priority. Ultimately, it is from Freire's framework that CPAR was born (Kemmis et al., 2014).

Critical participatory action research can allow people involved in the research project "to take an active and thoughtful approach to changing themselves, their practices, and the conditions under which they practice" (Kemmis et al., 2014, p. 18). When people are allowed to participate in research, they do so with the aim of making their own individual and collective practices more rational and reasonable, more productive and sustainable, more just and inclusive. "They collectively gather evidence, analyse, interrogate and interpret the evidence they collect and reformulate their action in the light of their evidence, analysis and interpretation over time" (Kemmis et al., 2014, p. 18).

Kemmis et al. (2014) further highlighted how, in CPAR studies, participants are "profoundly interested" in their practices "and whether the conditions under which they practice are appropriate" (p. 6). Merriam and Tisdell (2016) also supported this and stated that "critical participatory action research studies can affect and transform people from both an individual and societal perspective" (p. 58).

Therefore, in using CPAR, I specifically sought to engage those who are profoundly interested in their practice and want to make a change in practice to make conditions better for patients they see. As a result, I involved ambulance clinicians alongside other clinicians in the ARWG, as discussed further in this chapter.

3.6 Critical participatory action research as a change agent

Critical participatory action research is used as a change agent to challenge the 'traditional notions of change'. This creates a challenge for making change because it is probable that the people involved in change-making processes are considered to have expert knowledge (Herr & Anderson, 2015). Although those with expert knowledge are essential when it comes to making change, it is also important to involve those whose voices may not usually be heard and who may not usually be asked to participate in change procedures or projects. This is part of Freire's philosophy, and it is through Freire's work that learning through participation was highlighted as being essential in order to give those who are oppressed a voice (Freire, 1972).

Action research in its many different forms is considered participatory, with each type encouraging participation according to the style chosen (Bradbury, 2015). Kemmis et al. (2014) discussed the categorisation of AR into three broad groups. Each of these groups are discussed in alignment with Habermas' three types of knowledge: technical, practical and critical (Habermas, 1984). The first type of AR is called technical AR, and it aligns with Habermas' type of knowledge called technical knowledge. Although an interesting approach, technical AR is reported to be an unusual study design, one that is used when there is an interest in improvement in control over outcomes. While it would be nice to have improvement in control over outcomes, if we think about technical AR in relation to the research question and the aims of the present research, it is unlikely that this type of AR would help provide necessary assistance to the

clinicians conducting a falls and incontinence assessment (Kemmis et al., 2014; Merriam & Tisdell, 2016).

As technical AR does not fit the requirements for this research project, I needed to consider whether this AR project is practical or critical or a combination of both. Nevertheless, no matter which type chosen, AR generally tends not to be a neat individualised academic exercise with correct answers, but messy work best done in collaboration, reflection and conversation (Bradbury, 2015; Brydon-Miller & Maguire, 2009; Herr & Anderson, 2015). Kemmis et al. (2014) concurred with this view and noted that participants want to improve the rationality and justice of their own social or educational practices, as well as their understanding of these practices and the situations in which these are carried out. Groups of participants in AR can be anyone who has a shared concern. However, the approach of CPAR is slightly different, as it is only considered to be CPAR when it is collaborative (Kemmis et al., 2014).

The defining difference between AR and PAR is that "PAR is a collective dynamic process that encourages a high degree of participation, where community members become co-learners, co-researchers, and co-activists of a common concern" (Burgess, 2006, p. 429). I think it is important to highlight at this point that I wanted to work with others to generate useable and practical knowledge through a collaborative process that might contribute to social change. In the case of my research, this would be a change in practice within the work environment of ambulance clinicians. This change could be done through collaborative study of current ambulance clinician practices around the assessment of the patient who slips, trips or falls.

Reflecting on my hopes for the research project is important as you read this next paragraph because what you will see is how CPAR fits with my research beliefs. Kemmis et al. (2014) describe CPAR as a research approach that:

> does not stand back from practice but joins the action, helping to reconstitute practice through informed collective human agency. The goal is the immediate and continuing betterment of practice rather than merely being informed about practice. Because changing practice is the focus, we must put ourselves into the workplace and consider what kinds of information we (and others) might need. We need to take into account not just what people might think about the current situation, but how they might respond if we begin to initiate changes.

> This requires an understanding of individual views and shared social understandings. (p. 73)

Critical participatory action research details exactly what I want to achieve with this doctoral research project.

3.7 Changing practice using critical participatory action research

Changing practice is an essential part of a CPAR project (Kemmis et al., 2014). For the project to work with clinical staff who are busy and always operate under pressure, it is important that the research methodology is translatable and easy to implement if it is going to be successful. This is notable because if there are barriers to people participating, then the methodology of CPAR may not be considered participatory. The same can be said for changing clinical practice to improve care. As part of understanding how a change in practice comes about, it is also important to understand how theory is intertwined with practice. It is important to create strong links between theory and practice and create new practice as part of an AR project (Bradbury, 2015).

The ability to create links between theory and practice is important for practitioners to be able to "transform the conduct and consequences of their practice to meet the needs of changing times and circumstances by confronting and overcoming three kinds of *untoward consequences* of their practice, namely when their practices are irrational, unsustainable and unjust" (Kemmis et al., 2014, p. 5). It is this transformation that makes changing practice significant in CPAR (Kemmis et al., 2014). This type of thinking and the critical review of practice leads us as researchers to "interrogate our practices" (Kemmis et al., 2014, p. 6) and look toward changing practice. Perhaps the most resonant summary of this was stated by Kemmis et al. (2014) who note:

> if we cannot change the ways we constitute the familiar world of our current practices, then we will continue to reproduce the world as we know it through our practices. To transform our world, we need to transform our practices. (p. 49)

Research using critical theory through critical pedagogies can create transformational change. Freire's work highlighted that critical thinking is a tool that can be used as a way of thinking for civic engagement and self-determination (Tallon, 2008; Wang, 2018). Critical thinking in a clinical sense is something that ambulance clinicians are

well attuned to. They must make decisions with very few details about a patient and their presenting condition, and they make these decisions with even fewer clinical tools. When we look at critical thinking in a research sense, the spectrum is different, but there is a link between the research and practice.

The link between theory and practice for this project is notable. As aforementioned, the theory underpinning CPAR is known as critical theory. Critical theory teaches us to challenge what we assume is knowledge; this is important as part of emancipatory practice and in attempting to see the world from another person's perspectives (Bronner, 2017). This is what we, as clinicians, do when we assess a patient in the community. We must challenge our thinking around the case presentation (i.e., what is wrong with the person and why have they reached out to the ambulance for help). We never assume that what we are seeing is what is happening for the patient – we allow them the chance to explain what is happening. As clinicians, we need to sit and listen to that explanation and understand what the person needs from us. This need could be treatment at the hospital, lifesaving medication or, on the other end of the scale, a 'cup of tea and a chat'. What this means is that we as clinicians do already follow critical theory to some extent, just with a clinical practice lens and not a research lens (Bronner, 2017).

When someone follows critical theory and uses it to underpin their research, they do this because they want to attempt to find out what keeps people from "fully and truly knowing how the world works" (Nickerson, 2022, p. 1). This is important, because people's views of the world can create a 'false consciousness' which means that they may not be able to understand another person's perspective. When people allow their mind to be open to change or transformation, it can result in them understanding and progressing toward changing their view, having an 'ah ha' moment where the ability to understand another person's perspective makes sense (Bronner, 2017; Nickerson, 2022).

3.8 Understanding critical theory

Critical theorists look at social phenomena and focus on social relations. Generally, a researcher's values will frame the nature of the inquiry for their research. A critical theorist enquires with a view to transforming something, while also recognising the

moral obligations of a researcher who wants to 'make things better' (Bronner, 2017). Critical theory was born in the work of Karl Marx, who argued that philosophers only interpret the world in particular ways, but the point is to change it. Critical theory has a strong underpinning element of social justice, and generally the researcher who uses critical theory wants to change the world for the better.

> Critical theory can be understood as presenting a version of the sociology of knowledge with a 'transformative intent'. Marx had understood capitalism as an economic system in which the working class serves as the producer of wealth (or capital). If only for this reason, the proletariat constitutes the only force capable of transforming the system. (Bronner, 2017, p. 25)

As explained, 'traditional research' theories seek to explain things or set out the conditions and explanations for an event or occurrence, whereas critical theory purposefully seeks emancipation and is emancipatory in its approach (rather than primarily explanatory). When using critical theory, the goal is not to explain what is happening but liberation through emancipation, a humanistic ideal:

> Critical theory was intended as a general theory of society fuelled by the desire for liberation. Its practitioners understood that new social conditions would give rise to new ideas and new problems for radical practice—and that the character of the critical method would change along with the substance of emancipation. (Bronner, 2017, p. 21)

Bronner (2017) made a bold statement, but one that provides me with hope. This is because if there were to be a greater understanding of critical theory and there were more people who shared this worldview practicing as clinicians and researchers, it really would help with research changing practice.

3.9 Changing practice

The translation of research into practice is an important element of research within the Doctor of Health Science programme. For this research project to implement and effect a practice change, it required a multimodal approach, and perhaps even a change in the organisational structures and systems for this to happen. Although some forms of AR can involve organisational change or a change in organisational structures, it is not a specific requirement of CPAR (Kemmis et al., 2014).

I think it is important to highlight that this research project was not specifically about organisational change; instead, it was about changing clinical practice and involving clinicians in this change. By involving the ambulance clinicians and allowing them to share their knowledge and understanding of urinary incontinence, the intention was for a collaborative effort to occur to help make change in clinical practice around incontinence and falls beyond those specifically involved.

It also meant that the clinicians who see the patients who fall in the community could tell us what is experienced in their day-to-day duties. For us as a research group to understand how clinicians can change practice regarding the assessment of falls and incontinence in the community, we needed the clinicians to be involved in driving the change using a collaborative process. To do this, the group needed to understand what the ambulance clinicians think when they see the people who fall in the community, and we also needed to know what they think can change in clinical practice to make change happen.

Following the methodology of CPAR, a change in practice needs to happen from the ground up, not from the top to the bottom. An analogy, explained to me by my husband when I was trying to make sense of how CPAR works, is that it is like a wave. A wave in the ocean is created from the sea floor, and through this project, we are creating change from the bottom up (B. Williams, personal communication, September 13, 2019). This is where true transformational change can happen as it is driven by engaging, through the sharing of experiences, the people who want to make a difference; this is true CPAR.

It is in these shared experiences that situations are identified, an action is planned, implemented, and then reflected on before planning the next action together. To do this, many methods can be used, but the method to be used is decided by the group before it can be implemented. It is not up to the researcher alone to choose what this looks like, or how this happens; in fact, the researcher often relinquishes control, and the project becomes driven by the co-researchers.

3.10 From ‘I’, ‘me’ and ‘you’ to ‘us’, ‘we’, ‘the team’ and ‘the group’

Before progressing further, it is important to frame the different terms I am using as pronouns for the people who participated in this CPAR project. This is something that

requires clarification and is specific to CPAR, because the research would not be CPAR if the people involved in the research were not considered co-researchers.

Generally, a thesis is a solo journey, so there is no terminology such as ‘we’, ‘them’, ‘us’, ‘the team’ or ‘the group,’ but in this case the project itself was driven with those who are co-researchers. In this thesis, when referring to the lead researcher, the terms ‘I’, ‘me’, or ‘they’ are used.

I originally provided an outline for the research project and conducted all the background reading, literature review and the initial ethics application, and then facilitated the establishment of the participant group known as the ARWG, which constituted ambulance clinicians, a neurourologist, a general practice nurse, a gerontology nurse, a continence nurse, a women’s health nurse and a falls and fracture liaison nurse. It was after the recruitment of the ARWG that the project became one in which the co-researchers worked together to drive the project ahead with me working as the project manager.

What can be seen throughout the methods sections of this chapter is the point at which this project turned from a research project driven by me as the lead researcher, to one that was driven by the co-researchers – the ARWG participants, also known as ‘the team’. It is at this point that the terminology referring to these people in my thesis needs to change: all other participants are referred to as ‘them’ (the research participants), whereas the ARWG becomes ‘us’, ‘we’, ‘the team’, ‘the group’ or ‘the ARWG’.

It is important to highlight this terminology, as there are aspects of this research project that I cannot claim sole responsibility for – they need to be attributed to the research team. This is an essential component of CPAR being participatory in nature and meeting the expectations established by Kemmis et al. (2014). In fact, to claim all the work as my own would be inaccurate and disrespectful to the ARWG. For the remainder of this thesis, I endeavour to refer to people by their appropriate pronouns and make my pronoun choices as per their involvement in the research project.

3.11 Researcher's positionality

Understanding my positionality as a researcher and the impact this might have on a research project is essential (Herr & Anderson, 2015). It is important because it can influence the participants' involvement in the project, beginning with their level of engagement in the research and their ability to feel comfortable enough to disclose information. There is also the possibility a researcher can end up in a position of power through their positionality in the workplace which could affect people wanting to participate in the research project (Kemmis et al., 2014).

My positionality is complicated because my role as an ambulance clinician has been convoluted. I took quite a journey to get to writing this thesis today, but ultimately it came from working in the ambulance profession for over 15 years. While working full-time as an ambulance clinician, I completed many years of postgraduate study. Throughout that time, I was always championing change and wanting to make a difference in ambulance clinician education. I did this because I wanted to ensure the education encompassed a more holistic approach to patient care. This was one of the driving factors for me to complete my Master of Health Science. I knew that if I held this qualification, it would give me the option of working in the field of tertiary education to promote positive change in ambulance clinician education, and it is from here that the desire to make a change in clinical practice came to light in my professional life.

I can proudly say that in 2013, I was one of the first 10 paramedics in New Zealand to graduate with a master's level qualification. Despite many difficulties, I completed my Master of Health Science endorsed in Aeromedical Retrieval and Evacuation. After I developed more sector experience and completed more postgraduate study, I then transitioned to a full-time lecturing role at AUT University (AUT). While working at AUT I maintained a casual contract as an Intensive Care Paramedic with HHSJ Ambulance; I was also recruited to the Clinical Council for MidCentral District Health Board and became a research evaluator for Continence NZ.

Reflecting on my positionality when I was first drawn to the idea of completing my doctoral study, I would have been considered an 'insider'. I was working in the ambulance service, and I wanted to conduct a study involving ambulance clinicians. It

would have been a prime time for me to complete my study, as I would have fitted the role of the insider action researcher perfectly. I wanted to be a clinical leader for change, but I wanted to involve the people the change was going to impact whilst working amongst them. Titchen (2015) noted this as an important contributing factor in a successful AR project. However, to be a "clinical leader with the authority for initiating and managing change" (Titchen, 2015, p. 3) as an insider can present a challenge. This is because an insider action researcher can struggle finding the time for the research processes, due to the responsibilities they have in the setting they work in (Titchen, 2015).

Fortunately, my role at AUT meant I had the ability to transition into more of an insider/outsider positionality, but because of my AUT role and my seniority as a clinician I am considered to be in a position of power (Kemmis et al., 2014). This is something I have needed to be mindful of as I completed the CPAR project.

Having insider knowledge of the ambulance sector 'operations' allows me to understand what it is like to be involved in the challenges associated with the ambulance environment. But there is a benefit for me in being an outsider, as I have been able to develop more networks and have a broader view of the changes being processed. These changes are derived from both my research project and standard operational change in the ambulance environment. My positionality is that of both an insider and an outsider.

3.12 Establishing the research project

Establishing the research project involved consultation with various people from HHSJ, AUT and DHBs, plus Māori consultation with the AUT School of Clinical Sciences Mātauranga Māori Committee, the HHSJ Māori Locality Review Committee, Pae Ora Paiaka Whaiora Hauora – Māori Health Directorate at MidCentral District Health Board and Raukawa Whānau Ora, to guide cultural safety during the project development. A further overview of the project can be found in Table 1 in section 3.13. Ethics approval was sought and gained from AUT Ethics Committee (AUTEC), with many amendments required throughout each stage of the research project. A copy of documentation associated with the varying consultations and approvals can be found in Appendix A.

3.13 An overview of cycles of participatory action research

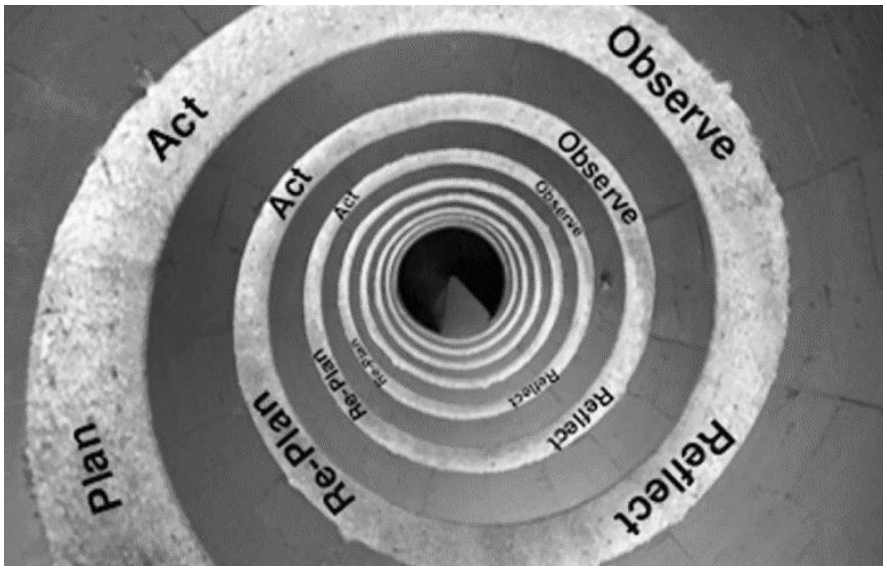
As the lead researcher, I had several ideas as to how the methods chosen might inform the AR cycles, but due to the nature of CPAR, ultimately, these deviated from what I initially had conceived. As Kemmis et al. (2014, p. 18) explain:

> Although the process of participatory action research is only poorly described in terms of a mechanical sequence of steps, it is generally thought to involve a spiral of self-reflective cycles of the following:
>
> - *planning* a change
> - *acting* and *observing* the process and consequences of the change
> - *reflecting* on these processes and consequences
> - *re-planning*
> - *acting* and *observing* again
> - *reflecting*, and so on.

These cycles of research are perhaps best understood using an image (as below, Figure 2), which shows how the different cycles of the research project may introduce different methods to answer the research question. How the proposed cycles for this CPAR project progressed is summarised below, in Table 1.

Figure 2

The Action Research Spiral



Note. From The Action Research Planner: Doing Critical Participatory Action Research (p. 19), by S. Kemmis, R. McTaggart and R. Nixon, 2014, Springer. Copyright 2014 by Stephen Kemmis. Reproduced with permission.

Table 1

Stages of This Critical Participatory Action Research Project

Cycles	Actions	Tasks and methods	Participants/people/ groups involved	Intent and purpose of the cycle Research questions asked
Planning	Pre-project planning (6 months) June 2019 to January 2020	I established relationships and a common agenda with stakeholders to lay the foundation for understanding the context of the issue and the people who want to be involved. Numerous face-to-face conversations were held to establish these relationships, and individual and group interactions were held at their place of work.	Celeita and (10 representatives from the following organisations – AUT University, Hato Hone St John, Mātauranga Māori Committee, Raukawa Whānau Ora, Age Concern, Horowhenua District Council, Auckland District Health Board, MidCentral District Health Board, THINK Hauora).	To build relationships with potential ARWG members. Recruit members of ARWG Full details of ARWG recruitment are in Chapter – 4 Cycles of Research.
Action: Cycle one	Plan the action: This is the action of cycle one (1 month) January 2020	Build relationships with members of the ARWG and create a public sphere. Identify roles and responsibilities within ARWG. Collaboratively decide on issues. Collectively design research processes and tools.	ARWG (6 people) and Celeita.	Flatten hierarchy within ARWG. ARWG identifies and defines key issues associated with incontinence and falls, ambulance clinician understanding of falls and incontinence.

Cycles	Actions	Tasks and methods	Participants/people/ groups involved	Intent and purpose of the cycle Research questions asked
		Focus on research design, ethics, knowledge and accountability. Identify research priorities. Discuss potential outcomes. Confirm and sign public sphere ground rules.		What do you as a group identify as the key issues associated with incontinence and falls? What is the group's expectation and understanding of ambulance clinicians' knowledge about falls? What is the group's expectation and understanding of ambulance clinicians' knowledge about incontinence?
	Observe and reflect (1 month) February 2020	On research questions, design, working relationships and information required.	ARWG (6 people) and Celeita.	To clarify the direction of the research project.
Action: Cycle two	Revised plan and action (24 months – delay due to COVID-19) Survey deployed to ambulance clinicians February 2022 to May 2022	Collaboratively discuss reflections from cycle one to plan and design the research action including the recruitment of an additional ARWG member. Work together to design and deploy survey to ambulance	ARWG (7 people) and Celeita.	To start to answer the research question and establish current ambulance clinician knowledge and education about assessment of incontinence and falls.

Cycles	Actions	Tasks and methods	Participants/people/ groups involved	Intent and purpose of the cycle Research questions asked
		clinicians (including peer review of survey) and collect data.		To identify key themes and ideas expressed by the ambulance clinicians in the survey.
	Observe and reflect (6 months) May 2022 to November 2022	Reflect on the collaboration of all involved in the project. Discussed that the research action provided the required data for analysis. Members of the ARWG completed data analysis of free-text questions using reflexive thematic analysis. ARWG was tasked to consider the next steps in data collection and how this might answer the research question.	ARWG (7 people) and Celeita.	To clarify whether the communication channels were effective. Reflect on the survey design and implementation. Data analysis as a group ensured appropriate codes were assigned and themes identified from data collected. To guide the next steps in the project.
Action: Cycle three	Revised plan and action (3 months) November 2022 to February 2023	Collaboratively analyse findings from cycle two including designing next steps for data collection. Designed a clinical assessment tool.	ARWG (7 people) and Celeita.	To identify themes in data collected from cycle two so that a clinical assessment tool can be created and implemented effectively.

Cycles	Actions	Tasks and methods	Participants/people/ groups involved	Intent and purpose of the cycle Research questions asked
	Reflection (4 months) March 2023 to June 2023	Did the content of the clinical assessment tool resonate with relevant clinicians who may receive a referral from the screening conducted?	ARWG (4 people as the main contributors) and Celeita.	Is this assessment tool applicable in the 'real world'?
Cycle four	Revised plan and action (3 months) July 2023 to September 2023 Survey deployed to ambulance clinicians September 2023 to November 2023	Created and implemented a second survey to establish if the assessment tool could be utilised in clinical practice with the desired impact. To further assess the knowledge level of ambulance clinicians and identify if there was a change in their clinical practice.	ARWG (4 people as the main contributors) and Celeita.	To identify if ambulance clinicians would utilise the assessment tool and if it would change their clinical practice.
	Reflection (4 months) December 2023 to January 2024	Members of the ARWG completed data analysis of free-text questions using reflexive thematic analysis to determine if the research question had been answered.	ARWG (4 people as the main contributors) and Celeita.	How the research could be translated into clinical practice.
Reflection	Reflection and write-up (4 months) February 2024 to June 2024	Collectively identify future research and impacts. Write up results of CPAR project and report on	ARWG (4 people as the main contributors) and Celeita.	

Cycles	Actions	Tasks and methods	Participants/people/ groups involved	Intent and purpose of the cycle Research questions asked
		whether the research question was answered. Reflect on what change and learning has taken place.		

Note. Table adapted from Kindon et al. (2007); Pain et al. (2017).

3.14 Cycles of action research

Over the course of the research project there were four cycles of AR. These are described below and presented in the following format: identifying a problem or situation, planning an action, and implementing the action and reflection. The cycles of AR were conducted as described in the *Action Research Planner: Doing Critical Participatory Action Research* by Kemmis et al. (2014). This part of the chapter only introduces the cycles of research without specific detail, with the details about each cycle of research appearing in Chapter 4 – Cycles of Research. Furthermore, there is an introduction to how I, as the lead researcher, gained an understanding of reflexive thematic analysis, and as such, the terminology will remain 'I' and 'you' until this explanation is completed.

3.14.1 The planning cycle - Cycle one

The first cycle began with recruitment of the ARWG. Specific details on recruitment of ARWG are in Chapter 4, subsection 4.2 – The planning cycle. This was completed prior to data collection and involved recruiting through conversations with interested parties and, at the recommendation of the ARWG, the recruitment of ambulance clinicians.

Ambulance clinicians were recruited through a poster on the local ambulance stations in Foxton, Levin, and Ōtaki. An email was also sent to ambulance staff in the study area by HHSJ's Clinical Audit and Research Team (CART). Additionally, an advertisement was also placed on the Horowhenua Ambulance Operations Facebook page by CART to ensure the eligible population had different avenues of viewing the recruitment poster. A copy of the recruitment poster is available in Appendix F. Further to these actions, I utilised snowball recruitment to recruit non-ambulance members of the ARWG, as detailed in Chapter 4, subsection 4.2 – The planning cycle.

Once recruitment had been completed, the group met to clarify the problem and decide on the first action of the project. As per the instructions in the *Action Research Planner* by Kemmis et al. (2014), at this meeting a public sphere was created allowing communicative space to occur. All participants had access to a participant information sheet, consent form and confidentiality agreement. A consent form and confidentiality form were completed by all participants. A copy of the participant information sheet,

consent form and confidentiality agreement for ARWG members can be found in Appendix G.

At this meeting, the initial identification of the problem and the group's experiences and impressions of how ambulance clinicians can assess incontinence and falls was discussed. Furthermore, the group clarified the research question and discussed potential actions for engagement with ambulance clinicians to identify their understanding and knowledge of urinary incontinence and falls. It was decided that this could be completed using a survey.

When reviewing the meeting recording later, I noted a disconnect between written responses of the ARWG participants and the discussion to the initial questions asked of them throughout the conversation within the meeting. The verbal discussion was more revealing of themes and enabled me to correlate the small amount of data given from the written feedback with the extensive discussion throughout the meeting and to identify the key issues associated with the research question. This will be discussed further in the thesis.

3.14.2 Cycle two – Survey development

During the reflection and review meeting to analyse the themes obtained from cycle one, it was identified there was a potential gap in ambulance clinicians' training and knowledge of urinary incontinence. As a result of this discussion, the action planned by the ARWG for cycle two was to assess ambulance clinicians' knowledge, opinions and experiences of urinary incontinence. To accomplish this, the ARWG designed a survey specifically for this purpose. This survey is referred to as survey one throughout the thesis.

A copy of survey one can be found in Appendix H. Once created and verified, the survey could not be deployed to the ambulance clinicians due to the COVID-19 pandemic, which began in March 2020 (World Health Organization, 2024). Throughout the duration of the pandemic, there was a continued impact on the ambulance service workload. As a result, the deployment of the survey was delayed because the ambulance service was under immense pressure and experienced unprecedented workload demands (Burrell, 2022). Furthermore, CART suspended all research projects

involving the ambulance sector until further notice (B. Dicker, personal communication, June 20, 2024).

When the survey was deployed to the ambulance clinicians in February 2022, it was active for eight weeks to allow all potential participants in the Horowhenua region an opportunity to respond. Although eight weeks could be considered an extended duration, this timeframe was utilised to ensure people had the ability to participate even if they had been away on leave (approximately 20 days in duration) during the survey timeframe.

3.14.3 Cycle three – Assessment tool development

After the survey was completed, the ARWG met again to review and reflect on the themes found in the results. The ARWG also reflected on how they had made changes in their own clinical practice as a result in the involvement of the project.

Further discussion involved planning the next step of the project. Many ideas were discussed but, importantly, the ARWG concluded there was a need to create a clinical assessment tool ideally for this be further developed into an application for use on a smart phone or electronic patient report form (ePRF).

To enable the development of the assessment tool content, the ARWG wanted to engage the ambulance clinician population face to face. The ARWG wanted to discuss what ambulance clinicians think should be included in an assessment tool for urinary incontinence and falls. Due to the nature of the workload and the work environment of the ambulance clinicians, it was decided by the ARWG that it would be difficult to meet with them face to face. As a result, the action from cycle three was for the ARWG to develop a set of questions that could be incorporated into an assessment tool.

3.14.4 Cycle four – Verification of assessment tool with ambulance clinicians

When the AWRG met to reflect on the questions developed in cycle three, clarification of the questions reduced the number of questions in the assessment tool from 40 to 14 (a copy of the questions can be found in Appendix I). The group elected to use another survey involving the ambulance clinicians for a second time. The survey was designed to assess the applicability of the assessment tool in the ambulance environment. It was also decided in the planning phase for the final action to

incorporate the following questions in the survey with the incontinence assessment tool:

- How useful would this assessment tool be to help you assess continence concerns?
- If the option was available, would you refer a patient for further assessment if you identified a continence concern related to these screening questions?
- Is the time spent working through these questions with patients valuable?
- Is this tool a good assessment guide?
- Would you like to see this assessment tool introduced as an App, on ePRF or another platform?
- How could this assessment tool change your clinical practice?
- What improvements do you recommend to make this assessment tool easier to use in the ambulance setting?
- How has completing this survey challenged your thinking around assessing incontinence and falls?

These questions were added by the ARWG as they wanted to know whether, in the 'real world', the survey would be well received and utilised in clinical practice. A copy of the second survey can be found in Appendix J.

In the final stage in cycle four the ARWG met to reflect on the themes found in the responses to the survey and to consolidate the findings from the project.

3.15 How was the data analysed?

The data obtained throughout this research was predominantly analysed using reflexive thematic analysis (RTA) as guided by Braun and Clarke (2020). To develop my understanding of RTA, I first needed to understand thematic analysis (TA). Thematic analysis is a group or cluster of methods or analytical approaches intended to produce analyses of patterns across data sets. This can be patterns of meaning, understanding, and experience to capture common components of variation. Thematic analysis is a flexible analytical tool that allows you to robustly and systematically engage with data that allows you to report key patterns, important meanings or experiences from a data set (Braun & Clarke, 2019; Braun & Clarke, 2020; Scharp & Sanders, 2019).

Reflexive thematic analysis was developed from the different types of analysis that have evolved from TA. The fundamental difference between TA and RTA is that reflexivity is meshed into RTA and is integral to the understanding of the data. Reflexivity is an essential and necessary practice to engage with data – it is a vital component as part of the data analysis journey (Braun, 2022; Terry, 2021).

Reflexivity is important because it engages the continual process of self-reflection and allows researchers to "generate awareness about their actions, feelings and perceptions….this improves transparency in the researcher's subjective role, both in conducting research and analysing data, and allows the researcher to apply the necessary changes to ensure the credibility of their findings" (Darawsheh, 2014, p. 561). By using a reflexive approach to thematic analysis, it means the researcher is likely to have a more robust coding approach to their data analysis, as they are engaging in the process of self-reflection and asking why more often. As a result, the researcher develops a more thorough understanding because of this (Braun, 2022).

To better understand the process of RTA, it is important to provide a summary of each of the steps involved in the process. The first is allowing time to familiarise yourself with the data – the context of the word 'yourself' or 'you' pertains to anyone involved in the data analysis, in this case, the author and some members of the ARWG. This means you need to read and re-read the data to become familiar with the content, and then become immersed in the dataset.

For this project, some members of the ARWG read through transcripts of the ARWG meetings and the open-ended free-text questions and became familiar with the data. After the initial data familiarisation stage, coding was able to begin (Terry, 2021). The coding process was open and organic. Nothing set the limits or parameters for the coding other than the research question.

An important part of data familiarisation is to take time, make sure you are set up in the right environment to be able to dedicate your attention to the information you are reading, and make some initial notes. In this stage you might read the same information multiple times, but this is important to really get to know what is in there and what is being said by the participants. Dedicating time to this stage of the data

analysis is not only essential but also respectful to your participants. After all they have given up their time and put in a lot of effort to participate the project for you.

The first task after reading and re-reading the data is then to think how do all these ideas fit together? You pull them apart and then put them back together again and have a think about all the different things that are going on. Once you have done this, you then start to code the information with a 'label'. You make sure that code is succinct but captures the important features of the data. You have to think about the codes used from both a research question point of view, but also can't forget that your theoretical framework will have an impact on coding too (The University of Auckland, n.d.).

The theoretical framework underpinning my data analysis is critical theory. This is because it is the way I am and the lens through which I see my world. As a close friend told me, I am all about making sure people are allowed to flourish, no matter what circumstances they come from, their background and life experiences, and who they are as a person. I believe that everyone has a voice, something important to say and a story to tell, and they may have just one small gem of information that can help me to help them and figure out what makes them 'tick'.

This was an important thing to be aware of as I was coding my data because it is possible that I was coding with my theoretical underpinning in the forefront of my mind given that this is who I am in my everyday life. When a theoretically informed approach to coding occurs, as has been done in this project it means your ideas are brought into your coding process. These ideas are not specific codes, and coding in a theoretically informed approach is best thought of as a tool that guides your thinking and way of engaging with something that speaks to your curiosity. It can be something that shocks you or shifts your way of engaging when coding the data (Terry, 2021).

Coding using a theoretically informed approach can result in the researcher having difficulty noticing the things that are normal or familiar to you (Terry, 2021). To avoid doing this, I questioned my codes and did multiple rounds of coding. This allowed me to create a more accurate picture of the different layers of themes present. It allowed me to notice things I may not have seen earlier because of my theoretical lens. Furthermore, to ensure a collaborative approach to data analysis, and to confirm that I

had an accurate picture of the data, I asked members of the ARWG to also code the data. Further detail about the roles of the ARWG and data analysis is discussed in Chapter 4 – Cycles of Research. We then sat down and compared codes together. This enabled us to 'pick apart' the codes we had made and allowed us to notice different things that were present. This made sure we understood the data and the meanings within the data.

We found when completing RTA, we put different things together to develop an understanding of the data, which was different to what we expected. We found we were not just tagging data that evidenced the themes we thought we had, but started thinking about all the different things that were going on in the data presented. By doing this it allowed us to develop an understanding of the data which was actually quite different to what we started with when we initially looked at the data.

3.16 Conclusion

This chapter has provided a synopsis of participatory research, CPAR and the first steps taken toward recruitment of the ARWG and an overview of reflexive thematic analysis. Although a complex process, it has been completed with enthusiasm and engagement from those in the ARWG. Together we have planned how we can work toward making a change in clinical practice through the introduction of an assessment tool. The cycles of AR including data collection methods are discussed in more detail in chapter four.

Chapter 4 Cycles of Research

4.1 Introduction

This chapter will describe and discuss each research cycle in more detail (having introduced the cycles of research in Chapter 3). Because of the interrelated nature of method design and fieldwork cycles involved in this critical participatory action research (CPAR) project, this chapter also explains how and why the data were produced and analysed as these decisions were made along the way.

In action research studies, it is not uncommon for decisions to be made while the research is in progress. For example, the method of data collection in the next stage without an initial comprehensive 'set in concrete' plan of methodologies, or even an in-depth understanding of the data already produced. This can happen even though data analysis typically informs decision-making about next steps and guides subsequent data collection (Herr & Anderson, 2015). This was prominent with this CPAR research project as the group largely drove the project ahead and were heavily involved in deciding the next actions (Herr & Anderson, 2015). It is important to understand this as this chapter is written and read.

This study produced data from the research activities directed by the action research working group (ARWG). The ARWG involved multiple stakeholders as co-creators and co-researchers. After the initial planning (conducted by the lead researcher), the ARWG took leadership in the development of and execution of the cycles of the AR. Initial planning (**The Planning Cycle as part of Cycle one**) involved relationships being built with potential ARWG members. Once relationships had been established, recruitment of members to the ARWG was completed.

Cycle one involved the planning and recruitment of the ARWG and discussed the problem at hand, including a focus on the research design, ethics, and identification of research priorities. A reflection was completed with the ARWG to provide consensus on the information discussed and clarify the ARWG's interpretation of the research project before planning the next action.

Cycle two involved the ARWG collaboratively discussing the reflections from cycle one to plan and design the next action. Together the ARWG designed and deployed a survey to ambulance clinicians to assess the ambulance clinician's knowledge, opinions and experiences of incontinence and if they felt an assessment tool would help them to better assess the impact of incontinence on falls in the community. The reflection in cycle two was to discuss if the research action (survey one) provided the required data for analysis, to complete reflexive thematic analysis (RTA), and to consider the next steps in data collection and how this might answer the research question.

Cycle three involved the collaborative analysis of the findings from cycle two, including designing the next steps for data collection. The ARWG elected to resurvey the ambulance clinicians after they designed a clinical assessment tool. The clinical assessment tool was designed in the planning stage of cycle three and verified by the ARWG in the reflection stage of cycle three.

Cycle four created and implemented a second survey to establish if the assessment tool could be utilised in clinical practice with the desired impact. The assessment tool was also introduced to the ambulance clinicians and the ambulance clinicians were asked to indicate if they would utilise the assessment tool. A further question was included to assess if participating in the research project and implementation of a clinical assessment tool for incontinence would change their clinical practice. The reflection in cycle four utilised RTA to complete data analysis of the free text questions from the survey and determine if the research question had been answered.

The final reflection allowed the ARWG to collectively identify future research and the impact of the assessment tool designed. The aim of this final reflection was to identify what changed and what was learnt throughout the research project, to see if it was viable to translate the findings of this research project into clinical practice by ambulance clinicians.

4.2 The planning cycle

For this research I knew I wanted to work with a group that contained medical advisors who are specialists in their field. It was important to work with them because we as a group needed to ensure that we understood the challenges and successes faced by those working in the current healthcare system, but also those who were referring

people to be seen within the system whether that was in primary care – the patient's general practice, or secondary care in a clinic setting at the hospital. The people recruited to this group needed to be willing to participate and volunteer their time for the project. In addition to medical advisors, the group also needed to contain representatives who were ambulance clinicians and members of other organisations.

To help establish the opportunities for members of other organisations to be recruited to the ARWG, I did some pre project planning. This planning involved engaging with key stakeholders such as the Horowhenua District Council, Hato Hone St John ambulance management and clinicians, representatives from community groups throughout the Older Persons Network in Levin, and healthcare providers.

Furthermore, representation was sought from the Iwi-based healthcare organisations, local Kaumātua and Pasifika population, but unfortunately, although a genuine attempt at representation from the Māori and Pasifika population was sought, there was a breakdown in communication with the networks I had. As a result, I was initially unable to recruit people directly from this population to participate in this research project. Fortunately, I was later able to recruit an ambulance clinician who identifies as Māori, and they were able to provide guidance and advice for the ARWG.

I later learnt I had difficulty recruiting Māori participants because of the way I had approached people to participate. When I had tried to do this, on reflection I learnt that I was not culturally respectful and potentially even offended some people in my approach. It was only on my own personal journey of learning throughout this research project that I learnt more about Māori culture and the Whākama associated with incontinence or continence concerns. This journey was essential for my own development as a researcher, a clinician, an educator and for my own personal life.

To complete a project using CPAR, there is the need to establish an ARWG. Following the guidance of Kemmis et al. (2014), establishing the action research working group was completed in a specific way. The group needed to have between six to ten participants, who were the primary ARWG for this study. This group were considered co-researchers, and they worked together with me to propose the methods to gather, produce (generate) and interpret data, to answer the research question.

The development of the ARWG was an essential stage of this research project. It was vital that this group captured people with an interest and availability to participate in the project. Kemmis et al. (2014) detail that in the ideal world, members of this group should be specialists in their field and motivated to work together as co-researchers throughout the project.

The recruitment of an ARWG cannot be rushed and can be complex (Kemmis et al., 2014). This complexity is a dilemma, especially for a CPAR study. This is because while I needed to know what I wanted to investigate, ultimately, I could not know what to investigate until I knew who would participate in the 'public sphere' – hereafter referred to as the ARWG. To recruit 'the right' people into the ARWG it was necessary to work together with those I was recruiting and go back and forth and talk between possible participants to identify possible concerns they may have with members of the group (Kemmis et al., 2014).

Kemmis et al. (2014) recommend that recruitment of participants for an ARWG should start with a conversation. It is through conversations that may happen over an hour or two with several different people as a once off, or weekly sessions over weeks or months that allows different opinions on the issue at hand to be heard and for their interest to be registered for involvement in the ARWG (Kemmis et al., 2014).

I am very fortunate that the many months of pre-project work I completed allowed me to establish networks and meet people who were interested in participating in the ARWG. Some of the contacts for the networks I made and people I met were provided through the networks of other potential participants.

Those who I networked with and who wanted to be involved in the ARWG included a neurourologist, a continence clinical nurse specialist, a women's health clinical nurse specialist, a falls and fracture clinical nurse specialist, members of the district council, Age Concern, members from varying departments of the District Health Board, the local general practitioner's network and ambulance clinicians. These networks helped me to establish the ARWG and this was the first step in the planning of the CPAR project. In addition to recruitment through these networks, I vetted each participant based off their qualifications and experience in their clinical roles, and doing so reduced the possibility of bias within the recruitment of the ARWG.

When recruitment for the ARWG was complete, I noticed the group was predominantly nurses. I think it is important this does not provide disillusion for the study, and it is a critical point to discuss. I say this because the reality of the situation is that nurses see the true impact of incontinence on falls. Nurses see the system failures and the fear and embarrassment people have when they come into the clinic to get help with incontinence. They see the people who suffer but don't want to talk about it, and ultimately, they try and fix the problem or end up nursing people with complications of incontinence such as falls and fractures or when a person is admitted to a rest home because they cannot live at home anymore.

This demonstrated to me that while the research question is about an assessment tool for ambulance clinicians, it might not be the ambulance clinicians themselves that are the people who need to drive the change. The lived experience nurses have of the system and its dysfunction are crucial to the development of the data collection and driving the change for this project. However, the ambulance clinicians were still essential in this project, and while they were not the majority of the ARWG, they are the people who can provide early assessment for the patient who suffers from incontinence or a continence concern and falls in the community.

4.2.1 Cycle one

After building relationships with the members of the ARWG, I recruited them to join the study. Each member of the ARWG was provided with a Participant information Sheet, a Consent Form, and a Confidentiality Agreement (Appendix G). The first meeting of the ARWG was held on the 13th of January 2020, with most members present face to face, but three joining remotely via a Zoom call. As the meeting was to be video and audio recorded a Video Protocol Sheet (Appendix K), was completed by all participants.

At the first meeting, information was provided about CPAR and how it is conducted. There was a discussion about their involvement in this type of research and what this might look like over the duration of the project. This information was delivered as a power point presentation. A copy of this presentation can be found in Appendix L.

As part of this presentation, it was discussed that being involved in the ARWG will be a commitment that will last over a couple of years. We also discussed that the ARWG

needed to understand that features of CPAR including “action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities” (Nelson, 2013, p. 184).

In addition to the aforementioned points, we also discussed that the group needed to be able to participate in the project of their own will, and be given the space and permission to bounce ideas around, and to be able to speak openly about their possible concerns (Kemmis et al., 2014). This linked in well with Kemmis et al.’s (2014) documentation about the importance of public spheres, communicative action, and communicative spaces, which we collectively reviewed in the initial ARWG meeting.

4.3 Public spheres, communicative action, and communicative spaces

Critical participatory action research must be considered legitimate and valid by the participants themselves, not on behalf of others, not by judgement or instruction of managers, but by participation where they are free to decide independently what is comprehensible to them, what they believe to be true, what is sincere to them and what seems to be morally right and appropriate under the circumstances (Kemmis et al., 2014).

As this research project follows the methods used by Kemmis et al. (2014) public spheres, communicative action, and communicative spaces were designed and conducted as guided by their methods. The public sphere document has previously been referred to as the ground rules and can be found in Appendix M.

The creation of a public sphere gave members of the ARWG the opportunity to participate in discussion. And, while public spheres are something that happen in everyday life, participation in a public sphere in a research sense needs to ensure that the participants are encouraged to openly participate in communicative action (Johnson, 2006; Kemmis et al., 2014).

Communicative action is where we engage one another in genuine open conversation to work together, and eventually make an agreement and mutual understanding of one another's points of view to reach an unforced consensus about what to do in a particular situation (Johnson, 2006; Kemmis et al., 2014). For this to work as part of the

CPAR project, I needed to ensure the participants of the ARWG were balanced and not feeling under pressure from an actual or presumed hierarchical system.

During the recruitment of the ARWG I noted there was the risk of a hierarchical system occurring due to the occupation and 'title' (such as Doctor or Clinical Nurse Specialist) of some of the ARWG participants. Therefore, their reputation and status within organisations needed to be acknowledged and managed within the CPAR process, to ensure all participants were able to genuinely and authentically have the chance to participate. While I initiated this conversation at the first ARWG meeting, it was the participants themselves who choose as a group to discuss their roles within the ARWG and managed their ability to openly participate moving forwards.

Part of my role as the researcher in this first cycle of research was to ensure everyone had the opportunity to participate in discussion, whether this was through speech, or other expressive ability or content. This was so all participants were able to be heard in conversation and involved in the decision making. I found that sometimes encouragement and prompts were needed for members to participate in all roles within the group. This included making sure people had the opportunity to speak, to listen and to observe. I also had to allow people to withdraw from the discussion space as they needed – this was important not only because of their workload (some members were on call while participating in the ARWG meetings), but also because the discussion was heated a few times and I had to act as the mediator (Kemmis et al., 2014).

Allowing people to withdraw from the discussion space was important, because both participation and non-participation in communicative action should be voluntary. In the ideal world of communicative space, a conversation would take place where people will strive for agreement about ideas and the language they use, to develop a mutual understanding of one another's perspective and points of view. But people sometimes have very firm opinions and feel they need to express these. It would have been perfect if our ARWG discussions were able to come to an unforced consensus on what to do, as Kemmis et al. (2014) suggests, but in reality it took a lot of negotiating and renegotiating for this to happen.

Another thing that I had to be aware of was that no jargon or technical language was used by the group participants. There were times where I had to get people to speak in 'layperson's' terms. Despite this, some participants in the ARWG did need time to learn new ways of saying, doing and relating to what was being spoken about. I noted that it was important that the group was facilitated in a way that people could maintain links within the group but not be swamped by the group diversity. This was done by setting 'ground rules'. The ground rules, which we called the Critical Participatory Action Research Group Protocol (Appendix M), helped the group develop a rapport and bond together as a team.

The recruitment of the ARWG was the first step to opening communicative space for the research project (Kemmis et al., 2014), and the creation of a public sphere allowed communicative action to happen. Although the ARWG was a seemingly varied group of people, each one of them brought their own expertise to the group and all were passionate about improving wellbeing of people who were falling and/or had incontinence in the community.

Once the ARWG was established, we held our first meeting. Each meeting was recorded to allow for transcription and reflection at a later date and to help manage the cognitive load of the facilitation of the ARWG. At the first meeting we identified our roles and responsibilities in the group, and we collaboratively decided on the issues. The group was asked the following questions to provide me with an understanding of what they believed the issues were in relation to the research question:

- What do you as a group identify as the key issues associated with incontinence and falls?
- What is the group's expectation and understanding of ambulance clinicians' knowledge about falls?
- What is the group's expectation and understanding of ambulance clinicians' knowledge about incontinence?

Then to plan the action I asked the group:

How can the development and implementation of an assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community?

- What do you think we can do here as a group to help answer the research question?
- What are the priorities?

These questions enabled the ARWG to collectively design the research processes and tools we might use to identify the common issue. Together we were also able to confirm the research question, then collaborate to refine the area of concern, establish the research priorities and discuss the potential outcome. From here the group started making the decisions about how this project might answer the research question, and what methods we might want to use to do this.

The final discussion in the first meeting of the ARWG was to follow Kemmis et al.'s (2014) advice, that when the group first convenes, the membership may need to be revisited. In the case of this project the participants established if other members needed to be added. One thing noted was the initial ARWG did not contain any ambulance clinicians other than me facilitating the group. As a result of this discussion, we later extended the ARWG to include ambulance clinicians, because their views are important in this project, given they were likely to be impacted by any proposed clinical change.

4.3.1 Reflection on cycle one

In the second ARWG meeting, we met to reflect on the group's answers to the questions proposed and priorities they had identified. The groups responses to the questions were discussed together and key themes identified. The key themes identified will be discussed in Chapter 5 – Findings and Discussion.

This allowed us to further refine the design and direction of the research, establish additional working relationships within the ARWG including people's availability to help with data analysis as the project progressed. We also discussed what other information might be required to help answer the research question. Ultimately this reflection cycle allowed us to clarify direction of the research project.

4.3.2 Cycle two - Survey development

After completing our reflections on cycle one, we progressed into the planning phase for cycle two. We also confirmed the recruitment of an additional group member, an ambulance clinician. When reflecting on the first questions asked of the research group, we identified we were unsure of the ambulance clinician's knowledge about incontinence, and their knowledge of how this relates to falls.

As a result, the ARWG elected to survey the ambulance clinicians to establish their understanding of incontinence and the impact this can have on people. We collectively decided not to focus specifically on falls for this survey. The rationale behind this decision was that incontinence is multifactorial, it can cause many complications within someone's life, it doesn't just contribute to falls.

The ARWG thought by leaving the survey relatively open and not specifically focusing on falls, it would also help to further identify the ambulance clinician's knowledge and understanding of how incontinence can impact someone's life in different ways and encourage the application of a broader perspective about how and when to apply an incontinence assessment in clinical practice.

When completing planning in cycle two, another thing that became clear was how the ARWG opinions on the data mattered. Therefore, I needed the ARWG's input about how the data could be presented back to them in a way they understood. I also needed to make sure the questions they had about the research process and the data collected were answered in language they understood.

Together we decided the survey should include demographic data, open-ended questions, and a Likert scale. The demographic data collected was limited to the gender pronoun a person identified with. This was less information than the ARWG wanted to collect. We had hoped to also collect age, highest tertiary qualification level, and length of service as an ambulance clinician, but due to the small population of ambulance clinicians being surveyed (total population of 50 people), collecting specific information would have made people participating in the survey easily identifiable, and it would have been difficult to maintain participant anonymity.

As the ARWG wanted to include some open-ended questions, we had to work together to establish where these best fit. There was extensive consultation and discussion throughout the group before we could settle on the presentation and format of the questions, and whether they should be asked at the start or the end of the survey.

As a group we also completed an informal search for surveys about incontinence assessment and brought our findings back to the ARWG for discussion. Initially the surveys found were only isolated to those for laypersons, however we decided to conduct a broader search, to capture surveys designed for clinicians as well. We did this as we wanted to investigate if there were any questions in a survey designed for clinicians that may have been appropriate to include in a survey to be deployed to the ambulance clinicians. We were correct with our thinking, and we found a survey from 2007, which used semi structured interviews to assess GP's knowledge about the assessment and treatment of incontinence in primary care (Shaw et al., 2007).

However, when I contacted the corresponding author of this article, they did not feel that the questions they used in their semi-structured interview were valid for use in another survey. The rationale provided was that they felt that the knowledge of those working in primary healthcare was now significantly improved, and that to utilise the same questions again would add no additional benefit to the literature (C. Shaw, personal communication, July 17, 2021). While this was disappointing, I did have to respect the author's view, and it meant that we were not able to use these questions.

Fortunately, we did find another article that reported on layperson's understandings of urinary incontinence and pelvic organ prolapse. This article was written from a study which had the objective of developing a "reliable, validated questionnaire to assess patient knowledge about urinary incontinence (UI) and pelvic organ prolapse (POP)" (Shah et al., 2008, p. 1283). Although for laypersons, the content of the urinary incontinence survey was discussed by the ARWG, and the group agreed it was appropriate to use for the survey of ambulance clinicians.

Given the survey had already been validated when designed by the original authors, and the ARWG wanted to incorporate it into this research, I emailed the corresponding author who readily agreed for it to be used as part of our survey (the email correspondence is in Appendix N).

At the request of the ARWG, I also sought permission to amend some of the wording used, to terminology that applied to the Aotearoa New Zealand context. Initial modifications were minor and involved changing the word diaper to nappy. However, it transpired more modifications to the survey structure and wording were needed to satisfy the ARWG.

The modifications were required due to the responses of the ARWG to the initial content design, and the reply from the AUT ethics committee (AUTEC) I received when an amendment was submitted for consent to survey the ambulance clinicians. The Likert scale was modified (with permission from the original author – as found in Appendix N).

The other modification required was around verification of the content. Although the initial survey was considered a validated and reliable tool (Shah et al., 2008), it was not validated for the context we wanted to use it – to survey the ambulance clinicians. This indicated the need to have the content further verified by the ARWG participants.

4.3.3 Survey one

The content of survey one was reviewed by the ARWG, who were considered by the lead researcher to be expert content specialists, and therefore were able to provide verification of the survey content (Waltz et al., 2017). A list detailing the speciality and role of each of the participants considered experts can be found in Appendix O. When they collectively reviewed the content of the first survey the ARWG felt it was relevant for use with the ambulance clinicians. The point of content verification in this research is to help establish if the items included in the survey sufficiently represent the content domain. This is an important point, as the ARWG wanted to ensure we collected sufficient information and data without having to continually resurvey the ambulance clinician participants.

To complete the verification process, the questions from the survey designed by Shah et al. (2008) were sent to the ARWG. As aforementioned, the original survey design was modified with permission from Shah et al. (2008). The modification included changing some terminology to align with the New Zealand context, such as the word diaper to nappy. The questions in this survey used a graded response using three answers, agree, disagree, don't know.

1. Urinary incontinence (loss of urine or leaky bladder) is more common in young women than in old women.
2. Women are more likely than men to leak urine.
3. Other than pads and diapers, not much can be done to treat leakage of urine.
4. It is NOT important to diagnose the type of urine leakage before trying to treat it.
5. Many things can cause urine leakage.
6. Certain exercises can be done to help control urine leakage.
7. Some medications may cause urinary leakage.
8. Once people start to leak urine, they are never able to control their urine again.
9. Doctors can do special types of bladder testing to diagnose urine leakage.
10. Surgery is the only treatment for urinary leakage.
11. Giving birth many times may lead to urine leakage.
12. Most people who leak urine can be cured or improved with some kind of treatment.

After the review was completed, an additional two questions were also included by the ARWG:

1. How can the development of an assessment tool enable ambulance clinicians to assess the impact of urinary incontinence on falls in the community.
2. What do you identify as key issues associated with urinary incontinence and falls?

Feedback from six members of the ARWG and one of my supervisors was collated then discussed with a biostatistician at AUT University (N. Garett, personal communication, March 15, 2021). This feedback is summarised in Appendix P and some modification to the survey was made because of this feedback.

Additionally, as a result of this feedback, the wording of the open-ended questions was refined by the ARWG. The ARWG chose to do this to obtain an understanding if the ambulance clinicians would use an(other) assessment tool, or whether they already had enough to manage within their patient assessment responsibilities and would feel overwhelmed if they had to include another assessment in their clinical practice.

It was highlighted during the ARWG's review of the questions that the proposed questions followed different themes. The questions suggested included causes of incontinence, gender and treatment, and the ARWG identified they would like to group the questions by themes. The ARWG also noted there were no questions about the stigma of incontinence.

These are good points, and not ones I had initially thought of when looking at the survey design. Another point communicated by the group as we were designing the open-ended questions, was that there was no question about how comfortable the ambulance clinicians feel asking a patient about incontinence. This is important to ask, because if we do not know how the ambulance clinicians feel about talking about incontinence, then we do not know how successful the implementation of an assessment tool will be.

To act on the points raised by the ARWG, we noted that at some stage it was likely we would need to include questions about how confident and comfortable ambulance clinicians felt about asking a patient about urinary leakage. But it was decided by the ARWG these questions should not be in this initial survey, because we did not want to ask too many questions.

The ARWG also reviewed the order of asking the free text questions. Initially, we all agreed that the Likert scale questions needed to come before the free text open-ended questions. There was also feedback from three people wanting to remove any dialogue around surgery, as this is not a first line of treatment for urinary incontinence. While I hear this response, as we are not specifically talking about ambulance clinicians treating patients for incontinence, I thought was still relevant to include surgical options at this time.

Ultimately the survey was reviewed again with my research supervisors and a final trial of the layout, and questions was completed with my colleagues in the Department of Paramedicine at AUT. This provided us with real world feedback and peer review (Peat, 2002). The staff in the AUT Department of Paramedicine are a group of people who are considered to have the same range of clinical knowledge as the intended survey population.

Once the peer review was completed, it was determined that the free-text questions collecting qualitative data should precede the Likert-scale questions. This was done to maximise the chances of survey completion by encouraging participants to finish the entire survey instead of stopping midway.

The peer review provided us with information to back the decision not to modify the content of the questions for the Likert scale, even though the ARWG wanted to change the content of some of the questions. It was decided it was important to leave them as they were with minimal modifications because this had already been validated by the authors of the original survey (Shah et al., 2008).

As it is important to respect the contributions the ARWG had made in this space, it was elected to review the responses provided by the ARWG to ensure that we could incorporate their feedback into the writing up of this cycle of the research. This was proposed back to the ARWG, and all members of the AWRG agreed to leave the survey as it was originally produced and incorporate the long answer questions at the start of the survey to ensure the best data collection opportunity for the project.

After the content was confirmed by the ARWG, the survey was populated in Qualtrics^{XM} (Qualtrics, 2024) by the lead researcher, and after approval from AUTEC, it was deployed to assess ambulance clinicians understanding of urinary incontinence.

The first survey was approved by AUTEC on the 7th of September 2021. A copy of this approval can be found in Appendix A. Unfortunately, at this time, Hato Hone St John had suspended all research projects involving ambulance staff due to the increase in workload from COVID-19 (Burrell, 2022). It was not until the 2nd of February 2022 that I was able to deploy the survey to the ambulance clinicians once HHSJ had lifted the suspension on research projects.

Survey one went live to the Horowhenua Ambulance Operations Group on the 2nd of February 2022. It was active for a total of eight weeks and received 25 complete responses. There were four incomplete responses that answered only the free-text questions. The ARWG was happy with this completion rate as there had been turmoil in the ambulance profession due to COVID-19 (Mayron & Franks, 2022).

Once the survey was concluded and initial data analysis completed, some members of the group chose to participate in reflection on the codes used in RTA of the data. The results from survey one will be discussed in Chapter 5 – Findings and Discussion. The involvement of members of the ARWG in data analysis was important for the ARWG's ongoing involvement and reflection as part of CPAR.

4.3.4 Reflection on cycle two

The design of a survey to assess ambulance clinician knowledge took more time than expected. This is because I as the lead researcher underestimated the depth involved in developing a survey to a level required for a doctoral-level study. Furthermore, I really failed to understand the importance of survey design in well-designed research studies.

Waltz et al. (2017) discuss "the use of sound measurement principles and practices is an essential component of well-designed research studies, which is of utmost importance when the goal is to employ research results as a basis for practice" (p. 3). As this was ultimately the aim of the research question, together we worked hard as a group to design a verified survey. This specific point was well discussed in our reflection of cycle two.

When we met to reflect on cycle two, further reflection included reviewing the codes from reflexive thematic analysis members of the ARWG had worked on together. From these codes we were able to identify common themes. The themes are discussed in more depth in Chapter 5 – Findings and Discussion.

After the reflection of cycle two was complete, we moved on to planning cycle three. The themes identified in cycle two assisted with the planning of cycle three, and from the key themes identified from the survey, the ARWG decided that they wanted to design an application for a smart phone (app) to integrate into clinical practice onto the ambulance service electronic patient report form (ePRF). I, as the lead researcher, did not expect this to be tabled by the ARWG, but the ARWG's rationale behind the implementation of an app was valid and reasonable.

Unfortunately, due to the financial constraints of a Doctor of Health Science project, and the limited time remaining to complete the project, I had to table the point that

the design and development of an app may not be realistically achievable for the project as it currently stood, but it could be something we looked to complete in a post-doctoral study. I had to explain to the ARWG that app development is costly and can take months to years to occur before successful integration into a workable platform. Once they understood a little more about the complexity of app creation, the group immediately, then and there in the meeting, began searching for an app that already existed and could be integrated into clinical practice for ambulance clinicians.

As the reflection meeting progressed, it was clear that despite searching the Google Play Store, the iOS (iPhone Operating System) app store and a general internet search for incontinence assessment tools, there did not appear to be any app or tool available that met the requirements of the ARWG. They were specifically looking for an app that would help clinicians conduct an accurate assessment of urinary incontinence in relation to falls, which could be easily integrated into clinical practice by clinicians.

As we were unable to find an app that would work, the ARWG elected to focus on how an app could be integrated into clinical practice in the future. It was the stalling of the app idea that grew into the idea of designing a clinical assessment tool to integrate into an app in the future, with the hope of the ARWG that the assessment tool would be used in clinical practice in the future. The assessment tool was designed in cycle three.

4.3.5 Cycle three – Assessment tool development

After spending a further week searching for pre-existing apps, the ARWG still did not find anything they felt suitable.

Four members of the group independently communicated to me that they felt designing our own assessment tool specific to the Aotearoa New Zealand context would be more appropriate than trying to repurpose another app. As a result, I coordinated another meeting where we met to establish what we, as a group, felt were the most important things to include in a continence assessment tool.

Note the change of terminology here from incontinence to continence – more discussion will be had around this change in Chapter 5 – Findings and Discussion.

During our meeting designing the content for the assessment tool, initially the ARWG had 40 items for clinical assessment they felt were valid to include. When collating these 40 items, it became clear there were key themes present in the type of information the group was wanting to ascertain. The initial 40 items and themes can be found in Appendix I.

Once the themes were identified, I met face-to-face with some members of the group and had an email dialogue with others to ascertain the opinions of people in the group regarding the themes I had found in the questions. I also asked people to review the 40 items and select only the most pertinent to their clinical assessment approach. This approach of using clinical experts to achieve consensus is an inductive methods-based item development (Boateng et al., 2018; Ruano et al., 2022). This is achieved by "qualitative information regarding a construct obtained from opinions gathered from the target population – e.g., focus groups, interviews, expert panels" (Morgado et al., 2017, p. 1). We utilised this process three times to refine the assessment tool down to 14 questions, and this process occurred in a format not dissimilar to a modified Delphi study (Nasa et al., 2021).

Once we had refined the assessment tool to 14 questions, the ARWG again provided feedback on the importance of the questions, and whether they were essential for their ongoing clinical assessment of a patient who presented to their service for help with a continence concern or a fall. From this feedback, we were able to refine the questions further and improve the question wording to ensure it utilised 'patient-friendly' terminology. When the group had agreed on the terminology, we then worked on the structure and flow of the questions and discussed how this might be implemented into a clinical assessment.

In this cycle of research, there was reflection happening concurrently with action, because to ensure the assessment tool was going to provide information relevant to clinical practice, the group needed ongoing reflection to refine 'what really mattered' for their clinical practice. Furthermore, as a group, we wanted to ensure we got the 'best bang for buck' (most information possible) with the limited time clinicians have with people to complete a clinical assessment.

4.4 Reflection on cycle three

Although the ARWG was concurrently reflecting on the development of the assessment tool throughout the process of developing it, we did meet again to discuss if the content of the clinical assessment tool resonated with the members of the ARWG.

The aim of this reflection was to see if those in the group who may receive a referral from the screening conducted by the assessment tool, thought it would add value to their practice. We also wanted to see if there were any final changes needed for terminology when compared to current best practice guidelines, and local referral pathways other members of the ARWG may not have been aware of.

As part of our reflection meeting, we also discussed that while the design of an assessment tool was great, we had not thought about how this could be implemented into clinical practice for ambulance clinicians. The key reflection points from this discussion detailed that we needed to establish if ambulance clinicians would use the assessment tool we had developed and if they felt it would add additional benefit to their clinical practice and benefit the patient.

4.5 Cycle four – Verification of assessment tool with ambulance clinicians

The planning phase of cycle four involved the ARWG working together to plan how the assessment tool could be verified for use with ambulance clinicians. As mentioned in the reflection from cycle three, the group felt it was essential the ambulance clinicians were asked about the impact the assessment tool would have on their clinical practice. Reflections from this cycle of research from the ARWG were also discussed, because they were concerned about a person's ability to remain safe and well in the community after a fall.

The ARWG wanted to further assess the knowledge level of ambulance clinicians and identify if there was a change in their clinical practice since the first survey. They also wanted to quantify how useful the assessment tool would be for ambulance clinicians to assess continence concerns, and they wanted to know if the ambulance clinicians felt the time spent completing the tool with patients would be valuable.

Furthermore, the ARWG wanted to establish if the assessment tool could change an ambulance clinician's clinical practice, and what improvements the ambulance clinicians wanted to recommend making the assessment tool easier to use in the ambulance setting. The final point the ARWG felt was relevant to discuss was if the ambulance clinicians felt that by participating in the research project, they were able to change their thinking around assessing incontinence and falls.

As the lead researcher, I coordinated the development of the assessment tool and populated it in Qualtrics^{XM} (Qualtrics, 2024). There was four iterations of the assessment tool and long answer questions created before this was populated into Qualtrics^{XM} (Qualtrics, 2024) and sent to AUTEC for approval.

The final copy of survey two was approved by AUTEC on the 26th of July 2023. A copy of the ethics correspondence can be found in Appendix A. Members of the ARWG wanted time to test the AUTEC approved survey themselves, and therefore the survey did not go live to the Horowhenua Ambulance Operations Group until the 13th of September 2023. It was active for a total of eight weeks and received 25 complete responses and there were no incomplete responses. The results of this survey will be discussed in Chapter 5 – Findings and Discussion.

4.6 Reflection on cycle four

When we met as a group to reflect on cycle four, we completed data analysis of free text questions using RTA to determine if the research question had been answered. Further reflections included reviewing the codes members of the group had worked on together. From these codes we were able to identify common themes. The themes will be discussed in more depth in Chapter 5 – Findings and Discussion.

Another key reflection at the end of cycle four was how people in the group had changed their own clinical practice by being involved in this research project. I asked the group to comment on anything that had changed in the clinical practice. Each person involved had changed their clinical practice, and the changes ranged from deprescribing medications that make people at risk of falls, right through to having more awareness of the impact of incontinence on falls, and also how the role of the ambulance clinician in the community is more extensive than they thought.

All the group members concluded that they would support ambulance clinicians in completing a continence assessment and receiving an onward referral because of that assessment, should the ambulance service or other service be open to incorporating a referral pathway directly to a continence service provider.

4.7 Final project reflections

The final project reflections were an exciting time for the assessment tool we had developed. The ARWG were approached through the lead researcher to introduce the assessment tool to the Accident Compensation Corporation (ACC) Injury Prevention Partners. The ACC injury prevention unit met with the lead researcher online on three separate occasions during the final stages of this thesis. Work is slow to progress but looks positive, with the hope to incorporate the assessment tool designed as part of this research project into the best practice bundle for falls produced by ACC. Further interest in the project came from members of the Aged Residential Care sector and Falls Prevention Teams within Te Whatu Ora | Health New Zealand.

What was interesting in this final reflection stage, was not everyone in the group was supportive of our assessment tool being released to these other interested parties. There was concern raised that without follow up and referral, more harm could be done to the person presenting with a continence concern. Further discussion will be had about this specific point in Chapter 5 – Findings and Discussion.

4.8 Conclusion

This chapter has detailed each cycle of the research project. It has explained how and why the data was produced and analysed while staying true to the philosophical underpinnings of CPAR.

Chapter 5 Findings and Discussion

5.1 Introduction

This chapter details the findings from each cycle of research and how the findings provided guidance for the Action Research Working Group (ARWG) to reflect on and inform the planning of the next action of the research. Because of the interrelated cycles of research and action, and the findings from the prior cycle influencing the action of the next, the outcomes drawn from each cycle of research and how these influence the reflection and planning of the next cycle of research are also discussed. Throughout the chapter, the findings are discussed in the context of related literature to draw further meaning and make connections to the findings and add deeper insight. This chapter is written following the cycles of research to allow the reader to follow the progression of the research project and align their thinking with critical participatory action research (CPAR).

Data collection occurred throughout two cycles of the four-cycle process. However, there are themes presented by the ARWG that influenced the development of the next cycle of research. As such, these are included for discussion.

5.2 Cycle one

As detailed in Chapter 3, the lead researcher transcribed the meeting recording from the initial ARWG, and Reflexive Thematic Analysis (RTA) was performed using an inductive approach to establish an understanding of the complexities experienced by each of the ARWG participants in their day-to-day roles managing falls and incontinence.

The key themes discussed in this meeting generally focused on the presentation of incontinence and the impact it can have on a person and their life. Also discussed was the difficulty people have in getting support, and the consequences of delayed help. These included the following:

- There is a lot of outside factors influencing falls, not just incontinence.
- The consequences of incontinence can be social, emotional or physical.

- Solutions may be based in the existing pathways, but there are barriers to accessing these pathways and onward referrals.

During the first ARWG I also ascertained the ARWGs understanding of the following questions:

- What do you as a group identify as the key issues associated with incontinence and falls?
- What is the group's expectation and understanding of ambulance clinicians' knowledge about incontinence?
- What is the group's expectation and understanding of ambulance clinicians' knowledge about falls?
- How can the development and implementation of an assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community?

While there was little verbal discussion on these questions in the meeting, the option to provide written feedback was available. It is important to note at this stage of the first meeting, some of the ARWG had needed to return to work, so were given the opportunity to provide feedback via email. Not all members provided feedback, which is their right as per the critical participatory action research group protocol we had established (as found in Appendix M). The feedback provided by the ARWG has been digitised in Appendix Q.

Reflexive thematic analysis of the questions was completed by the lead researcher and was discussed with the ARWG at next meeting. The information gathered from these questions and the themes that were present helped the lead researcher to understand the ARWG's knowledge of the subject at hand, and helped plan what we would need to discuss in the reflection component of the first cycle of action research.

5.2.1 Themes present from the initial meeting with the ARWG

Reflexive thematic analysis of questions asked of the ARWG disclosed the following key themes:

- Urgency
- Making a mess
- Shame

- Embarrassment
- Family thinks can't care for self
- Physical injury from hurrying
- Failure of process around incontinence referrals
- Accurate, timely assessment
- Follow-up support
- Incontinence is not normal part of aging.

Identifying the key themes and bringing these insights back to the ARWG enabled reflection on the problems we had identified together. The problems discussed were predominantly around the presentation of incontinence and how it makes a person feel, the consequences of incontinence, and access to services to manage incontinence. The main reflection provided by the ARWG from the first themes identified was that there was a gap in the ARWG's knowledge about ambulance clinicians' perspectives of falls. Therefore, the group decided they needed to have a more in-depth understanding of the ambulance clinician's perspective of falls.

Furthermore, it was discussed how falls relate to urinary incontinence, and how this could impact an ambulance clinician's ability to assess the cause of a fall. In addition, the ARWG reflected on the point that it is important they had a good understanding of what an ambulance clinician's understanding of urinary incontinence is, because they thought understanding this information could help them with the development of an assessment tool for clinical practice. After further discussion with the group to refine the problems identified, we were able to plan the first action of the research, which took place in cycle two.

5.3 Cycle two

The action that produced results in cycle two was a survey completed by ambulance clinicians. The survey was verified using expert review within the ARWG and my Doctor of Health Science supervisors. A peer review of the survey was completed by members of the AUT University Department of Paramedicine staff. This was to provide real-world context to see if it would be acceptable for ambulance clinicians who have a similar level of education to the staff within the Department of Paramedicine. Informal feedback was sought, and there were no amendments to the survey required from this

review. This process provided verification for the content of the survey which was utilised in cycle two. The survey population was ambulance clinicians in the Horowhenua region, who work from Foxton, Levin or Ōtaki stations. Relief staff who cover these stations were also invited to participate. The permanent staff and casual staff employed in the region equates to 50 staff (personal communication, P. Haigh, February 2, 2022). A copy of survey one designed by the ARWG can be found in Appendix H.

5.3.1 Survey one

A total of 29 respondents started the survey, with 25 respondents continuing to completion. Survey responses were recorded using Qualtrics^{XM} (Qualtrics, 2024). Of the 25 respondents who completed the survey, thirteen respondents were female, twelve were male. No participants chose to self-describe their gender pronoun or identify as gender diverse. The survey asked three free text answers and 12 Likert scale questions. A copy of survey one can be found in Appendix H.

When reviewing the survey results, a total of 29 people completed the first free text answer, 28 completed the second, and 27 completed the third. Four of the 29 respondents did not complete the Likert scale questions and therefore were considered incomplete responses. The responses that were not complete were included for analysis of the free-text answers only. The free text answers from the survey were analysed using a combination of frequency count, descriptive analysis and RTA. The key results found from this data will be discussed further below.

5.3.2 Results from the free text answers from survey one

The three free text questions were presented as part of the compulsory answers in the first survey. The questions were:

- What questions do you currently ask about a patient's bladder habits?
- What do you identify as key issues associated with urinary incontinence and falls?
- How can the development of an assessment tool enable ambulance clinicians to assess the impact of urinary incontinence on falls in the community?

The free text answers from survey one are presented appendices T to W. These are presented verbatim with correction of spelling mistakes and expansion of words considered ‘slang’ terminology specific to the profession.

5.3.3 Results from question one from survey one

Appendix T details the ambulance clinicians answers to the first question in survey one.

As I was completing data familiarisation as part of RTA, it was clear that within the results of the first question (in Appendix T) there was only one theme present. All the items listed in the responses detailed components of an assessment for urinary tract infection (UTI). Therefore, to accurately represent the data, instead of utilising RTA, I completed a frequency count of the words used to ask a patient about their bladder habits. I then utilised descriptive analysis of the answers to this first question and at the next ARWG meeting, we completed a review of the data together.

Table 2 presents a frequency count of the common words ambulance clinicians use to ask patients about their bladder habits.

Table 2

Frequency Count of the Common Word's Ambulance Clinicians Use to Ask a Patient About Their Bladder Habits

Word used	Count
Regular/frequency	20
Pain/discomfort/burning/hurt	20
Odour/smell	16
Changes/routine/habits	16
Colour	15
Normal	11
Volume/amount	7
Incontinence/wet without realising	5
Urgency	5
UTI	5
Sensation	4
Fluid balance/input/output	3
Finished/empty	2
Blood/red	2
Nothing asked	1

Almost all the words in Table 2 are utilised by ambulance clinicians to help them assess for the presence of a UTI. It is intriguing that of the 29 survey respondents, 20 asked about regularity and/or frequency of urination, and 20 also asked about urination being painful, or if there was discomfort or burning present on passing urine (PU). Notably, if the ambulance clinician asked about regularity and/or frequency of urination, they tended to omit any questions regarding painful urination, so the 20 respondents in each group generally did not ask questions about both regularity and/or frequency of urination and if urination was painful. This means that when ambulance clinicians ask people to describe bladder habits, what they are thinking about is asking a person to describe if they are experiencing symptoms of a UTI. It is evident from these answers that ambulance clinicians understand how to assess for the symptoms of a UTI.

While the ability to assess for a UTI is important, the ARWG discussed that it appears ambulance clinicians do not routinely incorporate assessment of other factors that can

also impact a person's bladder habits. These other factors include, but are not limited to, bowel function, medical conditions, injury, anxiety or other mental health conditions, medication use, hydration status (Assis et al., 2023; Newman et al., 2024), all of which can impact a person's bladder habits.

What was noted was some clinicians were asking questions outside of an assessment for UTI, such as the volume of urine being passed (*n*=7/29 – 24.14%), incontinence/wet without realising, urgency or UTI (*n*=5/29 – 17.24%), sensation to PU (*n*=4/29 – 13.79%), fluid input and output (*n*=3/29 – 12.5%), feeling of being finished or empty or the presence of blood (*n*=2/29 – 6.9%), but these specific questions represented very small percentage of the surveyed population (a percentage range of 6.9 – 24.14%). Of concern, there was one person who did not ask anything at all about a person's bladder habits, but it is commendable that they noted they did still ask some questions when they specifically wanted to rule out a UTI.

When we were discussing the results of the first question in the survey, the ARWG highlighted the lack of specific questioning by ambulance clinicians about the presence of blood in a patient's urine. Only two out of 29 respondents (6.9%) specified this, and it is of concern because the presence of blood in urine always indicates an underlying pathology. A limited list of potential underlying pathology could be conditions such as a UTI, but it could also be a sign of bladder, prostate or other urological cancer, glomerulonephritis, acute decline in renal function, trauma, endometriosis, inflammation from conditions such as interstitial cystitis, or even exercise-induced (Bagnall, 2014; Goossens-Laan et al., 2013; Horváth et al., 2023). This implies that ambulance clinicians are unaware of the potential concern or seriousness of a patient who presents with haematuria.

Of further concern is that haematuria is something an ambulance clinician is expected to screen for because it is a 'red flag' symptom they need to explore with a patient before making a recommendation for transport to an emergency department. The detection of significant or frank haematuria by ambulance clinicians is by visual inspection only, with significant or frank haematuria a red flag condition for a patient to be reviewed by an emergency department as part of the ambulance clinical practice

guidelines for UTI, renal colic and indwelling urethral catheter-related problems (National Ambulance Sector Clinical Working Group, 2024a).

These results demonstrate that there is a systematic common structure to the way ambulance clinicians ask questions about a patient's bladder habits in the context of assessing for a UTI. Despite random or odd questions sometimes being asked—which were mostly relevant to bladder function assessment —ambulance clinicians generally practice similar approaches to asking a patient about their bladder habits.

5.3.4 Results from question two from survey one

To further understand the impact urinary incontinence has on falls, question two was analysed using RTA to gain an understanding of the ambulance clinicians' knowledge of how the two concerns could be related. Appendix U presents all answers given for question two.

The key themes present in the answers given in question two include incontinence, which can cause falls, predominantly associated with rushing to the toilet (urge incontinence), and nighttime toilet use because of increased frequency (nocturia), which is a contributing factor to falls. The ambulance clinicians report that the risk of a fall related to incontinence is increased if a person requires a mobility aid for walking and /or forgets to turn the light on.

A further theme focused on harm from falls. If someone falls, there is the risk of harm occurring, and that people who fall and have experienced incontinence are often embarrassed (Reaves et al., 2023; Williams & Fear, 2023). Harm can occur because of incontinence caused by a fall (as opposed to being the cause of the fall), with ambulance delays contributing to this harm (Blake-Persen, 2022; Lilley et al., 2019). Ambulance clinicians identified in their survey responses the harms that occur are things such as infection, hypothermia, fractures, incontinence-associated dermatitis, deterioration of other comorbidities, and abuse by family or caregivers.

Ostaszkiewicz (2018) details why abuse by family members or caregivers occurs in the context of incontinence and discusses:

> Coercive or abusive continence care practices include chastising a person for their incontinence and overriding their attempts to resist continence care. Neglect in continence care is characterised by

> withholding or delaying responding to requests for help to maintain continence or to manage incontinence, and restricting a person's access to toileting assistance, incontinence aids or hygiene care. (p. 1)

The identification of the theme regarding the risk of harm from abuse by family members or caregivers is concerning and is even more reason to ensure assessment and treatment of continence concerns is explored by ambulance clinicians. It is important because ambulance clinicians frequently see and treat vulnerable people in their own homes, and they are often the only healthcare professional who is able to be the 'eyes and ears' of every other medical professional because they see people in their own home environment when other health professionals will not. Moritz et al. (2020) highlights "a clinician's role in supporting vulnerable people and reporting abuse and neglect is crucial to protecting patients" (p. 6). Fortunately, ambulance clinicians in Aotearoa New Zealand working for Hato Hone St John already have a pathway in place for referring people who are vulnerable and at risk of abuse and neglect, and this training is well established in the undergraduate curriculum at AUT University (personal communication, K. Holden, August 8, 2024; National Ambulance Sector Clinical Working Group, 2024b).

The final key theme is that people who fall and have incontinence are generally embarrassed about their incontinence, which is why they often do not use incontinence products. A study by Williams and Fear (2023) supports this finding and noted that people often do not like buying incontinence products because they find it embarrassing to purchase them. This finding is also supported by Wagner and Subak (2010) who note "incontinence has been associated with falls, functional decline, nursing home admissions, social isolation, and depressive symptoms, and patients often say, "Incontinence doesn't kill you, but it takes your life away" (p.1).

The themes presented in the ambulance clinicians' response to question two align with causes of falls in relation to incontinence, as discussed in the literature. Urge incontinence is described in a study by Foley et al. (2012) to be a statistically significant ($P < 0.0001$) cause of falls in patients over 70 years of age. Foley et al. (2012) also note that "the larger the volume of urine lost, the greater the risk of falls" (p.34) and that people with physical limitations were most likely to fall if they were at risk of incontinence.

Vaughan et al.'s (2010) study of community-dwelling adult fallers further supports this risk factor, noting in their analysis that people with three or more episodes of nocturia have a higher occurrence of falls. Nighttime toileting has been identified as a theme by ambulance clinicians as a cause of falls, and research by Van Besien et al. (2021) supports this finding. Of note, most patients included in Van Besien et al.'s (2021) study believed that nocturia was a normal occurrence associated with aging. It further discussed that nocturia can harm people through disrupted sleep, fear of falling, and falls. Rose et al.'s (2020) study supports these findings and discusses that a notable cause of nocturia impacting nighttime falls is "maximum supine-induced diuresis" (p. e70), with most falls in their study occurring between 11 p.m. and 1 a.m. Maximum supine-induced diuresis is when "peak diuresis due to third space clearance and reduced vascular resistance related to the supine position" (Rose et al., 2020, p. e73) occurs.

The findings by Rose et al. (2020) also correlate with the links ambulance clinicians noted between falls and patients who have comorbidities. Although medications contributing to falls is not specifically mentioned by the ambulance clinicians in the survey results, when this theme was discussed with the ARWG, it was noted that people who take frusemide, a diuretic medication, often do not like to take it in the morning when it is prescribed. They don't like to take it because they do not want to be rushing to the toilet all the time during the day. They instead take it in the evening or choose not to take it at all, because they do not like getting up to the toilet at night. People withholding their medication in this setting proves a double-edged sword because while they are reducing their risk of nocturia and possibly the risk of falls associated with this, they are potentially causing harm to themselves by not taking their diuretic medication.

There is risk of harm to a person who does not take their medication as prescribed, particularly in the case of heart failure where frusemide is prescribed (Heidenreich et al., 2022). When a person is not compliant with diuretic medication, fluid overload can occur, with a documented link between medication non-adherence and increased risk of cardiovascular disease (Stewart & Kerr, 2011). A study by Hikaka et al. (2023) discussed medication adherence rates in heart failure is poor, particularly among Māori patients. It is also documented that Māori patients have an increased risk of

cardiovascular disease, which is the leading cause of death for Māori patients (Mason et al., 2019).

Although in depth discussion around medication compliance is beyond the scope of this thesis, a limited literature review was conducted exploring medication compliance in Aotearoa New Zealand. It was found that the literature investigating medication compliance does not appear to explore 'why' people do not want to take their diuretic medication (Hikaka et al., 2023; Stewart & Kerr, 2011). When these points are taken into consideration, it is clear that the underlying reason for poor medication compliance in the context of cardiovascular disease needs to be explored further, particularly in relationship to non-compliance of diuretic medication and continence concerns.

Harm associated with urinary incontinence is not well explored as a topic in the literature. In particular, I was unable to find any literature available with a focus on falls causing incontinence-associated dermatitis (IAD), as the literature focuses on the prevention of IAD (Nix & Haugen, 2010) or improving knowledge of incontinence management for the prevention of IAD (Peart, 2023). While IAD does require management, it is more often associated with long-term incontinence and incontinence product use (Peart, 2023). It was interesting to note that the ambulance clinicians are aware of this as a complication of a fall, and that they believe it is associated with a delay in ambulance response.

When the topic of harm, in particular IAD was discussed by the ARWG, they noted that one area of harm that was not discussed by the ambulance clinicians was the occurrence of pressure areas. This was discussed in the context of ambulance response delays to people who had fallen and then been incontinent because they had fallen and were unable to get themselves up to the toilet. This topic is important, because a pressure area can begin to form after a fall due to conditions such as a hip fracture, reduced mobility and preexisting urinary incontinence. After contact with urine or faces, it can take as little as 10 – 15 minutes for damage to the skin to occur and a pressure area can start to form (Banharak et al., 2021). Keeping in mind the time it takes for a pressure area to occur, and the ambulance clinicians have highlighted that there is a link between incontinence, falls and ambulance delays, it is important to understand how the ambulance service responds to a call for a fall.

Generally, a fall is triaged by the medical priority dispatch system (MPDS) as a not-immediately life-threatening condition (Te Whau Ora | Health New Zealand, 2012). As such, the response to a fall is considered a semi-urgent or non-urgent ambulance response. Clawson (2014) discusses this is because "ground level falls are not likely to cause life-threatening injuries … especially when the patient is alert" (Clawson, 2014). As a result, the response priority assigned by ambulance dispatch is considered an "urgent / potentially serious but not immediately life-threatening incident" (Hato Hone St John, n.d-b) and is assigned an 'orange' response. Appendix V Figure 4 contains information pertinent to dispatch decision-making for 'orange' calls.

While there is good guidance about the priority to dispatch ambulances as guided by MPDS, this does not seem to help with ambulance delays for people who have fallen. The situation becomes particularly problematic when the number of calls requiring an ambulance response outweighs the number of ambulances available to respond. This circumstance has become more problematic since 2021, as HHSJ has been experiencing high demand, with an 'important service notice' from 2021 remaining in place in 2024. The service notice specifies that "if the condition is not immediately life-threatening, there may be a significant delay in our response due to the high demand for our ambulance service" (Hato Hone St John, n.d-a).

Reports from members of the public highlight ambulance response delays for people who have fallen, who sometimes wait for four to five hours or longer (Groenestein, 2024; Hu, 2022; Ryder, 2021). While regrettable, unfortunately, this results from ever-increasing workload demands on the ambulance service and the prioritisation of resources required for life-threatening emergencies.

When the ARWG discussed the theme of harm because of ambulance delays, they wanted to push for a change in the response prioritisation for a person who has fallen and experienced incontinence. While this is an important change, it was not within the scope of this project but is something that could be translated into practice because of this research. The ARWG hopes that this research will help provide some evidence of the complexities of falls associated with incontinence and that one-day MPDS may be changed to reprioritise ambulance responses for those who have fallen and experienced incontinence.

5.3.5 Results from question three from survey one

To further understand the ambulance clinicians' perspectives regarding how the development of an assessment tool can enable ambulance clinicians to assess the impact of urinary incontinence on falls in the community, the results of question three were analysed using RTA. Appendix W presents all answers given for question three.

The key themes in the answers given for question three include that the development of an assessment tool would be a good assessment prompt, help identify risk associated with incontinence and falls prevention and assist with clinical strategy development.

As noted by the ambulance clinician survey respondents, an assessment prompt is important for clinicians because:

> *"It enables us an easier way to gather information specific to a patient we are with and their experience with incontinence and falls, which would be able to be passed on to their GP to try assist with implementing ways to reduce a patient's risk of falling and subsequently injuring themselves"*

> *"It creates a resource to help reduce incidents or refer a patient to the most appropriate healthcare provider before any potential injury occurs and create a safety net for a vulnerable population"*

> *"It would be good to get an overall picture of falls caused by urinary distress. Making the subject more open, as I do forget to ask"*

These quotes highlight the importance of an assessment tool for clinicians who are busy in the workplace. While ambulance clinicians complete advanced clinical assessments, they are not immune to making mistakes with Johansson et al. (2022) noting "low adherence to guidelines and the patient assessment deviating from the protocol put patients at risk of being harmed during a see-and-treat referral" (p.1). This is especially important to consider for patient presentations such as incontinence, which is not routinely taught in an ambulance clinicians' undergraduate training or discussed with each patient who falls (personal communication, K. Holden, August 8, 2024).

Accurate and appropriate clinical decision-making is essential for patient safety, and assessment tools can help with the decision-making process (Halter et al., 2011).

Thompson (2013) found “paramedics were the least familiar or confident with the assessment principles and skills linked with the lower acuity of patient illness” (p. 342). This is not dissimilar to the concerns expressed by the ambulance clinicians surveyed, who identified they need an easier way to gather information and often forget to ask a patient about things such as incontinence in a patient who falls, a call that is considered a low-acuity presentation.

Hagiwara et al. (2011) note that decision support tools used in the out-of-hospital environment can help improve diagnostic accuracy for the acutely ill or injured patient, with a study by O’Hara et al. (2014) further discussing the complexities of decision making on patient safety, and how assessment tools can play an important role in this.

An assessment tool is generally used to predict the risk of further harm from disease (van Maaren et al., 2023). This is particularly important in the context of low-acuity presentations such as falls and continence concerns, because while they may seem like benign conditions, a complication associated with either condition can have a significant impact on a person's life if it is missed. Furthermore, assessment tools can be used to reduce the time it takes to perform an assessment of a person who falls, with a study by Wells (2013) noting an overall decrease in the time taken to assess and decide on a treatment plan. As Wells (2013) describes with their assessment tool, it is likely that an assessment tool for continence concerns will help reduce the time taken by ambulance clinicians to complete this assessment.

Carnicelli et al. (2024) note “assessing and managing low-acuity conditions can be challenging for paramedics, especially when education and training has traditionally focussed on emergency care” (p. 1). This is an important point to note, especially when considered in conjunction with the theme of clinical strategy development. Hato Hone St John has reported a 1.9% increase in growth from 2022 to 2023 for people calling the ambulance for a fall, with an overall increase in calls of all types of 2.4% from the prior year and a 24% increase in calls over the past five years (Tse, 2024). The ambulance clinician responses in the survey alluded to a notable increase in calls for falls that require ambulance attendance. There was discussion within the responses indicating that data capture at the ‘coal face’ will allow for future strategies to be developed.

When the ARWG discussed the themes found in the ambulance clinicians' responses to this question, it really cemented their decision to develop an assessment tool. There was not really any further discussion at this stage about what an assessment tool might look like, but there was no debate about whether it was required. This decision was further supported by the findings from the Likert scale questions which are discussed below.

5.3.6 Results from the Likert scale questions in survey one

The participants' responses to the Likert scale questions (modified from the validated questionnaire by Shah et al. (2008)) in survey one were assigned a score to allow for data analysis. Each of the answers to the survey questions in the modified urinary incontinence and pelvic organ prolapse questionnaire was given a score of one if answered correctly, and zero if answered incorrectly or the respondents selected don't know. For each item on the scale in the Likert questions, the maximum score was one, with a range of score being zero to one. The minimum score for the survey was zero, with a maximum being 12, with the range being 0 to 12.

A score of zero was used with the presumption that if someone selected don't know or answered incorrectly, they did not know the answer to the question, and it implied a lack of knowledge about the question being asked. Total scale scores and mean item scores were calculated by summing the number of correct responses within each scale. Shah et al. (2008) discussed if a respondent did not know the answer to the question, it was presumed the answer don't know implied "lack of knowledge about the question at hand" (p. 1286). Table 3 below demonstrates the number of questions correct by each participant.

Table 3

Results From Likert Scale Questions in Survey One

Participant number (n)	Total correct answers	Percentage correct (%)
1	11	91.67
2	5	41.67
3	8	66.67
4	7	58.33
5	4	33.33
6	9	75
7	10	83.33
8	10	83.33
9	5	41.67
10	11	91.67
11	8	66.67
12	9	75
13	9	75
14	11	91.67
15	9	75
16	7	58.33
17	10	83.33
18	7	58.33
19	7	58.33
20	11	91.67
21	11	91.67
22	9	75
23	9	75
24	9	75
25	6	50

Note. The highest possible score is 12.

The range of correct answers for the Likert Scale questions in the survey was 4 to 11/12 correct (33.33% to 91.67%) with a median score of 9/12 correct (75%). This demonstrates that the majority of ambulance clinicians surveyed had a good understanding of urinary incontinence and pelvic organ prolapse, despite receiving no formal education on these topics in their undergraduate training (Costa-Scorse, 2018; Glover, 2018; New Zealand Qualifications Authority, n.d.).

A comparison of results is presented in Table 4 below. A comparison between the ambulance clinicians surveyed is presented, showing the laypersons' scores from a gynaecology and urogynaecology group (Shah et al., 2008).

Table 4

Results From Likert Scale Questions in Survey One – Ambulance Clinicians Compared to Laypersons

Question	Ambulance clinician group	Laypersons group (gynaecology)	Laypersons group (urogynaecology)	Total correct responses by ambulance clinicians
1	0.48	0.57	0.77	12 (48%)
2	0.52	0.47	0.75	13 (52%)
3	0.60	0.59	0.89	15 (60%)
4	0.76	0.77	0.90	19 (76%)
5	0.96	0.70	0.87	24 (96%)
6	0.88	0.54	0.89	22 (88%)
7	0.80	0.45	0.33	20 (80%)
8	0.72	0.64	0.82	18 (72%)
9	0.64	0.63	0.92	16 (64%)
10	0.80	0.56	0.77	20 (80%)
11	0.72	0.14	0.02	18 (72%)
12	0.60	0.74	0.92	15 (60%)

Note. The closer the score is to one, the greater the percentage of people who answered the question correctly.

What Table 4 demonstrates is that almost half (12/25 – 48%) of the ambulance clinicians did not know urinary incontinence is more common in older women (question 1), and that women are more likely than men to leak urine (13/25 – 52%) (question 2). Furthermore, only 60 percent (15/25) of the study population knew that there is treatment available for urinary incontinence (question 12).

What did surprise me was the awareness that the majority of ambulance clinicians (24/25 – 96%) knew about the different types of urinary leakage and how this can be treated (question 5), but I was also concerned that over 60% (15/25) of the survey population did not think anything could be done to treat urinary leakage (question 3), despite knowing treatment was available (18/25 – 72%) (question 8).

While the ambulance clinician' knowledge about assessment and treatment of urinary incontinence appears to be better than a layperson, and they had a broader knowledge of causes of urinary incontinence – what the results of the survey shows is that increased awareness is needed for ambulance clinicians to support people in the community and reduce the impact of urinary incontinence on falls. Support could look like many different things, but the ARWG elected to provide support for clinicians by the introduction of a clinical tool.

5.3.7 Interpretation of Likert scale results from survey one

The data produced from the survey demonstrated to the ARWG that ambulance clinicians had an overall understanding of urinary incontinence, but lacked knowledge regarding how it is assessed and treated, other than in the setting of a UTI. This was different to the understanding demonstrated by laypersons, who had a more detailed understanding of the assessment and treatment of urinary incontinence.

When these results were discussed with the ARWG, they did not find this surprising as the people surveyed in the lay persons' survey were currently receiving or had received treatment for a urology or urogynaecology condition. Therefore, the layperson participants would have been informed of the cause of their urinary incontinence after clinical investigations and treatment at the time of the investigation being performed (Shah et al., 2008).

Further discussion amongst the ARWG reflected on the knowledge levels of the ambulance clinicians and whether their answers to the survey questions would be reflective of their clinical practice. It was thought that although they appeared to lack the knowledge of how urinary incontinence was managed, this was not so much of a concern, as they do not need to treat incontinence. Instead, the ARWG agreed the focus of the ambulance clinicians should be on the ability to assess for the presence of incontinence. Therefore, it was seen by the ARWG that it was more important the ambulance clinicians had a good understanding of the information relating to the causes of incontinence or continence concerns, to enable them to perform a focused clinical assessment and establish a good baseline history of the presenting complaint associated with urinary incontinence if a referral was to be made.

The ARWG also recognised it was important ambulance clinicians could easily identify signs and symptoms of a UTI. They were pleased that the results of question one indicated a strong knowledge of urinary symptoms associated with UTI. They were disappointed that there was not more questioning around a person's bowel movements, because of how much of an impact constipation or other conditions associated with the bowel can have on the function of the urinary system (Kaplan et al., 2013). Despite this concern, overall, they reported they were happy with the ambulance clinicians' knowledge of incontinence at the start of the project.

5.3.8 Reflections on survey one

Deploying the survey to the ambulance clinicians seemed like a good idea when the ARWG decided to do it. That was until the COVID-19 pandemic occurred. The COVID-19 Omicron variants resulted in the workload of ambulance personnel throughout New Zealand being the highest ever recorded (Tse, 2022). Hato Hone St John released a media statement on the 7th of March 2022 stating that due to "high staff absentees due to illness across the ambulance communications centres and call volumes expected to remain high, anyone calling 111 for an ambulance can expect a delay before their call is answered" (Tse, 2022). This impact was felt throughout the operational staff, with high absentee levels and reduced ambulance response capacity.

This situation resulted in the cancellation of all leave for operational staff, and all non-operational communications via email were deemed unnecessary and were not allowed to be distributed (V. Todd, personal communication, 14th March 2022). The directive by Hato Hone St John (HHSJ) had an impact on the number of participants for my survey. The impact occurred not only due to the high clinical workload, but also because many of the ambulance clinicians who work in the Horowhenua do not access Facebook, which was the only platform permitted for circulating reminders about completing the survey.

After a slow start in the first month, ten participants completed the survey. One month after the start of the survey, a reminder was posted on the Horowhenua Ambulance Operations Facebook page. At this time another two participants completed the survey. When week six of the eight weeks the survey was active was reached, only 12 people had completed the survey.

As a result, ambulance clinicians within the recruitment area took it upon themselves to conduct snowball recruiting. This occurred throughout weeks six and seven, and by the end of week seven, a total of 21 participants had completed the survey. Fortunately, two days before the end of the survey, the ambulance service announced 'business as usual' communications were able to be resumed (B. Dicker, personal communication, March 30, 2022), and one final reminder was emailed to all staff in the Horowhenua Ambulance Operations Working Group. This resulted in a total of 29 staff participating in the survey, 25 to completion. This is the result of some very hard work and ongoing support of my research journey by my colleagues in the ambulance service, for which I will be forever grateful.

Limitations of the survey design included the inability to collect data associated with education, highest qualification, ethnicity and age. As a research team the ARWG elected not to collect this data due to the small population size and the possibility this would make the survey participants identifiable.

5.4 Cycle three

The action of cycle three was the planning of an assessment tool. This originated from the results presented in survey one, where it was found that while ambulance clinicians had a good understanding of how to assess for a UTI, they didn't really know how to explore for continence related concerns outside of this setting. Reflections on the data demonstrated a gap in the ambulance clinicians' knowledge about continence concerns, and how it can be related to falls.

Please note the terminology change around the word incontinence – this has changed to continence concerns, from incontinence. This change occurred as during the reflections from cycle two, the ARWG thought this was a better term to utilise as it highlights the importance that not everyone who has an abnormality with their bowel or bladder will be incontinent.

When the ARWG were discussing the findings from cycle two, we noticed the gaps in ambulance clinicians' questioning of people who had fallen, or what they were asking about a patient's bladder habits. As such, the ARWG designed an assessment tool, ideally to be incorporated into an app. The assessment tool designed by the ARWG originally consisted of 40 questions which members of the ARWG wanted to include as

key points in a continence assessment. The original 40 questions, which were then grouped into themes and subsequently refined down to 14 questions, can be found in Appendix I.

5.4.1 Creation of and review of apps (applications for digital devices)

When the ARWG elected to investigate the possibility of ambulance clinicians using an app-based tool to assess urinary incontinence, it was discovered that there was no suitable app available. It was also discussed that it was not possible to develop an app in the timeframe and budget left for this research project. Therefore, the ARWG discussed the development of an assessment tool that could later be incorporated into an app to assess for incontinence or a continence concern. It was planned that this app would be used in the setting of a general patient assessment, as opposed to a patient who has fallen.

When planning the content of the app, the ARWG chose to focus on some general health screening questions. This was because they felt there is a niche ability for an ambulance clinician to perform a health promotion intervention at the time they see the patient. Fortunately, this is something ambulance clinicians already do, as they complete screening and referral for smoking cessation, falls and medication review amongst other things, and these referral pathways are already available nationwide (National Ambulance Sector Clinical Working Group, 2024a).

With opportunistic screening already in place, it is important to note that when medical assessments occur as part of standard interventions and assessments, it is recommended by Wenger et al. (2009) that those assessments are integrated into electronic medical records to ensure data and onward referrals are not 'lost'. Electronic medical records are already used in the ambulance service in Aotearoa New Zealand. This is called an electronic patient report form (ePRF), and a copy can be sent to a person's general practitioner (GP).

When the ARWG were discussing the design and application of the assessment tool, they highlighted that it needed to be integrated into electronic reporting so that assessment is not lost and the 'referral loop' is closed. This is an important point to note because, in the first meeting of the ARWG, one of the key issues we identified as a barrier to managing incontinence and falls was problems associated with referrals in

'the system'. While the ePRF is already integrated with a copy to the GP, there is the risk that the GP will not action a referral, as was discussed by the ARWG in the first meeting where the ARWG highlighted onward referrals by GPs were a barrier to continence care.

Despite the concerns about onward referrals not being completed, the ARWG decided to design the assessment tool content. Four members of the ARWG worked with the lead researcher for four months to complete the analysis and refinement of the original 40 questions discussed at the reflection and planning meeting from cycle two.

Throughout this time, we were able to refine what we felt were the most important questions to ask as part of a clinical assessment. The RTA for these questions was performed on paper, as it was easier for each member of the ARWG participating in this stage of the research to do this in their own space, at their own pace, which involved them using pen and paper.

After RTA was completed by the four members of the ARWG, it was found the 40 questions presented fitted into five key themes:

- Patient perspectives and experiences
- Symptom profile – bowels
- Symptom profile – bladder
- Urinary tract infection
- Overall evaluation.

Any question that did not meet a clinician's potential need to build a history of the continence concern was removed, except for questions pertinent to a person's social history, which are included in the overall evaluation. This section was left mainly unchanged, as previously, most of the clinicians in the ARWG had not been asking many questions about the social impact of incontinence or continence concerns, and its relationship to falls in the community.

When I became aware that social history was not routinely explored by clinicians assessing people with continence concerns or falls, I looked for pre-existing tools used in Aotearoa New Zealand's primary healthcare setting for the assessment of incontinence or continence concerns. I wanted to establish if falls and social history

were explored as part of the assessment for a continence concern or incontinence when people were seen in general practice. The topic of social history and continence concerns is important, because as Matthews (2009) discusses “incontinence is soul shattering. It can completely ruin the lives of those of us who are affected by it” (p.34).

The guidelines I was able to explore to see whether social history and falls are currently assessed as part of a continence assessment, were the Best Practice Advisory Centre (BPAC) guideline for urinary incontinence in women (Best Practice Advisory Centre, 2016), BPAC falls prevention toolkit (Best Practice Advisory Centre, 2015), the Community Health Pathways 3D (Lower North Island) (CHP3D) urinary incontinence in men (HealthPathways, 2021b), urinary incontinence in women pathway (HealthPathways, 2022), and the Royal Australian College of General Practitioners (RACGP) urinary incontinence pathophysiology and management outline (Santiagu et al., 2008). These guidelines were reviewed alongside the National Institute for Health Care Excellence (NICE) guidelines for urinary incontinence (National Institute for Health and Care Excellence, 2019), which has now superseded the BPAC guideline and is the primary source of information for the CHP3D pathways reference.

While reviewing these guidelines, I noticed there was little focus on discussing the impact of incontinence or a continence concern for a person, whether that was financially, socially or on their independence. There was also no guidance on the importance of the words used to discuss incontinence or continence concerns, and there was no guidance on how it is important to engage with Māori when talking about a topic that is Whākama.

The only guideline that was close to mentioning this was the BPAC managing urinary incontinence in women guideline where it was recommended an incontinence-specific quality of life scale was used but did not make a recommendation for any particular scale (Best Practice Advisory Centre, 2016). Of even greater concern was that all but one of the guidelines did not include an assessment point or guidance about assessing the risk of falls because of incontinence. The only guideline that contained information about falls was the CHP3D urinary incontinence in women, where the risk of falls was discussed in the context of anticholinergic burden.

After reviewing the above guidelines and how they might impact the content of the assessment tool we had designed, I was able to report the findings of the RTA back to

the ARWG, who confirmed the final 14 questions of the assessment tool were an accurate representation of the key points they had communicated in the meeting where the initial 40 questions were discussed. The final 14 questions in the clinical assessment tool were grouped into patient perspectives and experiences, symptom profile – bowels, symptom profile – bladder, urinary tract infection, and overall evaluation. Although social history is important, there were no specific questions included in the assessment tool, as it was decided by the ARWG that ambulance clinicians already conduct a thorough social history assessment, more so than most other healthcare professionals.

A copy of the final questions in the clinical assessment tool is summarised below:

Final 14 questions for assessment tool:

Patient perspectives and experiences:

1. What were you doing when you fell?

a. Were you walking to the toilet?

2. Do you have any problems passing wee, poo and do you feel empty when you wee?

a. Do you use pads for leakage of wee or poo, or just in case?

b. How many do you use per day?

c. Do you worry about not making it to the toilet on time?

d. Do you experience any urgency when passing wee or having a poo?

e. Do you feel that you have not been able to get out as much, or does it affect what you do during the day since you have had leakage of wee or poo?

3. How long have the symptoms been occurring for: days, weeks, months, or years?

Does anything trigger these symptoms?

How much does your incontinence affect your day/life?

4. Have you ever had any diagnosis of prolapse bowel/bladder – if so, have you had any surgery or (if patient is female) do you use a pessary to manage?

5. How many cups of fluid do you drink per day?

Do you restrict how much fluid you drink because of your incontinence?

How many of these drinks contain caffeine, e.g coffee, tea, chocolate drinks or fizzy drinks?

Symptom profile - Bowels

6. How often do you go for a poo (move your bowels)?

How often do you check your poo (bowel motion), and how would you describe it (you would show the patient an image of Bristol stool chart)?

Symptom profile - Bladder

7. How often do you wee?

Do you ever get up at night to wee?

8. How would you describe the strength of the wee/urine stream you are passing?

Strong and constant or broken up is it dribbling, hosing, trickling or intermittent?

9. Do you ever leak wee when you cough, laugh, sneeze, bend or lift?

Do you leak without noticing?

Is it a lot or just a dribble?

10. Do you have any symptoms of a urine infection (UTI) such as burning, stinging, frequency, pain, colour change, blood in the urine or toilet paper, decreased or increased amount, fevers (hot and cold sweats) or confusion?

Urinary Tract Infection

11. Have you had recurrent UTIs in the last 6-12 months?

Were these confirmed by a urine sample?

Did you get antibiotics for a UTI?

If so, who gave you the antibiotics? GP? Nurse? Ambulance? Pharmacy? Hospital? Other person?

12. Have you had more than one course of antibiotics for a UTI in the last 6 months?

Do you remember what it was called and did you finish all the tablets?

Evaluation

13. Have you ever asked for any help to manage incontinence?

If yes or no - Would you like some more information or someone to contact you about managing incontinence?

14. Would you consent to a referral to the continence nursing service to further evaluate the causes for your urinary incontinence?

It is important to note that while the research question asked, ‘How can the development of an assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community?’ there are no questions specifically about

falls, other than the question ‘what were you doing when you fell’ in the assessment tool. This is because the ARWG noted that ambulance clinicians are already completing an assessment of falls, and have an established falls referral pathway in place (National Ambulance Sector Clinical Working Group, 2024a). Therefore, they felt it was unnecessary to incorporate further questioning about falls in the assessment tool. Given this, the assessment tool design was considered complete, and the final action of the research project was able to be completed.

For the final cycle of the research project, the ARWG wanted to assess whether the ambulance clinicians felt the assessment tool was appropriate for them to use in their environment. To do this, the ARWG designed a second survey and deployed it to the ambulance clinicians.

5.5 Cycle four

The action that produced results in cycle four was a survey completed by ambulance clinicians. Survey two was titled Assessment Tool for Ambulance Clinicians and contained five multichoice answers and four free text answers. The survey was verified using expert review within the ARWG and my Doctor of Health Science supervisors, providing support from both clinical experts and research academics to the content of the survey that was utilised in cycle four. A copy of survey two designed by the ARWG can be found in Appendix J.

A total of 25 complete responses were recorded using Qualtrics^{XM} (Qualtrics, 2024). 14 respondents were female and 11 males. No participants chose to self-describe their gender pronoun or identify as gender diverse. There were five multichoice questions and four free text answers asked within the survey. The free text answers from the survey were analysed using a combination of descriptive analysis and RTA. The key results found from this data will be discussed further below.

5.6 Multichoice question answers from survey two

5.6.1 Results from question ‘How useful would this assessment tool be to help you assess continence concerns?’

In response to the question ‘How useful would this assessment tool be to help you assess continence concerns?’ Twelve (48%) respondents thought it would be extremely

useful, 10 (40%) thought it would be very useful, two (8%) thought it would be moderately useful and only one (4%) person thought it would not be at all useful to assess continence concerns.

Given the overall positive response to this question, with 88% of respondents indicating it would be extremely useful or very useful, this supports the finding that ambulance clinicians who participated in this survey thought the assessment tool developed by the ARWG had good utility for assessing continence concerns in the prehospital setting.

5.6.2 Results from question 'If the option was available, would you refer a patient for further assessment if you identified a continence concern related to these screening questions?'

In response to the question 'If the option was available, would you refer a patient for further assessment if you identified a continence concern related to these screening questions?' 24 (96%) of respondents would refer a patient for further assessment, with one (4%) electing not to refer a patient for further assessment.

In response to the question 'Is the time spent working through these questions with patients valuable' 22 (88%) respondents selected yes, with three (12%) selecting no.

There was also the option for additional free-text answers to be added. Appendix X contains all these comments. Key themes from the free-text answers are discussed next.

While this was an optional field for completion, 20 respondents chose to provide additional information in the additional free-text field. All respondents provided constructive feedback, even if they selected a 'no' answer. The additional free-text answers were more detailed than anticipated, and as such, data analysis was required and completed using RTA.

The key themes present in the 20 responses were that this was a detailed assessment tool that would be helpful for low acuity calls, and it could be time saving for both clinicians and patients. A subtheme was that this might take too long to complete in the context of a true life-threatening emergency, but it would be beneficial for an Extended Care Paramedic to use and would help standardise care in low acuity

presentations. Or, if a patient was not being transported to the hospital, it would still be helpful for the patient to get further assistance for their continence concern.

The ambulance clinicians' detail in their free-text responses demonstrates how important an assessment tool is for clinical practice, and in particular for low acuity patient presentations such as people who fall. Regarding the question 'Is the time spent working through these questions with patients valuable', participants reported the following important points about why they feel the assessment tool is valuable:

> *"I think as we are seeing more primary health issues and situations where patients aren't needing to go to hospital, ambulance crews are in a unique position of having a bit more time to ask these questions. Our exposure to different environmental situations with patients once we identify there is a potential of incontinence, we can gain further information and the history. I am thinking after reading through the questions, that incontinence maybe more common than I am aware of"*

> *"It's helpful to understand baseline activity first. Currently we often ask if bowel/urine motions are "normal" for them, can be a difficult and subjective question that is subject to a variety of responses. I think this is partly because this is the uncomfortable and private nature of the topic"*

> *"Absolutely. It is taking a holistic approach to patient care and it does not stray too far from a standard assessment so should not take a huge amount of time to complete compared with transport"*

> *"It doesn't take long, and it allows us to paint an overall picture of the patients health prior to the ambulance being called. This is valuable as we can then gather what has changed for the patient to call 111 and if the appropriate cares are in place or if this needs actioning"*

> *"It mustn't take the place of other assessments and ambulance have been historically lax in their assessments of people who have "just fallen". There needs to be a value to the patient as they often see us as emergency response not primary health assessors - this could include a referral meaning they get cheaper products etc"*

> *"It is useful for particular patients. Personally, I feel like pre-existing bias from the clinician and a lack of passion for low acuity work in some ambulance officers would be the main reason this tool is not used"*

The ARWG discussed the feedback received, the key themes and memorable quotes, and most of the ARWG had not considered that the assessment tool might be timesaving for clinicians in both the acute and non-acute settings. Further discussion occurred within the ARWG regarding how other healthcare professionals may feel if a continence assessment was completed by an ambulance clinician. Members of the ARWG wondered if they would be happy to receive a referral from an ambulance clinician for a person who requires review of a continence concern as identified by the screening tool.

After some discussion about how they, as clinicians, could make a positive impact on people who fall in the community and experience a continence concern, all of the members of the ARWG indicated they would be happy to receive referrals if a referral pathway existed. However, they did note it needs to be formalised, and there must be a mid-stream urine, and a bowel and bladder diary completed by the patient before the appointment. These suggestions are in alignment with the recommendations of the International Continence Society (Wagg et al., 2023). The ARWG also discussed that there is an issue with the availability of continence nurses in Aotearoa New Zealand, with limited capacity and more patients than appointments available. While this was a concern, they did feel that if the patients referred to them were pre-screened with an assessment tool, such as the one the ARWG had designed, and a copy of the pre-screening results was available, it would reduce the time needed in an initial consultation, which would therefore increase appointment availability.

These findings support that if there were a formal referral pathway for an ambulance clinician to refer a person with a continence concern to a continence nurse or other continence specialist, it could result in better outcomes for people living with a continence concern. Batchelor et al. (2013) and Moon et al. (2021) both discuss the link between urinary incontinence and falls, and how continence concerns need to be addressed to prevent falls from occurring. Drawing from the findings discussed by Batchelor et al. (2013) and Moon et al. (2021), it is probable that if ambulance clinicians were to complete the clinical assessment tool designed by the ARWG and make an onward referral for continence care, the assessment tool could reduce the impact of incontinence on falls in the community.

This research set out with the aim to investigate 'how can the development of an assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community'. The results presented here strongly represent that ambulance clinicians have indicated they are happy to conduct an additional patient assessment to investigate whether a continence concern is present, with 22 out of 25 (88%) respondents indicating that they felt the time spent working through these questions with patients was valuable. Furthermore, 24 out of 25 (96%) respondents indicated they would be happy to make an onward referral for additional support when a person discloses a continence concern. These findings suggest that the assessment tool would provide robust information for a focused referral, which could potentially bypass primary healthcare services and go directly to secondary care such as a continence nursing service, women's health nurse or urology service. Thus, decreasing the workload of primary healthcare services and helping to reduce the impact of incontinence on falls in the community through better access to continence care.

5.6.3 Results from question 'Is this tool a good assessment guide?'

In response to the question, 'Is this tool a good assessment guide?' 24 (96%) of respondents selected yes, and one (4%) respondent selected no. There was the option for an additional free text answer for a comment to be added. While this was an optional field for completion, 18 (72%) of respondents chose to provide additional information. All responses provided constructive feedback. Appendix Y contains these comments. As there was more information provided in these responses than anticipated, RTA was completed to find key themes.

The key themes present in the 18 yes responses were that the tool will help with assessment and that it is very detailed. The subthemes presented within the assessment theme include that it provides a prompt for systematic and thorough assessment. There was also concern expressed in the time it takes to ascertain the answers and whether the level of detail is necessary or whether it could be reduced to save time. A recommendation was made by one participant who thought that it was a useful assessment guide because:

> *"There is currently no tools or guides to use for patients experiencing incontinence which usually leads to hospital transfer"*

Another participant noted it is a good assessment tool because:

> *"It provides a good basis of what to ask and document. I feel like this is an area of low acuity care we do poorly and inconsistently in the ambulance service and developing a standardized tool would help resolve these issues"*

These are good examples of how an assessment tool could help to maintain consistency in assessment of people who are experiencing continence concerns and seen by ambulance clinicians.

5.6.4 Results from question 'Would you like to see this assessment tool introduced as an App, on ePRF or another platform?'

In response to the question, 'Would you like to see this assessment tool introduced as an app, on ePRF or another platform' respondents could select multiple answers and suggest another platform. Nine (36%) respondents wanted the assessment tool in an app, 22 (88%) wanted it in ePRF, and 10 (40%) made a further suggestion. The further suggestions are summarised below. Appendix Z details the original responses to this free-text question.

Further suggestions for the location of the assessment tool included:

- The clinical tools section of ePRF (3 respondents – 12%)
- The CPG app (4 respondents – 16%)
- MDCalc (2 respondents – 8 %)
- Not at all (1 respondent – 4%).

There were some key points discussed in this free text response, particularly around the integration of the clinical tool into ePRF. It was noted that this could be problematic because it takes about two years to make a change within the ePRF, and there is a significant cost associated with any change as the software is not owned by HHSJ, but is owned by Valentia Technologies who provide the CareMonX EMS Suite (Valentia Technologies Limited, 2021).

A better solution would be to integrate it into the Clinical Practice Guidelines (CPG) app, which is developed by St John Learning Media and Media4Learning (St John Learning Media & Media4Learning, 2020). Therefore, it allows better integration in a

shorter timeframe at less cost than if the assessment tool were to be integrated into ePRF.

Another option suggested by the respondents was MDCalc. MDCalc is a free medical reference tool online available as a website or app that is available for healthcare professionals. It contains many different scoring systems, medical calculators and other algorithms (MDCalc, 2024). MDCalc currently lists eight tools that discuss incontinence, two of which are diagnostic criteria for faecal incontinence, one for urinary incontinence, one for obstructed defecation syndrome and another for constipation. The remaining four are for use in children which is outside of the scope of this research, except to note that there are two tools listed for urinary tract infection in infants (MDCalc, 2024).

While these are all good options, there is a cost associated with integration into each platform. The highest cost would be through a software change with Valentia Technologies, which was not feasible for this research project. If the assessment tool was to be integrated into the CPG app, the problem with onward referrals would still remain because the CPG app isn't linked to the ePRF, and therefore, once the assessment tool was completed by the clinician if the results were not documented in a free text box of the ePRF the information found as part of this assessment tool would be lost. MDCalc does seem a viable option, but again, it is not integrated with ePRF, and it does not have any ability to be part of an onward referral process.

5.6.5 Results from the free text answers from survey two

Four free-text questions were presented as part of the compulsory answers in the second survey. The questions were:

- Please detail what impact you think this assessment tool would have on a patient's health outcomes to remain safe and well in the community?
- How could this assessment tool change your clinical practice?
- What improvements do you recommend to make this assessment tool easier to use in the ambulance setting?
- How has completing this survey challenged your thinking around assessing incontinence and falls?

The free text answers from survey two are presented in Appendix AA to Appendix CC. These are presented verbatim with correction of spelling mistakes and expansion of words considered 'slang' terminology specific to ambulance clinicians. Appendix AA details in full the ambulance clinicians' answers to the first free text question in survey two. However, key themes will be presented and discussed next.

5.6.6 Results from question 'please detail what impact you think this assessment tool would have on a patient's health outcomes to remain safe and well in the community?'

The key themes presented on analysis of the question 'please detail what impact you think this assessment tool would have on a patient's health outcomes to remain safe and well in the community' are primarily focused on the ability of the assessment tool to improve patient outcomes. The sub-themes associated with patient outcomes include fall prevention, being able to identify continence concerns, identifying nocturia, preventing emergency department attendance and preventing the risk of social isolation associated with continence concerns and falls. The other key theme present was the importance of referral for follow-up care of continence concerns or falls.

The ambulance clinicians noted some specific reasons as to why they think the assessment tool is valuable for keeping people safe and well in the community. They highlighted the following things:

> *"I believe this tool would allow us to pick up patients at higher risk of developing further negative health and social outcomes due to bowel and bladder issues. Provided there would be some sort of follow up and change to our care plan with using this tool I think it could add great benefit in preventing patients from further deteriorating and keeping them socially happy in the community. This could also positively impact the social aspect that goes along with urinary incontinence and patients being socially withdrawn and anxious"*

> *"I think this is a great tool. It keeps people out of hospitals and gets them targeted care. It raises the subject (which can be taboo) in a non-threatening way. It will also help prevent falls for patients that are a falls risk"*

> *"This would greatly improve patient health. The patient may not be aware that they have any issues and by using this tool may provide help that patient may not of been aware they have an issue and there*

may be a solution. The tool may also prevent patient from getting septic and falling with injuries"

"I think this would be great as the patients I visit multiple times were up in the night going toilet. They lose their balance in the dark and suffer other injuries in the fall. It would also stop these people being on the floor for hours and hours waiting for an ambulance. Some have gone toilet where they are as they couldn't get back up. If we could help prevent the toilet trip in the first place, then we could prevent the fall and ambulance trip to the Emergency Department due to injuries. They are generally sent to the waiting room which is an awful long wait for an elderly person"

"I believe it would have a positive impact to safety netting and ensuring that clinicians have the right information needed to make an assessment. The structured format is helpful to enable staff to cover all bases, particularly as we have received little training on this. Currently if these questions and the in-depth nature of the questioning is only asked by very experienced staff through their experience. Even so, I'm confident aspects would still be missed"

"I think this assessment tool has great potential for creating an opportunity for patients to see that they aren't alone, and that potentially there is help in the community and achieving an outcome of being [the ambulance] at the top of the cliff for these patients"

"Would help a patient to realise that incontinence is not just a normal part of aging and that there is medical support so they don't need to be as embarrassed. May draw their attention to it interfering with their daily life and make them more likely to engage in programs"

The role of the ambulance clinician in improving patient outcomes through reducing social isolation and loneliness is an important one in the older adult. It is not well explored in the literature, but ambulance clinicians are often the only healthcare professional to see someone in their own home and can sometimes be the first contact people have with healthcare services after a prolonged time. This means they are able to offer a unique health promotion opportunity for people who are experiencing social isolation and loneliness. A study by Allana and Pinto (2021) supports this discussion and notes that "paramedic education, culture and governance could better enable paramedics to address the social determinants of health" (p. 69).

Social isolation and loneliness are known to be associated with adverse health outcomes in the older adult population (Duffner et al., 2024). Lim et al. (2020) discuss

“loneliness is increasingly recognised as the next critical public health issue” (p. 793) with multiple health conditions increasing the risk of loneliness. Incontinence is known to cause social isolation and as a result loneliness in the older adult population, it also impacts quality of life (Matthews, 2009; Sims et al., 2011). If ambulance clinicians were able to make a referral for people who do have a continence concern that impacts their ability to leave the house or participate in activities of daily living, then they could help reduce the impact of social isolation and loneliness in this population of community-dwelling older adults.

It is important to discuss the role of follow-up care for a person experiencing a continence concern. As it currently stands, some continence service providers, such as continence nursing services and physiotherapists, will accept a self-referral from a patient. However, most require a healthcare professional to make a referral (Continence NZ, 2024a). Fortunately, there are very few providers who will only accept a referral from a GP or specialist, and many pelvic floor physiotherapists are able to offer free care via Te Whatu Ora | Health New Zealand or private providers who charge a fee for services (Continence NZ, 2024a).

Research by Williams and Fear (2023) found that people were often too embarrassed to discuss a continence concern with their GP, and when they did, many people disclosed that their GP often told them it is a normal or expected part of aging or childbirth. Knowing this and the pressure that GPs are under (University of Otago | Ōtākou Whakaihu Waka, 2024), the prospect of an alternative referral pathway that bypasses a GP so that a person can access continence care seems a valid option.

If an ambulance clinician was to complete the assessment tool, with those surveyed indicating they would be happy to do, it could be a viable option that an ambulance clinician refers a patient directly to a physiotherapist or continence nurse specialist for assessment of a continence concern.

Although pelvic floor physiotherapists are available, the issue with direct referrals to pelvic floor physiotherapists is that there is only an estimated total of 173 ‘pelvic health therapists’ in Aotearoa New Zealand (S. Smith, personal communication, March 22, 2024), out of a total of 7,816 registered physiotherapists who hold an annual practising certificate (Physiotherapy Board of New Zealand, 2024). With such a low number of specialist pelvic floor physiotherapists this could cause an issue with referral

acceptance and appointment availability for people referred to them by ambulance clinicians. Despite these concerns, we as healthcare professionals must do all we can to remove any barriers to people accessing continence care. As people do not tend to seek help for continence concerns despite it being a relatively common condition, it is imperative that access to continence services is as easy as possible (Robson & Brown, 2024).

Ultimately the themes presented from answers to this question highlight that ambulance clinicians believe the assessment tool designed by the ARWG will help to improve patient outcomes. It is hoped that the integration of this assessment tool will impact an ambulance clinician's ability to influence onward referrals which support the already existing falls prevention pathway. This support would be through the ability to identify continence concerns, including nocturia with an ultimate aim of preventing emergency department attendance and preventing social isolation and loneliness associated with continence concerns and falls.

The general indication from the results presented is that the assessment tool designed by the ARWG will have a positive influence on reducing risk and harm and improve outcomes for people who experience a continence concern. Another significant aspect associated with the introduction of the assessment tool involved understanding how ambulance clinicians may change their clinical practice. In survey two, the ambulance clinicians were asked how could this assessment tool change your clinical practice?

5.6.7 Results from question 'how could this assessment tool change your clinical practice?'

Appendix BB details the ambulance clinicians' answers to the second free text question in survey two. The key themes presented on analysis of this question are related to how the clinical tool would change their clinical practice. The themes were: it had influenced them to think differently, to provide holistic patient centric assessment, and a systematic approach to a comprehensive assessment. Further themes were present around the importance of being able to identify the cause of a fall, and how injury prevention could occur through referral to other professionals.

Notable responses where the introduction of the clinical assessment tool has changed the practice of ambulance clinicians are presented below:

"I would feel like we can better address these patients for future prevention. At the moment we just have to deal with the fall and subsequent injuries at the time as it's already occurred. There's not much in the way of preventative options going forward. A lot of these patients live alone and are fiercely independent and don't want to go into a rest home. So if we could do some wrap around care to help them with their wishes then I'd feel I'm doing a better job by them"

"Clinically it has a potential for helping patients with incontinence issues that may not have been identified previously. Though the ambulance service is emergency focused, the reality is we deal with primary healthcare issues"

"It is looking more at the holistic care model, and exploring the pre-emptive processes which is fantastic, some will be excited to take it up, however some clinicians are not concerned with this aspect of care. Personally, I think it takes us more into that Extended Care Paramedic territory, which when we have the time to spend is awesome, but we don't always have the time. If appropriate, I would use it"

"Provides a more holistic assessment, utilising the extra time we have with patients compared to other types of clinicians and building on the trust they have with the service it seems appropriate to be getting ambulance officers to be asking these questions"

"It would further guide questions on an awkward subject. If it was on the ePRF it could also be given to the patient for them to fill out saving some embarrassment. I would need to know that there was a purpose beyond information gathering as a GP is overwhelmed with information in our reports and often ignores things that are not critical"

"This would give us more ability to understand a patient's needs in the community and if we could refer them further to the appropriate resources this could improve their independence and safety at home"

"All assessment tools provide the benefit of a consistent approach to your assessment. As a result, it would definitely change my clinical practice, and in fact, some of these questions have already made me think differently in this space"

Remaining independent and staying safe and well at home is what most older adults dream of or worry about as they age. The thought of losing their independence can be catastrophic, with so many remaining fiercely independent until they do become

dependent on someone else for care, often because of a fall (Ahlqvist et al., 2016; Bimou et al., 2021).

Once someone has had a fall and requires assessment in the emergency department, this is often when problems begin. If a person sustains an injury associated with a fall more than a third are likely to fall again in the next 12 months. If they sustain a hip fracture 10-20% will be admitted into aged residential care and 27% will die within a year of their first fall (Health Quality and Safety Commission New Zealand, 2017; Kerse & LiLACS NZ, 2014).

Other concerns with hospital attendance after a fall include the risk of hospital-acquired infection such as pneumonia, acute behavioural disturbance because of delirium and the social isolation that comes with a hospital admission outside of your hometown (Al Farsi et al., 2023; Oh-Park et al., 2018). Hospital admission outside of your hometown is what the residents of the Horowhenua experience when they are admitted to their closest hospital in Palmerston North, an average of 50 minutes away (Google, n.d).

Understanding these risks and the impact it can have on a person returning to independent living after a fall, it is easy to see why ambulance clinicians feel identifying the cause of a fall and preventing injury are so important. Unfortunately, nearly every ambulance clinician would have had the experience of taking a person to hospital who is no longer able to live independently because of a fall, or they experience a hospital acquired infection which prolongs their hospital stay, or means they are not able to return home again.

The general indication from the results presented is that the assessment tool had influenced the ambulance clinicians to think differently, to provide holistic patient centric assessment, and a systematic approach to a comprehensive assessment. The assessment tool also encouraged people to identify the cause of a fall, and how injury prevention could occur through referral to other professionals. In order to ensure this assessment tool would be utilised by ambulance clinicians, feedback was sought in survey two regarding the following question: What improvements do you recommend to make this assessment tool easier to use in the ambulance setting?

5.6.8 Results from question 'what improvements do you recommend to make this assessment tool easier to use in the ambulance setting?

Appendix CC details the ambulance clinicians' answers to the third free text question in survey two. Notably, five of the respondents (20%) were happy for the assessment tool to be utilised without further improvements. The qualification level and experience of these respondents is unknown as this information was not collected due to the small study population.

There was one key theme presented on analysis of this question. This was that the assessment tool needs to be integrated into the preexisting clinical tools available on the ePRF system utilised by ambulance clinicians. There were two subthemes within this theme. The first is that the assessment tool needs to be in a flow chart or tick box format, and the second is that it needs to be kept simple with an automated onward referral pathway as appropriate for the patient presentation.

Notable responses reported from the ambulance clinicians regarding improvements they would recommend to make the assessment tool easier to use in the ambulance setting are included below:

> *"Maybe if you could make a catchy acronym for ease of remembering"*

> *"Clear indications of what situations this could be used in much like a contraindication/cautions list for medications. Implementation is also important, making tools like this compulsory often leads to poorer information and adverse events because it becomes a box ticking/information gathering exercise rather than an assessment to improve health outcomes"*

> *"Make it user friendly - tick box set up with easy referral process (automatic or internal within the ePRF) if the tick box indicated that the patient needed to be referred. Uptake of use of referral services is low if clinicians have to use multiple platforms to do the referral, especially if the information is having to be duplicated"*

In addition to the notable responses and the key themes discussed, there were very few other suggestions made. Two people suggesting that an image of the Bristol Stool Chart needed to be included (a copy of the Bristol Stool Chart is in Appendix DD). One

participant suggested “don’t do it” and another that this should be a patient led tool and the patient should be given the ePRF to complete it themselves.

Getting a patient to complete the assessment tool is not a good solution, as it means the clinician will not be aware of the person’s responses, which could be pertinent to their clinical assessment. The response from this participant suggests that despite raising awareness of the importance of assessing for a continence concern, some ambulance clinicians involved in the research may not be comfortable discussing continence concerns with people.

The integration of the assessment tool into the ePRF has been discussed in previous results presented. However, the importance of an automated onward referral pathway needs to be explored further. At the time of writing, there are ten community referral pathways in place, including a pathway for falls prevention. A list of some of these pathways is in Appendix EE (Hato Hone St John, 2023b). The problem with these pathways is that HHSJ rely on their staff entering a ‘short code’ in the disposition section of the ePRF document, and unfortunately there are low numbers of referrals made, most likely because additional input is required to complete the referral by using the ‘short code’.

This has been demonstrated by the data provided by HHSJ in 2023, that showed for people over the age of 55 who fell in either their home or an aged-care facility, in the Horowhenua region over three years from January 1, 2020, to December 31, 2022 only 146 people (<5% of the 3,009 total cases) were referred for further intervention and falls assessment in the community (Hato Hone St John, 2023a). The falls pathway specifies people must be able-bodied and over the age of 65, with some exclusions such as neurodegenerative disease processes like Motor Neurone Disease, Multiple Sclerosis (MS) and Parkinson’s Disease (PD). These soberingly poor statistics highlight there may be barriers to making a falls referral in the community (Hato Hone St John, 2023b). While there is no age breakdown of the data provided by HHSJ, it still indicates that a significant number of people who could be eligible for a referral are not being referred.

It is also concerning that people with neurodegenerative disease are excluded from this pathway, as conditions such as MS and PD are known to impact people’s bowels and bladder and can result in incontinence or a continence concern which increases

their falls risk. They are also more prone to falls because of the alterations to gait and balance that occur as part of the disease process, and symptoms associated to bowel and bladder function because of “chronic motor, sensory and autonomic dysfunction” (ÖZen & Polat, 2023, p. 87) associated with the condition. This is not dissimilar to Parkinsons disease, where approximately 50% of people will experience bladder symptoms, which in turn can contribute to falls (Smith et al., 2022).

If this assessment tool were to be integrated into the ePRF platform, the referral pathway for a person experiencing a continence concern would need to sit external to that of the current fall’s referral pathway. This is because it is important people who are over 55 and experience a fall or have a neurodegenerative disease process are included in the referral, as they should not be discriminated against, and it could be argued are at higher risk of a significant socioeconomic impact on the healthcare system if they were to fall because of a continence concern, with a prolonged rehabilitation time. These patients would also be less likely to return to their own home after a fall (Demir, 2017; Lavoie et al., 2021).

Keeping these factors in mind, it is important to understand how the development of an assessment tool can enable ambulance clinicians to assess the impact of incontinence on falls in the community. Using the assessment tool ambulance clinicians can provide advocacy for those who are experiencing a continence concern whether they have fallen or not. This point is important, especially in the case of the person who has a neurodegenerative muscular disease and is currently excluded from the falls referral pathway within HHSJ (L. Pepperell, personal communication, August 6, 2024).

To understand if the ambulance clinicians’ involvement in this research project could have an impact on people who experience a continence concern and/or are at risk of falls, the ambulance clinicians were asked the following question: How has completing this survey challenged your thinking around assessing incontinence and falls?

5.6.9 Results from question ‘how has completing this survey challenged your thinking around assessing incontinence and falls?’

Appendix FF details the ambulance clinicians’ answers to the fourth free text question in survey two. The key themes presented on analysis of this question are related to

how the participants were able to change their thinking. This was in respect of clinical assessment and decision making, the clinicians' critical thinking and their thought processes around the impact incontinence has on falls.

Asking a question about how being involved in the research project challenged the ambulance clinicians thinking around assessing incontinence and falls was an essential summary point for the research project. It was important because CPAR "is fundamentally a 'practice changing practice'" (Kemmis et al., 2014, p. 70), with a purpose of gathering evidence "to feed and nurture self reflection about our practices, our understandings of our practices, and the conditions under which we practise" (Kemmis et al., 2014, p. 70). What is demonstrated in the themes found from this final question in the survey is that the ambulance clinician group showed translation of this research project into their own practice, by being able to change their thinking and decision making.

Critical decision making is a large component of practice as an ambulance clinician. It is not only based around patient care, but also encompasses safety and responsibility around decision making for the individual clinician and general public (Perona et al., 2019). It is important that any change in clinical practice prompts a change in the clinician's thinking. This is to ensure it is integrated into the clinician's clinical practice, and that it is not just another change imposed that the clinician had no control over and may not think is going to make a difference for people.

Unlike traditional change integration experienced by ambulance clinicians, this CPAR project has asked for the ambulance clinician's direct feedback on the design and implementation of the assessment tool created. By doing so, it appears to have prompted better engagement and thinking about the potential incorporation of this tool into clinical practice. Some of the notable responses reported from the ambulance clinicians when answering the question 'How has completing this survey challenged your thinking around assessing incontinence and falls' display how they have actually integrated change into their practice, despite the clinical tool only being in a development stage and not formally implemented into clinical practice.

> *"We often know that a fall is subject to a number of different medical conditions, many of which can be triggered by the patient's attitude towards their health. If you can make a patient, see reason and logic behind the condition, then you're more likely to get buy in. Therefore,*

this is definitely made me think differently around the connection between incontinence and a fall, or perhaps multiple falls"

"The in depth questioning and range of questioning possible shows this is an entire conversation worthy, not just normal throw away questions such as "are your bowel/urine movements and frequency normal at the moment" which seems to be common practice currently"

"It has made me realize that I need to put more time and effort into low-acuity patients. This is where I as an ambulance officer can make a significant impact in someone's life, I feel we often forget this"

"It has reinforced that what is traditionally seen as a simple, shallow part of an assessment is actually a rich, in-depth topic that I need to be more aware of"

5.6.10 Reflections on survey two

Survey two enabled the ARWG to understand how the ambulance clinicians would implement the clinical assessment tool designed to encourage assessment of continence concerns into their clinical practice. The ARWG were surprised at the suggestions made within the key themes, and at times were impressed with the level of integration into practice discussed by the ambulance clinicians.

One point of concern the ARWG noted was the incontinence episodes that occurred due to ambulance delays. This situation was not something that they were aware of prior to their participation in the project, and they were shocked to learn that sometimes people are waiting hours for an ambulance to respond when they have fallen and cannot get up. While this is worrying, it is beyond the scope of this research project to address this concern directly. However, a recommendation will be made about the importance of change in the MPDS to avoid further patient harm occurring associated with falls and incontinence.

It is clear from the responses from the ambulance clinicians and the continual recurrence of the theme about referral processes, that any assessment tool implemented into clinical practice needs to be electronic, in an easily accessible format which has an integrated referral pathway. The current falls referral pathway utilised by ambulance clinicians requires the clinician to enter a short code for a referral. Data provided by HHSJ demonstrates this is often not followed and does not appear to be

efficient as there are a very few referrals completed in comparison with the number of calls to falls in the Horowhenua region (Hato Hone St John, 2023a). This point is important to consider when implementing an assessment tool into clinical practice, to ensure there is ongoing clinical care for a person with a continence concern who experiences a fall.

5.7 Conclusion

This chapter has detailed the findings from each cycle of research, and how the findings provided insights for the ARWG to reflect on and inform the planning of the next action of the research. The outcomes drawn from each cycle of research and how this influenced the reflection and planning of the next cycle of research have been discussed. Wherever possible, relevant literature has also been used to help guide my 'sense making' from the findings. It is hoped that the assessment tool to assess the impact of incontinence on falls, having been developed and scrutinised, can now be integrated into clinical practice by ambulance clinicians. The findings presented in this chapter and the supporting discussion demonstrates that most ambulance clinicians surveyed are willing to integrate the clinical assessment tool into their practice to assess for the presence of a continence concern in the context of a person who has fallen. It appears from the responses provided it will have a positive impact on clinical practice, and that transformation of practice is occurring because of their involvement in this research project.

Chapter 6 Transformations Through Research and Conclusion

6.1 Introduction

The aim of the research reported here was to answer the research question:

> *How can the development of an assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community?*

Further aims were to identify links between urinary incontinence and falls, the complexity of falls and the impact of urinary incontinence. This is supported by an exploration of how the assessment and management of people who experience continence concerns and falls in the community can be improved.

Transformation of practice from the co-research processes used in action research is a key outcome of action research. This chapter will present key practice changes for members of the action research working group (ARWG) and for ambulance clinicians that have been captured as part of the research process. As part of capturing the outcomes, this chapter also reflects on the experiences of leading a critical participatory action research (CPAR) project (as part of a doctoral degree) for the lead researcher, including the integration of my learnings from this CPAR project, with further personal reflections from the research journey discussed in Chapter 7. The impact, potential application, and reach of this research will be discussed, alongside further utilisation of the continence assessment tool and the impact this may have for Māori. The chapter will conclude with recommendations for further research.

6.2 How is this CPAR project my work for my thesis?

An action research thesis is a representation of the research collaboration that occurred, in this case, a CPAR process. A thesis is also a record of what was produced in the research project as an outcome of the research collaboration. The research project then becomes public knowledge, and the knowledge is shared with others in other contexts or organisations. In the case of this project, the information was shared with wider healthcare practices and practitioners, who integrated it into their clinical

practice. This shows the transferability of the research findings into practice (Herr & Anderson, 2015).

A further benefit of an action research thesis is that it demonstrates “a local perspective that few traditional researchers are able to provide” (Herr & Anderson, 2015, p. 11). It forces people who do action research to “think about the knowledge they have generated that can be fed back into the setting (local knowledge), but also what knowledge they have generated that is transferable to other settings (public knowledge)” (Herr & Anderson, 2015, p. 11). Action research not only transfers knowledge into other settings but also seeks to transform practice through this knowledge transfer. This research project generated many examples of knowledge transfer and practice transformation.

6.3 Transforming practice

The transformation of practice because of the co-research processes used throughout an action research project is a key intent of action research. Habermas’ theory follows the belief that communicative action is based on emancipatory opportunities for free speech (Habermas, 1984). For a topic as taboo as incontinence, freedom of speech through communicative action allows the opportunity for transformation of practice. I say this because where we have allowed freedom of speech in the ARWG, I have seen the group reach a consensus on a topic that was previously difficult for them to talk about, even as healthcare professionals.

The creation of the continence assessment tool is a good example of how this research allowed freedom of speech in a public sphere. All members of the ARWG had important points to contribute that were valid in their own clinical assessment of a patient who experiences incontinence or a continence concern, and each person thought their assessment was the most important. To ensure everyone in the ARWG felt heard but also to give other members of the ARWG space to learn from each other’s practice, it was essential that they had the opportunity to share what they felt was significant. In the process of refining the assessment tool, we learnt from each other exactly what we felt was pertinent to the assessment of a continence concern.

While we were unable to include all 40 questions that members of the ARWG wanted in a continence assessment tool, the development processes of this assessment tool

did allow each of the clinicians involved to attain a more in-depth understanding of their own approach to clinical assessment of a continence concern. This included implementing a falls risk assessment, something many of them had not previously included when conducting a continence assessment. Through their involvement in the research project, most people in the ARWG were able to incorporate a change in their own practice having been involved in the design of the clinical assessment tool. This is a good example of transforming practice through the process of action research.

A further example of translating research into practice was observing how different ambulance clinicians started to integrate a change in their clinical questioning of patients when they were working with me. Although not part of the research data, anecdotally, in practice, when I was working with other ambulance clinicians, I noted a change in clinical questioning of patients. This change was specifically around patients' toileting habits, mobility, and access to the bathroom. Previously, I had anecdotally noted that ambulance clinicians did not openly discuss these things when assessing a patient.

I also noticed a similar change at our ambulance stations in the Horowhenua when people were debriefing calls they had attended where someone had fallen. Instead of the general discussion about 'Oh yeah, I did another lift assist today, and we didn't transport them to hospital', the discussion changed to, 'We picked up a patient off the floor today, helped them to the toilet and talked to them about what help we might be able to give them to get to the bathroom easier'. Through my observations while working in the ambulance environment, I noticed a once seemingly taboo subject became something my ambulance clinician colleagues appeared to be more comfortable talking to their patients about. One step toward empowering positive change through emancipation.

Another observation I made was that the ambulance clinicians who were involved in the project, whether in the ARWG or through completing the survey, began to openly discuss their involvement in the project and how it had inspired them to want to know more about continence concerns and how they, as clinicians, could do better at assessing the impact incontinence has on their patients.

As an example of the influence of this doctoral action research project and the ARWG relationships, I was recently engaged by Continence NZ (CNZ) to undertake a research

project. As part of this project, I ran focus groups to assess the general public's perceptions of support for continence concerns in Aotearoa New Zealand and to identify how much the public knew about the support services offered by CNZ.

Findings from this project, as discussed in the report by Williams and Fear (2023), highlight that one of the key themes continually presented in focus groups was the importance of people being given the opportunity to speak about their experience with incontinence and how this impacted their lives. This was clearly emancipatory for them. Many had never had the opportunity to share their experiences with their continence concerns and the lack of support throughout their journey. Being asked to lead the project for CNZ was a privilege and an excellent example of how communicating research, raising awareness and producing change in the wider community can occur because of doctoral action research being translated into practice.

As a researcher I care about people and making a positive change for them in their lives. This was highlighted for me when the Chief Executive Officer of CNZ called to ask me to work on the CNZ project because they had heard of the research that I was doing in the space of continence concerns for people in the community. Another example is a continence nurse in Hawkes Bay who reached out to me to help problem-solve a difficult case she was working on within the community to see if I had any practical ideas as someone who works in the community with people as part of my ambulance role.

All of the above are simple examples that illustrate a translation of my research into practice and the importance of how a doctoral journey can impact practice change in more than one space, for more than one profession and more than one person.

6.4 Specific examples of practice change from this research project

A specific example of practice change from this research project was something that occurred in the third cycle of the ARWG meetings. In this cycle, there was some discussion about the use of methenamine hippurate, commonly known as HIPREX, a medication used to treat and prevent Escherichia Coli (E Coli) UTI (Heltveit-Olsen et al., 2022; New Zealand Formulary (Version 145), 2024).

HIPREX is helpful for people who have had a UTI more than once in the last six months or have recurrent UTIs. Recurrent UTI is defined as greater than three episodes of symptomatic, laboratory-confirmed lower UTI in one year, or greater than two episodes in six months (HealthPathways, 2024; Heltveit-Olsen et al., 2022; Wynn et al., 2024).

HIPREX is particularly useful for managing recurrent E Coli UTI, because of the specific mechanism of action of the medication and how it acidifies urine to make an environment that is not hospitable for E Coli bacterial growth (Wynn et al., 2024). This discussion was informative for the group and was facilitated by one of the women's health nurses. This conversation prompted two of the other participants, a practice nurse and a community liaison nurse, to speak to their clinical managers to implement a local protocol that includes prescribing HIPREX for people in the community who present with recurrent E Coli UTIs. This is an excellent example of translating research into practice through collaborative action in an ARWG.

Further to the HIPREX discussion, it was suggested by another member of the ARWG that I investigate regional HealthPathways to review the information general practices (GPs) have access to about assessing falls and assessing urinary incontinence. On investigation, HealthPathways in the '3DHB region' which includes Wellington, Kapiti Coast, Hutt Valley and Wairarapa localities, do not have HIPREX in their management of recurrent UTI (HealthPathways, 2021b, 2022, 2024).

At the time of writing, outside of the 3DHB regions HealthPathways aforementioned, members of the ARWG explored their local regional HealthPathways on my behalf. They reported back that none of the regional HealthPathways guidance for managing recurrent UTIs utilise HIPREX in the management of recurring UTIs. By approaching the regional HealthPathways team with supporting information and requesting to incorporate HIPREX into the management of recurrent UTIs, another opportunity for translating research into practice was provided because of this project. This is an action point targeted for follow-up after submission of this thesis.

After reviewing regional HealthPathways for recurrent cystitis in women (HealthPathways, 2024) and because of discussions had in the ARWG meeting when planning cycle three, the ARWG also reviewed regional HealthPathways in their local area for the management of urinary incontinence in both women and men. What the

ARWG noticed was that there was no reference to performing a falls risk assessment as part of the guidelines for managing urinary incontinence in men or women (HealthPathways, 2021b, 2022). This was surprising, because when we reviewed the falls risk assessment and reduction pathway, there was a reference to urinary urgency or incontinence being a risk factor for falls (HealthPathways, 2021a). This indicated that there is a lack of cohesion between the different regional HealthPathways, most likely because they are authored by different people and not interlinked with each other.

A further review of pathways and guidelines available for managing urinary incontinence from the National Institute for Health and Care Excellence (National Institute for Health and Care Excellence, 2021), The Royal New Zealand College of General Practitioners (The Royal New Zealand College of General Practitioners, 2022), the Royal Australian College of General Practitioners (RACGP) (Royal Australian College of General Practitioners, 2019) and BPAC (Best Practice Advisory Centre, 2016) also revealed that none of these documents had any discussion about falls risk assessment in collaboration with an assessment of urinary incontinence (copies of these documents are in Appendix GG). The RACGP guideline mentions falls risk in two places but does not incorporate or refer to the importance of falls assessment. This means there is an opportunity for a review of these guidelines to be submitted, and this is scheduled for after thesis submission.

The recommendation to these organisations would be to emphasise the importance of including a falls risk assessment as part of a urinary incontinence assessment. The rationale is provided from the World Falls Prevention Guideline (Montero-Odasso et al., 2022). This guideline highlights urinary symptoms and incontinence assessment as an important part of multifactorial falls risk assessment (Montero-Odasso et al., 2022). Supporting evidence is discussed in a systematic review and meta-analysis by Moon et al. (2021) who investigated the impact of urinary incontinence on falls. They found that urinary incontinence was “significantly associated with falls” (Moon et al., 2021, p. 1)[with an odds ratio of 1.62; 95% CI [1.45-1.83] (Moon et al., 2021).

Although these suggestions may seem like yet another assessment for a clinician to complete in an already time-pressured environment, the reality is that a falls risk assessment can begin before the patient sees the clinician. The patient can start a

simple tick box form as per the ask, assess, act module designed by the Health Quality and Safety Commission (HQSC). This can be done while they are sitting in the room with the ambulance clinician or in the waiting room of a GP.

The good news is that ambulance clinicians trained in Aotearoa New Zealand are already educated with the ask, assess, act module taught as part of falls risk assessment to undergraduate students as part of the Bachelor of Health Science in Paramedicine degree at AUT University (K. Holden, personal communication, August 8, 2024) and HHSJ staff have had the same training as part of their ongoing clinical education (Hato Hone St John, 2023b).

The HQSC ask, assess, act module is intended to screen for falls risk by asking three questions. If the person answers yes to any of the first three questions (Have you slipped, tripped or fallen in the last year? – Can you get out of a chair without using your hands? – Have you avoided some activities because you might lose your balance AND Do you worry about falling?) then a further assessment must occur. The clinician has a duty of care to ensure this happens as part of the reducing harm from falls project run in conjunction with the Accident Compensation Corporation (ACC), Health and Quality Safety Commission (HQSC), and Ministry of Health (Health Quality and Safety Commission New Zealand, 2018).

At the beginning of this research project, I investigated the material produced by HQSC around falls prevention as part of the Live Stronger for Longer programme. At the time, I looked at the content of the ask, assess, act form, and it did not contain any questions about continence assessment – but did ask people if they sometimes have to rush to the toilet (Appendix S contains a copy of the ask, assess, act form). Given that there is a question about having to rush to the toilet, this opens an opportunity to incorporate further questions about continence concerns as part of this assessment. If the answer to this continence screening question is positive, it could be used as an indication for further assessment of continence concerns - and is a good place for the assessment tool designed by the ARWG to be implemented. This is a further example of an opportunity for translation of this research into practice and for promoting practice change. It also aligns with the aims of the World Guidelines for Falls Prevention and Management (Montero-Odasso et al., 2022).

6.5 Practice change of the action research working group

It is important to note that the translation of research into practice from action research is not specific to assessment tools and screening opportunities. It also applies to the people involved in the research project. To establish what changes people in the ARWG had made in their practice, I asked them in the final reflections in cycle four, if anyone had changed anything further in their practice since being involved in the project.

Initially, there was a lot of crosstalk in the group, followed by a discussion about how frailty is a problem and the disparities in care people experience within our healthcare system. The disparities in care discussed were the differences between when ACC funds someone's care and when their care is funded by Te Whatu Ora | Health New Zealand or other funding sources. When someone's care is funded by ACC because of an injury (like a fall), which results in frailty, as opposed to a general decline in health resulting in frailty, it seems to be easier for people to access continence products and other aids for daily living.

Another topic discussed by the ARWG was how much more aware they all were of frailty in patients who presented to them in a clinical setting. Many were already seeing frailty but did not know it. However, when they became aware of frailty in a patient, they began to take action to assist the patient sooner because of their participation in this research project. The topic of frailty could be a relevant topic for a future research project.

This point demonstrates evidence of critical reflection by ARWG participants, which is essential in a CPAR project. Xiao et al. (2012) discuss how the research team's ability to self-critique and change their practice is important. They state:

> Effective critical action research relies heavily on critical reflection and egalitarian relationships with other stakeholders. Any research team who uses this methodological approach must demonstrate a capability to self-critique and to facilitate collaborative critical reflection with other stakeholders to transfer new knowledge from this critical reflection into actual practice. (p. 332)

The following statements were made during reflection in the ARWG meetings. They pertain to how the members of the ARWG changed their clinical practice. The quotes are presented verbatim from the meeting transcript:

> *"I'm really aware and looking at people as a whole person, you know the whole frail thing, you know the way they walk in, and you're, you're asking more questions about falls, um Celeita's got in my brain a bit, I think"*
>
> *"I think especially since my dad's had a fall as well, um recently, he did a hip a few months ago, and it's a big problem, seeing all these olds in Kenepuru, these sad little old men with nobody visiting them. You know if we can keep them at home, goodness me and prevent the problem"*
>
> *"I'm much quicker at trying to refer them to get an assessment completed for falls and incontinence"*
>
> *"I've changed by including a referral to Continence NZ website and giving them their phone number"*
>
> *"I do more medication deprescribing"*

The comment regarding medication deprescribing is an important one, and although ambulance clinicians are not deprescribing medications, consideration of patient medications and the contribution medications can make to falls is important. For clinicians in the ARWG who are prescribing, deprescribing medications is a critical change in practice because it is known that older adults who are prescribed three or more medicines are at a higher risk of falls (Pelton & Knihtila, 2018). This risk increases further if those medications encompass sedatives or psychotropics – particularly benzodiazepine–based mediations, anticholinergics – predominantly oxybutynin, and antihypertensives – mainly beta blockers and angiotensin-converting enzyme inhibitors when combined with a diuretic (Best Practice Advisory Centre, 2015, 2024; Montero-Odasso et al., 2022). This demonstrates that careful deprescribing can reduce falls risk.

The point discussed regarding early referral to other service providers for continence assessment is also important to note. Studies by Shaw et al. (2007) and Nguyen et al. (2013) highlighted that there is variation in understanding of the impact urinary incontinence has on a person and when a referral is required. This is also reported by Williams and Fear (2023), who found that many people who were brave enough to

disclose a continence concern to a member of the general practice team often did not get heard or understood, and very few onward referrals were made.

What stands out is that even the clinicians involved in this project (acknowledged experts) were changing their practice to incorporate earlier assessment and referral of people who experience continence concerns. This is a positive change and important for people who experience urinary incontinence and present to the GP for further assessment or management of their condition.

Perhaps the most memorable moment of practice change demonstrated by a member of the ARWG was the clinician who went on to complete postgraduate studies in health communication. They noticed the importance of communicating clearly and directly with other clinicians to improve health outcomes for people requiring continence care. They also noticed that ambulance clinicians play a far more significant role in community continence care than they had previously identified. This changed their perspective on the role of an ambulance clinician in the assessment and management of continence concerns in the community. They said:

> *"I've changed the way I communicate with other healthcare professionals and started writing clearer and more direct instructions. Participating in this study has also inspired me to do some further study around health communication and how this can impact health service delivery to better empower our patients and change perspectives that living with incontinence, regardless of the cause, is not normal. I've also been more interactive with paramedic staff and how they can help us empower our patients more and be advocates for those living with continence concerns"*

This person's experience is another good example of the impact involvement in an action research project can have on clinicians. At times, the changes those involved in the research project made in their practice were quite substantial and across different fields of clinical healthcare. We saw that simple communication, such as an unassuming 'tearoom chat', could empower change in others.

These changes were then made by people in their own practice and integrated across different fields of clinical practice. Knowing this, I could not help but imagine the change that even just a 'tearoom chat' could have on empowering other people's clinical practice too. This is the sort of thing that can change people's perspectives. For myself, one important area of change in my own practice, because of this research

project, concerns the care of Māori patients. This is another area of change I have championed and transformed in my own practice, and I also learnt that the considerations of the continence assessment tool and the impact this may have for Māori are important to discuss.

6.6 Considerations of the Continence Assessment Tool for Māori

Early in this research project, in preparation to present to at the Mātauranga Māori Committee[3] at AUT University, I conducted a literature review to establish what information was available about the health of older Māori in relation to falls and incontinence. I was intrigued to find a report produced by Forster and Ratima (1997) which highlighted the impact of health promotion to Kaumātua[4]. This report discussed the importance of the health of older Māori to provide "protection from preventable infectious disease and the reduction of disability from incontinence" (Forster & Ratima, 1997, p. 4).

It is worrying to note, that in 1997 concerns for Māori health related to mobility and incontinence were raised, that still need addressing today. At this stage, I can only surmise as to why this might be, but I know that there is Whakamā[5] and taboo around discussing such personal problems within Māori culture (Tauroa & Tauroa, 2009). To overcome this situation, it is essential to understand how best to engage with Kaumātua, and fortunately, some guidance and advice are available to researchers and clinicians alike. While these documents are helpful and provide good guidance, the true understanding of and engagement with Māori and the journey of developing an understanding of Māori culture and respectful engagement really lies with the clinicians themselves.

It is known that incontinence or continence concerns are likely to affect Māori disproportionately to other ethnic groups within Aotearoa New Zealand (Anderson et al., 2021; Lara & Nacey, 1994). Furthermore, "Māori experience the health and social

[3] Mātauranga Māori Committee is an advisory committee at AUT University who assist with ensuring the ethical responsibilities of the researcher align to vision Mātauranga. The Mātauranga Māori is dedicated to ensuring the embedding of Te Tiriti o Waitangi within the University. This includes Te Aronui (the AUT Tiriti Framework) and the response to that – Te Titriti Ora. The Mātauranga Māori Committee is committed to supporting researchers to uphold their responsibilities to Māori whānau and communities by promoting health equity and mana through their research.
[4] Kaumātua is the Māori word for elders.
[5] Whakamā is a Māori term used to describe the feeling of being ashamed, shy or embarrassed.

conditions associated with older people from an earlier age… and therefore will require services for older people at an earlier age" (Forster & Ratima, 1997, p. 2).

These points have previously been documented by the New Zealand Continence Association (2009), with the experiences of Māori when trying to access continence care further explored in a study by Williams and Fear (2023). Unfortunately, not everyone has a positive experience when seeking continence care, and when the subject is difficult to talk about and has a level of Whakamā, it can be even more challenging to navigate the healthcare system for help.

Through my limited experience treating people in the community who have continence concerns, I have noticed that many people prefer to care for their continence concerns at home to conceal the problem. I have noticed this is prevalent within the Māori population because the usual methods of access to continence care have a history of being seen as ineffective and are still seen as inappropriate for Māori today (Esplin et al., 2017; Forster & Ratima, 1997; New Zealand Continence Association, 2009; Sachdev, 1990; Williams & Fear, 2023).

A lot of the experience of inappropriate continence care is because of Whakamā. The word Whakamā is a Māori term used to describe the feeling of being ashamed, shy or embarrassed (Moorefield, 2024). It has previously been documented that incontinence impacts Kaumātua and their ability to participate in activities at the Marae, including sleeping in Te Whare Moe[6] (Forster & Ratima, 1997; Tauroa & Tauroa, 2009). What is important to consider when utilising an assessment tool to discuss continence concerns with Māori is the need to follow a Tikanga Māori approach framed using a Māori-centred consultation known as a Hui Process (Parry et al., 2014). The aim of the Hui Process[7] is to ensure the Meihana Model[8] is followed and a Māori-centred approach is used (Pitama et al., 2014). While it will not remove the feeling of Whakamā, it will help to show an understanding of Māori culture and the trust needed to discuss a topic like incontinence or a continence concern.

[6] Te Whare Moe is the Māori word for the sleeping house.
[7] The Hui Process is a framework to guide clinical interaction with Māori derived from engagement and relationship building principles of Te Ao Māori.
[8] Meihana Model is a clinical assessment tool, it goes hand in hand with the Hui Process, which is a method of engaging with Māori patients but can also be used more widely.

Pitama et al. (2014) detail the Hui Process to include a Mihimihi[9] (initial greeting engagement), Whakawhānaungatanga[10] (making a connection), Kaupapa (attending to the main purpose of the encounter), and Poroporoaki[11]/Whakamutunga[12] (closing the session). This model has been developed for use by non-Māori and Māori clinicians and is founded from the Te Whare Tapa Whā model (Kingi et al., 2018; Pitama et al., 2014).

"Tikanga Māori represent the ethical values that keep us safe in interactions and relationships. Tikanga are tangible – they are present in Māori actions and behaviours and are how Māori live out being Māori" (Health Quality and Safety Commission New Zealand, 2023a, p. 3). Tikanga Māori in combination with Manaakitanga[13] is essential to ensure Mana[14] is upheld. This is particularly important in the case of a subject as Whakamā as incontinence.

Acknowledging the importance of the Hui Process to gain trust and rapport to ensure that people feel comfortable sharing personal information is essential when we, as clinicians, are working with Māori. I feel that following a Hui Process will be essential for completing a continence assessment tool. Discussions I had with the Māori member of the ARWG and other Māori clinicians noted that as long as a continence assessment is completed in a respectful way, it would be acceptable to incorporate this into clinical assessment for a Māori patient seen by an ambulance clinician. It is essential that this involves acknowledging that the subject may be Whakamā, but also reassurance is provided that what the person is experiencing is common but not normal and can be managed.

Another key area is the use of the Guide for Health Professionals Caring for Kaumātua | Kupu Arataki Mō te Manaaki Kaumātua (Health Quality and Safety Commission New Zealand, 2023a), and also terminology familiar to Māori, such as Māori words which are familiar and culturally acceptable. Kupu (words) used to discuss incontinence should include: Mimi (urine), Tiko (defecate), Turuturu (leak), Māturuturu (trickle),

[9] Mihimihi is the Māori word for greeting.
[10] Whakawhānaungatanga is the Māori word for the process of establishing relationships, relating well to others.
[11] Poroporoaki is the formal farewell used at the conclusion of the Hui Process.
[12] Whakamutunga is the Māori word for end, last, concluding, final, finale.
[13] Manaakitanga is the Māori word for hospitality, kindness, generosity, support - the process of showing respect, generosity and care for others.
[14] Mana is the Māori word for paramount authority, authority or prestige.

Kope (pad), Wharepaku (toilet) (Health Quality and Safety Commission New Zealand, 2023b). In addition to the terminology used, Continence NZ has resources available in Te Reo Māori, which are useful for clinicians to incorporate into their clinical assessment and information giving (Continence NZ, 2024b).

Research by Penney et al. (2024) discusses the importance of "communication, connection and whakawhānaungatanga" (p. 186) when ambulance clinicians assess Māori patients. It was noted that when Māori experience "good communication in their clinical care, they felt informed, included, listened to and heard" (Penney et al., 2024, p. 186). Recommendations from Penney et al. (2024) highlight that currently, Whakawhānaungatanga is not always prioritised by ambulance clinicians because they are trained to efficiently identify critical illness or injury. This means they sometimes omit the importance of the Hui Process, especially in the presence of an immediate life-threatening condition. It is unlikely the continence assessment tool will be utilised in a situation where there is an immediately life-threatening situation, and therefore, clinicians should be trained to incorporate the Hui Process into their approach to patient care and use of the continence assessment tool designed by the ARWG.

Penney et al.'s (2024) work concludes that further work must be completed within the curriculum of ambulance clinician training to ensure "cultural safety education (focusing on communication, partnership and connection) is warranted to improve experiences and outcomes for Māori" (p.187). It is important to explore this because of the continuing inequities in healthcare experienced by Māori. Regarding the use of the continence assessment tool, ambulance clinicians are uniquely positioned to approach this difficult topic in culturally appropriate ways when they assess patients for a fall or other concern.

Matenga and Westenra (2022) also discuss the importance of integrating the Hui Process and Meihana Model into paramedic practice. They note that often paramedics are the "first healthcare professional a person interacts with" (Matenga & Westenra, 2022, p. 59) and that steps such as greeting a person and their Whānau in Te Reo Māori, the correct pronunciation of people's names, establishing connections by exploring common interests, providing treatment options, and fully engaging people and their Whānau in discussions while respecting spiritual beliefs and values is essential. They also recommend using frameworks such as the Hui Process and

Meihana Model to ensure paramedics “uphold Māori values and beliefs providing patient-centred healthcare” (Matenga & Westenra, 2022, p. 59).

While Matenga and Westenra (2022) and Penney et al. (2024) discuss the importance of respectfully engaging with Māori patients, there is limited literature available regarding ambulance clinician and paramedic education to support culturally safe practice with Indigenous populations. Spencer and Archer (2006) detail that paramedics need to action and champion positive interactions for the multicultural societies they interact with, and that cultural diversity must be taught in paramedic education to ensure people receive “culturally responsive care to incorporate ‘best practice principles’ in paramedic practice. More importantly, acceptance of these initiatives pays heed to and respects culturally diverse patients” (Spencer & Archer, 2006, p. 1).

What this means for this research project is that when the continence assessment tool is appropriately worked through in a sensitive manner following the Hui Process and utilising terminology familiar to Māori, there is no reason we as clinicians cannot be advocates for Māori who experience a continence concern or incontinence and experience Whakamā. We can really make a difference by completing a clinical assessment and providing thorough documentation and description of the concerns expressed, so that when further referrals are made, the experiences, signs and symptoms of the continence concern do not have to be repeatedly explored. This is another example of how action research translates into practice and can improve health outcomes for all people seeking healthcare in Aotearoa New Zealand.

6.7 Implications for practice

It is strongly recommended that the continence clinical assessment tool is fully integrated for use in the ambulance service and clinicians working in general practice in Aotearoa New Zealand. To strengthen the case to introduce the clinical assessment tool, it is proposed that it is formally validated and that this is completed in a post-doctoral project. When the training module for the introduction of the continence assessment tool is developed, it must be built on the foundations of the Hui Process and the Meihana Model. This is of particular importance and needs to be followed when engaging with Māori who may be experiencing incontinence or a continence

concern. Careful education is needed about the importance of Te Whare Tapa Whā and how a continence concern can impact a person. Undergraduate paramedicine education also needs to embrace more understanding of and incorporate more education about Māori healthcare models (Matenga & Westenra, 2022; Penney et al., 2024).

When the continence assessment tool is introduced to the ambulance service, it must be integrated into the ePRF with a referral pathway connected to a nationwide continence service connector such as Continence NZ. The continence service connector should provide follow-up phone calls to people who have been identified as at risk for continence concerns. This would help to relieve the responsibility on the person to contact their general practice (GP) for follow-up care, and as a safety net, the ambulance clinician could call and make an appointment for follow-up continence care, as it is known that there is a higher rate of GP attendance and reduced rate of ambulance re-presentation when the ambulance clinician makes a direct GP referral on behalf of the patient (Delardes et al., 2023). It is also recommended that further investigations are conducted regarding the impact of ambulance delays for the person who has fallen because of the risk of secondary harm associated with incontinence, which occurs as a result of a fall, as opposed to as the cause of the fall.

It is further recommended that continence assessment is specifically included in the undergraduate curriculum for the Bachelor of Health Science in Paramedicine and postgraduate paramedicine training programmes offered in Aotearoa New Zealand, and an improved approach to discussing falls risk and continence concerns occurs in this educational setting.

6.8 Priorities for Further Research

As a priority, further research needs to investigate potential harm to patients as a result of ambulance delays. A retrospective review of ePRF data could detail how long falls patients lie on the ground. Data could be ascertained from the time of the fall, the time of the ambulance call, to the time it took the ambulance to arrive. Correlations could be made to 30-day mortality rates.

A further priority for future research is the need to study the appropriateness of falls assessment for Māori patients, and data representing Māori falls patients' treatment and outcomes needs to be prioritised for investigation by researchers.

6.9 Doctoral Research Influencing Practice Change

Throughout the course of this doctoral study, there have been challenges and opportunities for growth and development in the ambulance sector. One thing that came to the forefront throughout the duration of this research project was that ambulance clinicians are highly educated, independent practising clinicians who already provide a high level of assessment and treatment for people in the community. They can autonomously conduct patient assessment, and as clinicians, they are finally being recognised from the bygone days of the ambulance driver – as the independent, advanced practising registered clinicians they are (Kaunihera Manapou - Paramedic Council, 2024).

Those who trained as paramedics and extended care paramedics and who traditionally worked in the ambulance setting simply as 'ambulance clinicians', are now being integrated into more prominent primary healthcare roles, including general practice (Collaborative Aotearoa, 2024). Research can make an impact by promoting and integrating change in clinical practice, and brave people, being empowered to make positive changes through engaging in research, can truly create new opportunities for a profession. Introduction of the continence assessment tool, collaboratively designed by the ARWG, is an excellent opportunity for integration of best practice in the paramedicine profession, cutting across traditional healthcare discipline boundaries.

Interest in this research project has attracted falls and frailty teams throughout Aotearoa New Zealand, who are awaiting the assessment tool's publication so they can integrate it into their clinical practice. Furthermore, at the time of writing the ACC is interested in incorporating the clinical assessment tool designed by the ARWG into the Nymbl app extension called Nymbl bladder (Accident Compensation Corporation, 2023; Nymbl Science, 2023). The assessment tool is currently the intellectual property of the ARWG, and at the time of writing, we could not reach a consensus within the team about the risks and benefits of ACC integrating the assessment tool into the Nymbl app without a reliable permanent follow-up pathway in place to prevent further

harm occurring. It is recommended that if the assessment tool is integrated into any application or clinical practice, it must have a follow-up pathway in place where a patient will be seen by a medical professional who will listen to their continence concerns and take action to address concerns raised.

Alongside the ACC's interest, many general practices have expressed an interest in integrating the assessment tool into their own guidelines to ensure they can better assess and treat a person who is experiencing continence concerns. At the time of writing this thesis, negotiations are ongoing with ACC and Nymbl as to how the assessment tool can best be integrated into the app to benefit the most people and what referral pathways need to be in place (B. Miskimmin, personal communication, December 7, 2023). This is an exciting opportunity and an unexpected outcome of this research project.

6.10 Conclusion

Throughout this CPAR project, the ARWG and ambulance clinicians established an understanding of the impact of urinary incontinence on falls, as seen by ambulance clinicians. The ARWG also designed and developed a clinical assessment tool which was vetted by frontline ambulance clinicians working in the Horowhenua Region, in Aotearoa New Zealand.

The key themes identified from the two surveys conducted within this project provide insights into how ambulance clinicians think an assessment tool can be utilised to assess continence concerns and the impact this may have on preventing further falls in the community. The findings from this project have indicated that there is more research required regarding the ambulance response to falls, as it has been noted that there may be harm occurring due to ambulance response delays.

Ultimately this research project initiated a change in clinician practices both within the ambulance service and with the clinicians involved in the ARWG. This was done through the study of the current ambulance clinician practices around the assessment of the patient who slips, trips or falls and may experience a continence concern, but does not disclose it unless asked.

This CPAR project was built on a pre-existing partnership with the local ambulance staff. It further extended to engage other external participants as co-researchers who

were well-versed in incontinence and falls, and the impact these had on people in the community. What I did not know at the time of recruiting the ARWG, was just how impactful this co-researching would be and how much of a contribution the people external to the ambulance environment would have. It was not until I was reflecting on the data and writing about reflexive thematic analysis that it made sense as to why having such a predominantly nursing-qualified ARWG was important to the project. They were the ones who ultimately helped me answer the research question to determine how can the development of a clinical assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community.

To close, I want to draw on the description of CPAR provided by Kemmis et al. (2014). They describe CPAR as a research approach that:

> does not stand back from practice but joins the action, helping to reconstitute practice through informed collective human agency. The goal is the immediate and continuing betterment of practice rather than merely being informed about practice. Because changing practice is the focus, we must put ourselves into the workplace and consider what kinds of information we (and others) might need. We need to take into account not just what people might think about the current situation, but how they might respond if we begin to initiate changes. This requires an understanding of individual views and shared social understandings. (p. 73)

This summarises exactly what I wanted to do and did achieve with my doctoral research project.

Chapter 7 My Personal Reflections from this Research Journey

7.1 Introduction

The following is a narrative that describes my journey and personal growth toward understanding Māori culture. I decided to separate this element of personal learning from other reflections in Chapter 6 because it is written in a different language and it is very important to express this in such a personal way. As part of this reflection, I will discuss how this has helped me develop as a researcher, a clinician, and an educator. Part of my learning was regarding the importance within Māori culture of sharing personal processes, which is why there is so much detail included in the following discussion.

In Māori culture, personal storytelling is an essential part of Whakapapa[15] – which is more than just genealogy. It is about identity and how people are connected to their ancestors and their community. "Including your personal journey in your work is not just a narrative choice; it's a way to honour your Mana and Mauri[16], bringing cultural authenticity to your research" (C. Irving, personal communication, September 13, 2024). Storytelling in Māori culture is key to passing down knowledge, values, and wisdom. For many Indigenous cultures, including Māori, personal stories are a powerful tool for conveying meaning, not just in daily life but also in academic work (King, 1992; Smith, 2012). This is my story.

Kia Ora,	Greetings, hello,
Ko Ruapehu Te Maunga,	Ruapehu is my mountain,
Ko Rangitikei Te Awa,	Rangitikei is my river,
Ko Williams Toku Whānau,	Williams is my family name,
Ko Byron Tōku Tane,	My husband is Byron,
Ko Celeita Toku Ingoa,	My name is Celeita,
Ko Mitchell Tōku Tamaiti,	I have a child called Mitchell,
Nō Ōtaki ahau.	I am from Ōtaki and that is my home.

[15] Whakapapa is the Māori word for genealogical descent, genealogical links, lines of descent, to trace genealogical connections.
[16] Mauri is the Māori word for life principle, life force, vital essence, special nature, a material symbol of a life principle, source of emotions - the essential quality and vitality of a being or entity.

7.2 My journey toward understanding Māori cultural values

A key practice change that occurred for me as a clinician and a researcher was the development of my own understanding and respect for Māori health and culture. This developed as I sought to be culturally respectful throughout not only my research journey but also in my role as an ambulance clinician. In the early stages of my thesis journey, I was fortunate to attend a workshop where the results of a significant inquiry process conducted by the Waitangi Tribunal[17] were presented. The summary we were presented is known as WAI2575. This document highlighted significant disparities in healthcare access and provision of care for Māori, which extend to breaches of Te Tiriti o Waitangi,[18] some of which occur within the primary healthcare setting (Came et al., 2020). I recognised that the findings in the WAI2575 report were important to my research and to my roles as an ambulance clinician and educator.

This report emphasised to me that there is a significant gap in understanding Māori culture and healthcare needs in the education of ambulance clinicians. It was not just those like me, who were educated years ago, but also those being trained now in the undergraduate paramedicine curriculum. I also noticed gaps in my own knowledge of Māori culture. As a result of this realisation, I embarked upon a personal journey of learning and growth in cultural awareness, starting with learning more about the structure and function of a Marae[19] and Māori living. This journey was essential to gain the trust, rapport and respect of people in the community who engage with the ambulance service.

My personal journey toward understanding Māori culture started with an invitation to attend a planning meeting at MidCentral District Health Board (MCDHB). This meeting was a workshop dedicated to "shaping our future" with respect to healthy aging and rehabilitation. At this meeting, I made some great networks to assist me on my journey of understanding Māori health and culture within health, and those I met pointed me in the direction of Pae Ora Paiaka Whaiora Hauora – Māori Health Directorate (Pae Ora) at MCDHB.

[17] Set up by the Treaty of Waitangi Act 1975, the Waitangi Tribunal is a permanent commission of inquiry that makes recommendations on claims brought by Māori relating to Crown actions which breach the promises made in the Treaty of Waitangi

[18] Te Tiriti o Waitangi –Is the term used for the treaty written in Māori that Rangatira signed on behalf of their Hapū and Captain Hobson signed on behalf of Queen Victoria and the British Crown, it is also known as Aotearoa New Zealand's founding document.

[19] Marae is the traditional meeting place of Māori people.

I felt nervous heading into my meeting with the Pae Ora team. Although I was graciously invited into their workplace, I felt like the minority – a non-Māori entering the Māori world. I had my eyes opened as to how it might feel like to be the minority. Something I had not experienced before in my life.

The team were very gracious, warm, and welcoming. However, I stuffed up. I was given the opportunity to introduce myself and read that opportunity wrong. I began to introduce myself through my research topic and journey. Internally, I thought I was there with one intention – to respectfully let them know about my research project.

My introduction was quickly halted by a member of the team. Why? Because I did not first talk about myself, where I came from, who my family was, where I belonged and how I got to where I am today. This was my first step in the journey of understanding Māori culture and the importance of Whakapapa. Despite reading Māori culture books and talking to a few people in preparation for this meeting, I really did not know anything about why, in the Māori world, who you are as a person is more important than you as a researcher.

Being halted in my self-introduction threw me off. I was then encouraged to talk about who I am as a person and why I was there – and the team knew it was not just about my research. They were able to identify that I had a genuine and honest concern about how we, as ambulance clinicians, need to make a change to better our practice and care for Māori patients. However, it was highlighted to me that to make an effective change and address this issue, I needed to embark on a personal journey of understanding Māori culture. For the first time I truly realised that you cannot understand and improve Māori health outcomes without first understanding Māori culture and why things are done the way they are.

This was a moment of revelation for me. As I sat in the meeting room with the team, I felt vulnerable. It was from this feeling of vulnerability that I began to develop an understanding of what it might feel like to be the minority and not know how to navigate through a system or challenging situation that is so different from your own cultural norms.

I learnt that my cultural norms are very different to those of Māori. Moreover, I have also learnt that I need to adopt more of Māori culture into my life. I need to do this to

truly understand the way the culture is and why things like Te Whare Tapa Whā[20] are essential to the health and well-being of Māori. And not only Māori – I see they have application to my own life and world view too. I also began to realise that everything I knew about Te Tiriti o Waitangi from being schooled in the 1990s and at the polytechnic in the early 2000s was only partially correct.

While sitting in the meeting with the Pae Ora team, I noted advertisements on the wall for Te Tiriti o Waitangi and cultural competency workshops. As the meeting ended, I enquired more about the opportunity to participate in a workshop. After a brief discussion about how a non-MCDHB staff member could participate in these workshops, I suggested I could use the 'umbrella' terminology of allied health, and as a result, the Pae Ora team put forward a case for me to participate in the workshop in a couple of months' time. I was humbled by their willingness to help me start my own personal journey of understanding Māori culture and healthcare needs.

7.3 Facilitating cultural change and understanding

On the day of the workshop, I once again was nervous. However, when I arrived, I walked into a room where I was met by a few familiar faces. This put me at ease and gave me the opportunity to further network with MCDHB staff I had met at previous networking meetings. I listened intently as we each introduced ourselves around the room, and not one person begun with their Pepeha[21]. Most people introduced themselves within their work capacity, then as a person. Having previously learnt that your introduction needs to be about you as a person and your Whānau[22], and only then the work you are doing – how other people introduced themselves at the beginning of the workshop made a big impact on me. I was intrigued to see how the change in my thought processes around respecting and understanding the importance of Māori culture had already begun.

This respect and understanding deepened further throughout the first day of the workshop. The talk of Rangatiratanga[23], Mana, Whānau, Hapū[24] and Iwi[25] really hit

[20] Te Whare Tapa Whā is a model of health that represents health and wellbeing as a wharenui (meeting house) with four walls.
[21] Pepeha is a way of introducing yourself in Māori. It tells people who you are by sharing your connections with the people and places that are important to you.
[22] Whānau is the Māori word for family, extended family.
[23] Rangatiratanga is the Māori word for sovereign authority, including duties of guardianship.
[24] Hapū is the Māori word for nation/s, tribe/s, kin group/s.
[25] Iwi is the Māori word for confederation/s of Hapū, nations, tribes.

home for me. I, a Pākehā[26] involved in the delivery of healthcare services, have been expecting that different ethnicities and cultures would all interact with me and respond in the same way. I knew I immediately had to make a change in my practice and facilitate this change through to my ambulance clinician colleagues.

I decided that we as professionals really need to stop this 'one size fits all' approach to healthcare and reflect on why things are the way they are for Māori in New Zealand. We need to open our eyes to the statistics and Māori healthcare outcomes and get real. l say this because this workshop really opened my eyes to the discrepancies throughout He Whakaputanga (Declaration of Independence), and also Te Tiriti o Waitangi, which ultimately impact on the care Māori patients receive.

I am ashamed that this inequity within our lives has persisted for so long before the Ministry of Health and other organisations have taken the time to bring clarity around what it means to be culturally safe around the founding document of our nation. For a document that was created to ensure a relationship that was intended to be ongoing, reciprocal, based on trust and good faith and mutually advantageous, this is certainly disappointing.

From this disappointment, I began thinking about how we, as healthcare professionals, can move forward. However, to begin moving forward, I needed to have a better understanding of what has happened in the past. For me, this goes back right to the beginning of identifying who is Māori and what this means.

I would like to highlight the importance of how we identify who is considered Māori? The questions 'who is Māori' and 'how can one identify as Māori in New Zealand' were discussed as part of the Te Tiriti o Waitangi workshop. I learnt that it was not until 1974 that the government here in New Zealand established the definition of Māori to include anyone who identifies with Whakapapa. However, this just left me even more intrigued – why did it take until 1974 to be able to give those who identified as Māori identity in the government's eyes? How did we even get into this predicament in the first place?

[26] Pākehā refers to a person who is a New Zealander of European descent – the term was also originally applied to English-speaking Europeans living in Aotearoa New Zealand.

We got here because of Te Tiriti o Waitangi and the discrepancies in translation between the Māori and English versions. It is incredible to think about what might have happened if Te Tiriti o Waitangi had been honoured. Would we even be in the situation of health disparities or inequity occurring? Would we need to discuss what good cultural care is or how we can improve Māori health outcomes? Would we even need to be sitting in a workshop learning about Te Tiriti o Waitangi and where everything went so wrong! Would we need to focus on the importance of political power, economic power and upholding the cultural power of Tangata Whenua[27]?

I learnt that, ultimately, the colonisation of New Zealand was barbaric. Everybody involved in colonisation was in breach of the Te Tiriti o Waitangi. Colonisation resulted in the assertion of sovereignty, which was completed through the taking of land and the assimilation of people. Sometimes, land was acquired and sovereignty applied because there was no Christian king present to 'discover' the land, and sometimes, land was acquired through war (Belich, 2007, 2015). I could continue, but this is something people need to explore and understand on their own journey to really feel the impact that the history of Aotearoa New Zealand has on disparities in healthcare for Māori. I really am just astounded at how this occurred, and how long it is taking the government to attempt to 'fix' this situation.

I was led to wonder what happened next? Well, if the way Te Tiriti o Waitangi was handled wasn't bad enough, I was further shocked to learn about the assimilation of children in schools. More specifically, Māori children in 'Native Schools'. James Pope taught generations of Māori that unless they conformed, they would die because the way they were living and what they were doing was wrong in the eyes of those Pākehā who educated Māori (Pope, 1997). These 'teachings', summarised in a 'manual' written by Pope in 1884, ultimately disempowered Māori and their cultural values. Ultimately the teachings within this manual denied Māori access to their own cultural understandings, beliefs, and self-respect.

Te Whāiti et al. (1997) discuss how "colonisation has impacted on the wellbeing of many indigenous nations in a number of ways, including ecologically, socially, spiritually, economically and psychologically" (p. 32). It "contributed to the gross

[27] Tangata Whenua is the Māori word for people of the land, indigenous people.

distortion by the colonisers of the perceived needs of Indigenous peoples" (Te Whāiti et al., 1997, p. 32). This resulted in a loss of Māori cultural beliefs, especially surrounding Te Whare Tapa Whā.

7.4 Te Whare Tapa Whā

It is my understanding and interpretation that Te Whare Tapa Whā is one of the key underlying principles of Māori health. The model of Te Whare Tapa Whā was developed by Sir Mason Durie in 1984, and it pertains to the four cornerstones (or sides) or Māori health and is a model for understanding Māori health (Durie, 1994). For me, I would like to incorporate Te Whare Tapa Whā into my own life, my own well-being and that of my family. I feel it should be the underlying strategy we use not only in Māori healthcare, but also in our own everyday lives.

I have come to discover that all components of Te Whare Tapa Whā are essential for daily well-being and longevity (Durie, 1994), and I wish I had learnt this much earlier in my lifetime. I say this because my growth as a person – not just as a clinician, educator, and general member of society – was through the 'school of hard knocks', and having a solid foundation to keep me balanced throughout this journey would have been very beneficial.

Figure 3

Sir Mason Durie's Te Whare Tapa Whā

Note. Image retrieved from Ministry of Health (2017). Reproduced with permission.

Listed in no specific order, the components of Te Whare Tapa Whā, as detailed in Figure 3, rely on each other being equally balanced to ensure Hauora[28] is maintained. These are Te Taha Hinengaro[29]- mental health, Te Taha Whānau[30] – extended family health, Te Taha Tinana[31] – physical health and Te Taha Wairua[32] – spiritual health. Te Whare Tapa Whā fits well with my beliefs.

The reality of life is that if you don't have balance within these cornerstones of your life, then you will end up unwell and in trouble or struggle around one or more of these aspects in your life (Durie, 1994). If we look at it from the perspective of continence concerns and general clinical practice, we realise that 'health' is not just physical, and not just 'bodily' – balance is required in all four cornerstones for people to be truly well. This means we, as clinicians, need to assess the whole person and their environment, as well as aspects of their mental and spiritual health, not just their physical health.

To contextualise this a little further, we need to look at the whole Whare[33] before you can really improve any component involved in its cornerstones. Furthermore, the whole Whare needs to be in balance because if one of the cornerstones is a different height from the others, then the Whare is at risk of crumpling and falling over.

As part of my understanding, I had to learn about some other key components that are essential to Te Whare Tapa Whā. These include Te Whenua[34], which refers to the land providing a sense of identity and belonging. Te Reo[35], which refers to the language of communication – something we as Pākehā think we are doing well, but to be honest when we compare this to Māori and how they apply this to Te Whare Tapa Whā, we are performing very poorly! Te ao Tūroa[36], which refers to the environment - once again, we as Pākehā really don't utilise this to the best of our ability, in fact, our use of the land is appalling when we take into consideration the destruction that occurred as

[28] Hauora is the Māori word meaning be fit, well, healthy, vigorous, in good spirits.
[29] Te Taha Hinengaro is about how our mind connects to our heart, our consciousness and our thoughts and feelings.
[30] Te Taha Whānau is the health of our family.
[31] Te Taha Tinana relates to our growth and development.
[32] Te Taha Wairua, or spiritual essence, looks at your life force – your mauri. This is who and what you are, where you have come from and where you are going.
[33] Whare is the Māori word for house or building.
[34] Te Whenua is the Māori word for country, land, nation, state.
[35] Te Reo is the word for Māori language.
[36] Te ao Tūroa is the Māori word for light of day, world, earth, nature, enduring world, natural world.

part of colonisation and settlement way back from the late 1700s onwards. And finally, Whanaungatanga[37], which refers to extended Whānau and connectiveness.

Despite discovering many shortfalls of culturally safe care in my own practice, I had hope. I knew I could do something. Despite recognising the differences in cultural care and healthcare for Māori and non-Māori, I noted that there is still variance in what is considered healthy alignment for "different individuals, different Whānau, different Hapū and Iwi" (Te Whāiti et al., 1997). Understanding and appreciating Aotearoa New Zealand's bicultural dimension, is hugely important, but people are also individuals. It is essential that we as people "firstly recognise the bicultural dimension in New Zealand, and then secondly also the multicultural dimension" (Mapp, 2020). When we begin to recognise biculturalism, we, as both a person and a clinician, particularly clinicians involved in paramedicine or primary healthcare, can pave the pathway forward to promoting positive changes in clinical practice and the care we provide for Māori.

7.5 The Pathway Forward

Fortunately, there are many advocates for cultural connectiveness and cultural safety working within the healthcare system in Aotearoa New Zealand. Previously, I would not have considered myself to be one of those advocates. However, a change in my own practice has occurred because of my own exploration of Māori healthcare and culture. This has been extensive and extends beyond the summary I have provided above. Essentially, I have learnt that to help improve Māori health outcomes, we first need to understand Māori culture. Without this understanding, we will not be able to make positive changes for the greater good within our healthcare practices.

I know I am not alone in my desire to understand Māori culture better and to be an advocate for Māori within our healthcare system. Many people have written extensively about understanding the importance of cultural awareness and cultural safety to improve health outcomes. In the preface to the text Mai I Rangiatea – Māori Wellbeing and Development, the authors discuss "we believe that healthy development is an ongoing process that requires the delicate balancing of a number of factors that are both internal and external to individuals and whānau" (Te Whāiti et al.,

[37] Whanaungatanga is the Māori word for relationship, kinship, sense of family connection.

1997, p. preface). This is an essential point and not something new that has been highlighted. What is disappointing is that over 25 years since this preface was written, we are still seeing the need for significant development around Māori healthcare, and in particular primary healthcare, as was highlighted in the WAI2575 report.

So, one must ask how we can move forward from here.

The pathway forward should be guided by what is already there. It is important to use founding documents such as Te Tiriti o Waitangi and Māori values such as Tikanga[38] and Rangatiratanga to ensure that Māori culture is respected and engaged and not provoked further by the effects of colonisation.

It is clear that racism is still experienced in Aotearoa New Zealand. Sometimes this is inadvertent, but sometimes it is so ingrained within an organisation that it is going to take significant change to make a difference and to be inclusive of all needs of the group of people it serves. I have seen this in a number of organisations I have worked for throughout my career – both in healthcare and in academia. As a radical action researcher, I am called to be an advocate for change.

To truly make an impact and elicit change, I asked myself how I can ensure that I am inclusive of all the cultural and healthcare needs of the group of people that I am serving—those who I am trying to help who are at risk of falls because of continence concerns.

Firstly, I needed to get to know the people I was wanting to work with, as a clinician and as a researcher. I needed to know myself, what my assumptions are. I needed to learn how I can be culturally respectful to Māori in a bicultural Aotearoa New Zealand. I can do this by changing my own practice as a clinician, but also as an educator.

Secondly, I am in a position where I am respected as a professional, I am a role model, and I want to inspire those who work alongside me and learn from me to make changes in their own practice. Through my occupation, my students and colleagues and I, can make a difference together. I can empower my students and colleagues to understand and hopefully embrace the importance of being culturally respectful and

[38] Tikanga is the Māori word for law, correct way of doing things, societal norms.

understanding why things are the way they are for our multicultural society in Aotearoa New Zealand, but especially for Māori.

To ensure this change occurs, I began to include more information about Te Whare Tapa Whā in my teaching, daily life and research. I have also ensured that Māori are respectfully engaged in my research by engaging with local Iwi networks and ensuring I meet the cultural needs required for my Māori participants to feel safe engaging in the ARWG. I provided the opportunity for separate discussions and meetings for the Māori members of the ARWG, so that we could follow Tikanga Māori for Whakamā[39] topics and discussions. My Māori participants were free to express their personal perspectives and experiences as a healthcare provider who identifies as Māori. I felt privileged to gain this insider knowledge. The experiences of people who are clinicians and identify as Māori are essential because the best healthcare changes for Māori are delivered when Māori are advocating for Māori to produce a change and improvement in healthcare that is acceptable to Māori (Wilson et al., 2021).

7.6 Conclusion

The journey I travelled to develop an understanding of Māori culture was very personal and dear to my heart. It is difficult to put into words the importance this brought to me and just how much of an impact it has made. I have learned a great deal about Māori, about a bicultural Aotearoa New Zealand, but I have also learned a great deal about myself. It has been transformative. I am a better clinician, educator and researcher because of this. More than that, I am a better person. I really feel I am now better prepared to respectfully engage with people of all Indigenous cultures, not just Māori, because of the learnings I experienced throughout this thesis.

To conclude this reflection, I would like to close with a Whakataukī[40] which reflects the impact this thesis made on the action research working group, the ambulance clinicians and myself.

Ehara taku toa I te toa takitahi, engari he toa takitini.

Success is not the work of an individual, but the work of many.

[39] Whakamā is the Māori word for the feeling of being ashamed, shy, bashful, or embarrassed.
[40] Whakataukī are Māori proverbs that are often used in both formal speeches and everyday conversation.

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Glossary

The ACC – The Accident Compensation Corporation is an organisation that helps prevent injuries and get New Zealanders and visitors back to everyday life if they've had an accident.

Ambulance Clinician – For this thesis, the term 'ambulance clinician' (or 'paramedic') applies to any ambulance personnel of any qualification working in the response capacity of an ambulance vehicle. This term does not include ambulance clinicians working in general practice, clinics, pharmacies, vaccination centres or other places of work outside of an ambulance.

CareMonX EMS Suite – Is an advanced mobile electronic patient care reporting and data management solution, designed for the demanding requirements of modern pre-hospital emergency care. It encompasses a wide range of functionality for the operation of Emergency Medical Services, including real-time patient and incident data collection and transmission, incident reporting and management of fleet inventory and staff work schedules.

Clinical Practice Guidelines (app) – This refers to the national Clinical Practice Guidelines ambulance clinicians use to guide their treatment decision-making and are produced by the National Ambulance Sector Clinical Working Group (2024a).

Clinical tools section of ePRF – This is the a 'tool' where ambulance clinicians can access resources which may be relevant to the presenting case. It includes check lists, referral pathways and other clinical guidance, but does not encompass the clinical practice guidelines, as these are available in a separate app.

Horowhenua Ambulance Operations Group – For the purposes of this thesis, this pertains to any ambulance clinicians working from Foxton, Levin or Ōtaki ambulance station that provides ambulance response to the geographical region of Horowhenua, Aotearoa New Zealand.

Health Practitioners Competence Assurance Act — This is the Health Practitioners Competence Assurance Act 2003, which has a principal purpose of protecting the

health and safety of members of the public by providing mechanisms to ensure that health practitioners are competent and fit to practise their professions.

Hui Process - The Hui Process is used to respectfully engage Māori and their Whānau when receiving care. It includes a Mihimihi[41] (initial greeting engagement), Whakawhānaungatanga[42] (making a connection), Kaupapa (attending to the main purpose of the encounter), and Poroporoaki[43]/Whakamutunga[44] (closing the session). This model has been developed for use by non-Māori and Māori clinicians and is founded from the Te Whare Tapa Whā model.

MDCalc – MDCalc is a free medical reference tool online available as a website or app that is available for healthcare professionals. It contains many different scoring systems, medical calculators, and other algorithms.

Meihana Model – The Meihana model describes how the Kaupapa (purpose of the encounter) can extend standard history taking to give a broader understanding of Māori patients' presentations. It has also been specifically developed for use by both non-Māori and Māori health practitioners.

[41] Mihimihi is the Māori word for greeting.
[42] Whakawhānaungatanga is the Māori word for the process of establishing relationships, relating well to others.
[43] Poroporoaki is the formal farewell used at the conclusion of the Hui Process.
[44] Whakamutunga is the Māori word for end, last, concluding, final, finale.

Appendices

Appendix A

Ethics Approval and Subsequent Amendments

Auckland University of Technology Ethics Committee (AUTEC)
Auckland University of Technology
D-88, Private Bag 92006, Auckland 1142, NZ
T: +64 9 921 9999 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

20 September 2019
Gael Mearns
Faculty of Health and Environmental Sciences

Dear Gael

Re Ethics Application: **19/309 Impact incontinence: Can we put the ambulance at the top of the cliff**
Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC).
Your ethics application has been approved in stages for three years until 19 September 2022.
This approval is for the 1st phase of the research. Full information about future stages of this research needs to be provided to and approved by AUTEC before the data collection for those stages commences.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the Auckland University of Technology Code of Conduct for Research and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard.

AUTEC grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted. When the research is undertaken outside New Zealand, you need to meet all ethical, legal, and locality obligations or requirements for those jurisdictions.
Please quote the application number and title on all future correspondence related to this project.
For any enquiries please contact ethics@aut.ac.nz. The forms mentioned above are available online through http://www.aut.ac.nz/research/researchethics
Yours sincerely,

Kate O'Connor
Executive Manager
Auckland University of Technology Ethics Committee
Cc: celeita.williams@aut.ac.nz; Diana Austin

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7 September 2021

Gael Mearns
Faculty of Health and Environmental Sciences

Dear Gael

Re: Ethics Application: **19/309 Impact incontinence: Can we put the ambulance at the top of the cliff**

Thank you for your responses to AUTEC's conditions for the amendment to your ethics application.

The amendment to the data collection protocol (use of an anonymous survey of ambulance clinician staff) is approved

Standard Conditions of Approval.

1. The research is to be undertaken in accordance with the Auckland University of Technology Code of Conduct for Research and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard.
8. AUTEC grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted. When the research is undertaken outside New Zealand, you need to meet all ethical, legal, and locality obligations or requirements for those jurisdictions.

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

For any enquiries please contact ethics@aut.ac.nz. The forms mentioned above are available online through http://www.aut.ac.nz/research/researchethics

(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Cc: celeita.williams@aut.ac.nz; diana.austin@vuw.ac.nz

Auckland University of Technology Ethics Committee (AUTEC)

26 July 2023

Gael Mearns
Faculty of Health and Environmental Sciences

Dear Gael

Re: Ethics Application: **19/309 Impact incontinence: Can we put the ambulance at the top of the cliff**

Thank you for your responses to the amendments to your ethics application.

The final phase of action research project – an additional survey for the ambulance clinicians has been approved.

Non-Standard Conditions of Approval

1. Assurance that a link to a separate survey to enter the prize draw will be inserted at the end of the online survey. Please send this through for file.

Non-standard conditions do not need to be reviewed by AUTEC unless requested but must be completed before commencing your study.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the Auckland University of Technology Code of Conduct for Research and as approved by AUTEC.
2. All public facing documents must have the AUTEC approval number and be of a high standard of spelling and grammar. Dates on the Information Sheet(s) and Consent Form(s) must be consistent.
3. Any amendments to the project must be approved by AUTEC prior to being implemented.
4. A progress report is due annually on the anniversary of the approval date.
5. A final report is due at the expiration of the approval period, or, upon completion of project.
6. Any serious or adverse events must be reported to AUTEC, this includes unforeseen issues that might affect continued ethical acceptability of the project.
7. AUTEC grants ethical approval only. You are responsible for obtaining management permission for access from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

The application number and title need to be referenced on all correspondence related to this project.

All forms are available online http://www.aut.ac.nz/research/researchethics

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

(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Cc: celeita.williams@aut.ac.nz; diana.austin@vuw.ac.nz

Appendix B

Mātauranga Māori Committee Consultation

School of Clinical Sciences
Mātauranga Māori Committee

Project Outline for Discussion

1. Please complete the following outline of your project. It should be no longer than two pages.
2. Read the *Te Ara Tika guidelines for Māori Research Ethics: A framework for researchers and ethics committee members* (Putairoa Writing Group, 2010) to inform your proposal.
3. Email the completed outline to Gwyn Lewis (gwyn.lewis@aut.ac.nz) by the meeting's agenda deadline.

Date of application - 17.06.19
Title of project: *Impact incontinence: Can we put the ambulance at the top of the cliff?*
Research team members and affiliations: Celeita Williams, Gael Mearns, Diana Austin – AUT University
Research question or hypothesis + benefits/relevance for Māori **Research Question:** *How can the development of an assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community?* This research is relevant to Māori, as it has been found that the prevalence of incontinence "for Māori women (46.8%) was significantly greater than for either Pacific Island (29.2%) or European women (31.2%) … Of the incontinent women, 9% were continually incontinent, 28% once or more daily, and 37% more than twice monthly" (Lara & Nacey, 1994, p. 374). This indicates there is a high level of incontinence in the Māori population, higher than Europeans. It is known that incontinence can have a significant impact on people's lives including increasing the risk of falls (Batchelor, Dow, & Low, 2013), with Māori significantly represented in the number of new fall related claims lodged with the Accident Compensation Cooperation, from the 1st of July 2011 to 30th of June 2018. The total number of claims for Māori who fell and were over the age of 60 was 54,820. This is compared to Pacific Peoples at 25,582 and Other Ethnicities (excluding Asian and European) at 32,328 (Accident Compensation Corporation, 2019). Furthermore, incontinence can result in the development of a fear of falling, social isolation, financial impacts and family pressures (Matthews, 2009). It is important to include Māori in this study in order to give them a voice and an opportunity to have their concerns with continence heard, and how this impacts them and their family, with an aim to reduce the number of falls caused by incontinence. By allowing the opportunity for Māori to be involved in this project, I see significant benefit not only to the person who suffers from incontinence, but also their whānau and community.
Research participants: This research project involves an action research (AR) group working together as co-researchers. Together they plan multiple cycles of planning a change, taking action to implement that change, observing and reflecting on the process and consequences, before re-planning and taking action again. Throughout the project the people in the AR group work as co-researchers and are involved in each step of the decision making. The AR group may consist of advisors who are specialists in their field, employees of the ambulance service and members of the community in the Horowhenua area. I plan to have Māori representation on this group to collectively make change in the area of incontinence and falls.
What stage is the research project at? (e.g. proposed or implemented) The research project is at the proposal stage, with the PGR9 submitted for review.
Consultation with Māori to date: To date I have had informal conversation with Midcentral District Health Board staff, and I have met with the Hauora Manager of Raukawa Whanau Ora Ltd in Levin. I will also liaise with the Right Care Advisor Hauora Māori from St John. I would appreciate the committees suggestions and advice on further ways to include Māori in my study. I wanted to speak to this committee because I am not sure the best way to have consultation, as I have not been involved in the Māori community before, and want to make sure I have solid guidance before doing so, in order to avoid inadvertent racism in practice or my research.

Methodology: Participatory action research is the chosen methodology for this research project and involves an action research (AR) group working together. Participatory action research (PAR) is a type of AR that involves multiple cycles of planning a change, taking action to implement that change, observing and reflecting on the process and consequences, before re-planning and taking action again. Throughout the project the people in the AR group work as co-researchers and are involved in each step of the decision making. This is empowering and means they can take a thoughtful approach to changing themselves, or their practice and the conditions under which they practice or live, with the aim of making their own situation better.

Recruitment processes: The recruitment processes will be dependent on what stage of the research the participants will be involved in. Action Research Group If they are to join the action research group, recruitment may be done through consultation with locals who know of people who are passionate and have the time to be involved in the project. At least one Māori representative will be approached through the community to be part of this group to work as a co-researcher with myself and other members of the group. If they are a member of the focus groups, recruitment will be through community notices, word of mouth, attendance at falls prevention classes or workshops to name a few. Those people who are involved in focus groups will be encouraged to bring a support person from their whānau or consult kaumātua as required. A Koha will be provided. If they are a person who is assessed as they require the assistance of the ambulance service as the result of a slip, trip or fall, then recruitment is different again.
Data collection: The data collection methods will be dependent on what stage of the research project the data is collected. It is likely that data will be qualitative, with some quantitative data collected. Electronic data will be kept in a password protected file, and any hard copies will be kept locked in a filing cabinet and it is proposed they will be destroyed five years after the project completion.
Data analysis: Data analysis will occur throughout the research project as part of the AR cycles. This will be conducted by me as the lead researcher, and those involved in the AR group.
Dissemination of results: Results will be disseminated back to the participants involved and a copy of any reports produced provided. This will be done through any services that have been used to recruit them. Furthermore, it is important to share these results not only locally, but also within national and international medical circles, journals and tertiary training institutions to ensure better knowledge and understanding of incontinence and falls in the community in New Zealand. Where appropriate those participants involved as co-researchers will be acknowledged in publications. As a starting point, results will be provided to Māori through the Hauora Manager of Raukawa Whanau Ora Ltd in Levin and the Right Care Advisor Hauora Māori from St John.
Any specific areas for discussion?

Would you like your project to remain confidential?	~~Yes~~	**No**
Do you intend to bring any support people to the meeting?	**Yes**	~~No~~
Have you read the *Te Ara Tika guidelines for Māori Research Ethics*?	**Yes**	~~No~~

Note: Observers may be present at the meeting (except where the project is confidential)

References:

Accident Compensation Corporation. (2019). *ACC Falls Data - data.govt.nz*. Retrieved June 25, 2019, from https://catalogue.data.govt.nz/dataset/fall-data

Batchelor, F. A., Dow, B., & Low, M.-A. (2013). Do continence management strategies reduce falls? a systematic review. *Australasian Journal on Ageing, 32*(4), 211-216. https://doi.org/10.1111/ajag.12047

Lara, C., & Nacey, J. (1994). Ethnic differences between Maori, Pacific Island and European New Zealand women in prevalence and attitudes to urinary incontinence. *New Zealand Medical Journal, 107*(986 Pt 1), 374-376.

Appendix C

Hato Hone St John Locality Review

Hato Hone Māori Locality Review

The following document provides feedback from the Hato Hone (St John) Maori Locality Review committee. Specific comments and recommendations are indicated below.

Title of project: Impact incontinence: Can we put the ambulance at the top of the cliff?		
Research Team members and affiliations: Celeita Williams (DHSc student, AUT staff, St John ICP)	**Meeting Date:** 6 November 2019	
Discussion Areas	**Discussed**	**Comments/ Recommendations** (see next page)
Whanaungatanga: Relationships		
Researcher experience in field	✓	C1
Consultation with local stakeholders	✓	C2, R1
Consenting process	✓	C6
Clarity of data usage	✓	R3
Dissemination of findings	✓	C4
Benefits to participants	✓	
Tika: Validity of the research		
Clear purpose of project	✓	
Relevance to Māori	✓	
Likely outcome for participants, communities, other stakeholders	✓	C4, C5
Participant recruitment methods	✓	C3, R2
Māori involvement in project (participants, researchers, etc.)	✓	C7
Manaakitanga: Responsibility and respect		
Participants' access to appropriate advice		
Participants treated with dignity and respect		

Privacy and confidentiality	✓	
Whānau support		
Transparency of research process	✓	
Mana tangata: Power & Authority		
Reciprocity (acknowledgements, compensation, gifts)	✓	C8
Risks of participation identified		
Ownership of outcomes	✓	C9
Informed consent process		

Comments from Applicant/s

1.	Celeita is an ICP and ECP with St John, and has extensive experience working in the Horowhenua region.
2.	Celeita has been engaging with local ambulance personnel, as well as Paul Haigh (Territory Manager, Horowhenua territory).
3.	Due to perceived conflicts of interests with Celeita's positions within St John and AUT, responses for participation in the study will be directed to Celeita's AUT supervisor.
4.	Celeita notes that the nature of participatory action research is such that there are no defined outcomes. However, it is hoped that the findings of this research will involve some type of implementation tool that can be integrated into the ePRF platform, in which case extensive consultation with St John will be involved. Celeita is also engaging with local council and iwi.
5.	The community impacted by incontinence is fully involved in the research design, implementation and impact.
6.	Full consent will be required before participation in the research. This has been reviewed and approved by the AUT Ethics Committee.
7.	Celeita has undergone significant cultural consultation which is ongoing.

8.	Celeita will provide some koha (undefined) to research group participants.
9.	The nature of the participatory action research design is such that the outcomes of the study are 'owned' by the research group.

Recommendations from the Committee

1.	The committee recommends that Celeita obtain written confirmation from Paul Haigh about the allowed time commitment for his staff. It must be clear that personnel are contributing time only to this research project, and that there is no funding to support back-fill or overtime for this volunteer work.
2.	Emails inviting participation in the research will come from the Clinical Audit and Research Team.
3.	Once Celeita has decided on the data she needs from St John, she will need to write an ethics amendment and work with the Clinical Audit and Research Team. The committee suggests that aggregate data (rather than individual patient information) will be the lowest risk and most feasible data to obtain for this study.

Appendix D

Horowhenua Territory Manager Correspondence

Celeita Williams

AUT University
640 Great South Road
Manakau
Auckland

Dear Paul,

Thank you for taking the time to discuss with me my research project Impact incontinence: Can we put the ambulance at the top of the cliff?

This project has had approval by the St John Clinical Audit and Research Team (CART) to be conducted in the Horowhenua region pending your acceptance of the following conditions.

- It must be made clear to personnel (and local management) that participation in this research is entirely voluntary - no backfilled positions will be offered, no additional hours will be paid.
- Provided local management have agreed, there were no concerns with participation occurring on station/shift in between jobs, provided all other duties had been performed.

Staff that are willing to participate in the project outside of their normal rostered time may be offered Koha but this will be funded by the research project funding and not St John Ambulance Operations.

As the project progresses I will keep you informed of what is happened with a bimonthly update at a time mutually agreed.

If you have any questions, please do not hesitate to contact me.

Kind regards

Celeita Williams.

I understand and agree with the above terms as imposed by CART and am happy for this project to proceed in the Horowhenua territory.

12-12-19.

Paul Haigh – Territory Manager, Horowhenua, Central South District.

Appendix E

Horowhenua Area Operations Manager Correspondence

Celeita Williams

AUT University
640 Great South Road
Manukau
Auckland

Dear Lynne,

Thank you for taking the time to discuss with me my research project Impact incontinence: Can we put the ambulance at the top of the cliff?

This project has approval by the St John Clinical Audit and Research Team (CART) to be conducted in the Horowhenua region pending your acceptance of the following conditions.

- It must be made clear to personnel (and local management) that participation in this research is entirely voluntary – no backfilled positions will be offered, no additional hours will be paid.
- Provided local management have agreed, there were no concerns with participation occurring on station/shift in between jobs, provided all other duties had been performed.

Staff that are willing to participate in the project outside of their normal rostered time may be offered Koha, but this will be funded by the research project funding, and not St John Ambulance Operations.

As the project progresses, I will keep you informed of what is happening with a bimonthly update at a time mutually agreed.

If you have any questions, please do not hesitate to contact me.

Kind regards

Celeita Williams.

27/01/2022

I understand and agree with the above terms as imposed by CART and am happy for this project to proceed in the Horowhenua territory.

Lynne Chapman – Area Support Manager – Horowhenua, Central South District.

Appendix F

Copy of Recruitment Information for Horowhenua Ambulance Operations Staff

Do you work in the Horowhenua district?

Would you like to be in the draw to win this new stethoscope?

Please can you help me with my anonymous research survey for my Doctoral studies.

Scan the QR code below, look for the link in your work email or on the Horowhenua Ambulance Operations Facebook page.
You can do this survey on your personal electronic device whether it is a phone, tablet, or computer. It is easier to read and complete the survey on a computer if you are tired!

Thank you so much for participating, I really appreciate it.
Celeita Williams – Doctoral Candidate, Intensive Care Paramedic.

Distributed: 02.02.2022

Hi everybody in the Horowhenua Ambulance Operations team,

This is a copy of an email that has been sent to you by the Clinical Audit and Research Team on behalf of your colleague Celeita Williams - an Intensive Care Paramedic who is completing her Doctor of Health Science at AUT University.

Celeita would like to extend an invitation for you to participate in her research project - Impact incontinence: Can the ambulance be at the top of the cliff?

Celeita's research project uses a process called participatory action research. Participatory action research involves working together as a team to assess a situation, develop ideas about how the situation can be improved, and implement a change to improve the situation. Once the change has been implemented, the group will reflect on the change and complete the cycle again to further refine the situation.

Celeita's research project is progressing well, and the final stage of the research project is to conduct a survey to review the assessment tool that has been designed for use in the ambulance setting.

Celeita hopes that as many of you as possible can participate in her survey, as the more people there is involved, the better the information she can collect to make a positive change for us as clinicians, and those we care for in the community.

How is this survey going to work?

Celeita has permission from the Hato Hone St John Clinical Audit and Research Team and your Group Operations Manager Lynne Chapman for you to participate voluntarily in this survey in your work time. You can only complete this survey on station once you have completed all your station duties, any other duties and you are in between jobs. The survey should take approximately 10 minutes of your time. There will not be any backfilled positions, additional hours or overtime paid to cover your involvement in this project.

If you wish to participate in this survey outside of your work hours, there is no remuneration paid if you choose to participate.

If you choose to, you can enter the prize draw at the end of the survey. The prize draw will be completed at the end of the survey period, and the winner will be contacted privately, and the prize awarded. The information you enter here is separate to the survey, therefore your personal details cannot identify your survey responses. The prize draw is for $200 of New World Supermarket Grocery Vouchers

If you wish to participate, please click on this link:

https://aut.au1.qualtrics.com/jfe/form/SV_dbZNUh0iWHydWzc

or scan the QR code above.

The survey is easiest to complete on a computer but can also be completed on a tablet or other device.

Thank you for taking the time to read this email, I am sure Celeita will appreciate it.

Kind regards

Clinical Audit and Research Team

Hato Hone St John New Zealand

For the Horowhenua Ambulance Operations Facebook page:

Would you like to be in to win $200 of New World Supermarket Grocery Vouchers?

As many of you will be aware, Celeita is completing a research project for her Doctoral studies. She is investigating the impact of urinary incontinence on falls, as seen by ambulance clinicians.

Celeita's research project is progressing well, and the final stage of the research project is to conduct a survey to review the assessment tool that has been designed for use in the ambulance setting.

Celeita hopes that as many of you as possible can participate in her survey, as the more people there is involved, the better the information she can collect to make a positive change for us as clinicians, and those we care for in the community.

This survey should take approximately 10 minutes of your time. If you wish to participate in this survey outside of your work hours, there is no remuneration paid if you choose to participate.

If you wish to participate in the survey, please click on the following link:
https://aut.au1.qualtrics.com/jfe/form/SV_dbZNUh0iWHydWzc

You can also scan the QR code above, or that you will find in your email inbox or displayed on station.

If you wish to enter the draw at the end of the survey to win the grocery vouchers, you will need to enter your details. The information you enter here is separate to the survey, therefore your personal details cannot identify your survey responses.

The prize draw will be completed at the end of the survey period, and the winner will be contacted privately, and the prize awarded.

Thank you very much for your time, I am sure Celeita will appreciate you participating in her survey.

Kind regards

Clinical Audit and Research Team

Hato Hone St John New Zealand

Appendix G

Participant Information Sheet, Consent Form and Confidentiality Agreement for ARWG Members

Participant Information Sheet

This information sheet is for participants involved in the action research working group.

Date Information Sheet Produced:

5th August 2019

Project Title

Improving the assessment of incontinence and falls by ambulance clinicians.

An Invitation

Hi, my name is Celeita Williams and I am an Intensive Care Paramedic and University Lecturer who is looking to investigate the impact of urinary incontinence on falls, as seen by ambulance clinicians. I would like to invite you to participate in a research project that aims to introduce an assessment tool to be used by ambulance clinicians to assess patients who slip, trip or fall in the community and establish the prevalence of incontinence.

This stage of the research project involves the development of an advisory group to help identify and understand the key issues associated with incontinence and falls. There is the potential that this advisory group may eventually be involved with the development of an education package and an assessment tool to train ambulance clinicians how to assess continence concerns for patients who slip, trip or fall.

Each stage of this project will involve the advisory group designing, implementing and reflecting on the key issues, training material or continence assessment tool being developed. This will allow for feedback and development throughout the research process.

This research project is being conducted as part of my Doctoral qualification, the Doctor of Health Science, as is delivered by AUT University. The findings of this research may be used for academic publications and presentations.

What is the purpose of this research?

Patients who fall are within in the top three reasons an ambulance is called in the Horowhenua District, and each month approximately 50 people fall and require ambulance assistance. It is hoped that the introduction of a continence screening tool as part of a falls risk assessment will improve patient safety and mobility in the community. This tool will assist ambulance clinicians in identifying patients who have continence concerns and allow them to have the opportunity to talk openly with patients about a taboo subject.

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

I would like to invite you to participate in this research project as you have been identified as someone who is passionate about improving the link between falls and incontinence. What happens next is that I need to gain your consent to participate. While I would appreciate your expertise as a member of this action research working group, it is important that we are clear and transparent to avoid conflicts of interest throughout this project. If you have a conflict of interest such as sponsorship by an incontinence product or pharmaceutical company or other interest that may promote bias you will not be able to participate in this research group. Furthermore, if you are an ambulance clinician who works outside of the Horowhenua region, or an ambulance clinician who shares the same residence as the lead researcher, then you will not be able to participate in this advisory group.

How do I agree to participate in this research?

Your participation in this research is voluntary (it is your choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You will need to complete a consent form available from me or one of my supervisors and return this when you have decided if you would like to participate. You are able to withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable as belonging to you removed or allowing it to continue to be used. However, once the findings have been produced, removal of your data may not be possible.

What will happen in this research?

I am hoping we can work together in a process called participatory action research. This type of research involves a group of advisors who are specialists in their field, to work together to attempt to find a solution to the problem and decide how best to answer a research question. The question I have proposed for this project involves using ambulance clinicians to assess the impact of incontinence and falls in the community and is *"How can the development of an assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community"*.

The nature of participatory action research is that we as a team work as co-participants in a research project. We would complete a series of smaller projects and reflect on these to help answer the research question. These projects might include things like interviewing people who have experienced incontinence and falls, or ambulance clinicians about the education they have received on assessing a patient who falls or referring a patient who has incontinence. I as the lead researcher would be responsible for the process of conducting the interviews and facilitating the focus groups with your support as needed.

What are the discomforts and risks?

The potential discomfort or risk to you as a member of the research project is predicted to be minimal and although I as a researcher will know who has discussed what comments in meetings, these will be de identified before any review of the informaiton by the working group or publication is made. It is also important to know that if a reportable event is disclosed that requires reporting under the Health Practictioners Competency Act 2003, then it needs to be reported.

What are the benefits?

The benefits of being a participant in this research include co-participation and therefore co-authorship in academic publications that are produced outside of my thesis. Furthermore, by being involved in this group it is one step closer to helping improve care for patients with continence concerns.

How will my privacy be protected?

Your personal details will be stored on a password protected computer, in a password protected file on AUT's secure server. Furthermore, any comments you make in a meeting group will be deidentified prior to feeding any information back to the group or any publication being made.

What are the costs of participating in this research?

It is likely that I would need you to meet with the rest of the action research working group and discuss parts of the research project approximately four to five times over a 12-month period, for approximately two hours at a time. Your expertise is appreciated, and you will be a valued member at these meetings. Meetings might occur in person or via a virtual meeting platform such as skype or zoom. If you do not feel comfortable participating in the group work in an electronic forum there will be the option to travel and join the group face to face, but this would be at your own cost.

What opportunity do I have to consider this invitation?

You will have up to four weeks to consider this invitation.

Will I receive feedback on the results of this research?

As a result of this research the information gathered might be used in conference presentations, posters, academic journals or for development of teaching material to improve education around the impact of incontinence. A summary of the findings and research publications produced will be available for participants to view.

Results will be disseminated back to the participants involved and a copy of any reports produced provided. Furthermore, it is important to share these results not only locally, but also within national and international medical circles, journals and tertiary training institutions to ensure better knowledge and understanding of incontinence and falls in the community in New Zealand. Where appropriate those participants involved as co-participants will be acknowledged in publications.

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

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Celeita Williams, Celeita.Williams@aut.ac.nz , 09 921 9999 ext 6698

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

Whom do I contact for further information about this research?

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

Researcher Contact Details:

Celeita Williams, Celeita.Williams@aut.ac.nz, 09 921 9999 ext 6698

Project Supervisor Contact Details:

Dr Gael Mearns, Gael.Mearns@aut.ac.nz, 09 921 9999 ext 7108.

Dr Diana Austin, Diana.Austin@aut.ac.nz, 09 921 9999 ext 7181

Approved by the Auckland University of Technology Ethics Committee on *20th September 2019*, AUTEC Reference number *19/309*.

Consent Form

Project title: Improving the assessment of incontinence and falls by ambulance clinicians.

Project Supervisor: Dr Gael Mearns and Dr Diana Austin

Researcher: Celeita Williams

- ○ I have read and understood the information provided about this research project in the Information Sheet dated 5th August 2019.
- ○ I have had an opportunity to ask questions and to have them answered.
- ○ I understand that identity of my fellow participants and our discussions in the action research working group is confidential to the group and I agree to keep this information confidential.
- ○ I understand that notes will be taken during the meetings of the action research working group and that it will also be audio-taped or video-taped and transcribed.
- ○ I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.
- ○ I understand that if I withdraw from the study then, while it may not be possible to destroy all records of the focus group discussion of which I was part, I will be offered the choice between having any data that is identifiable as belonging to me removed or allowing it to continue to be used. However, once the findings have been produced, removal of my data may not be possible.
- ○ I agree to take part in this research.
- ○ I wish to receive a summary of the research findings (please tick one): Yes○ No○

Participant's signature: .....

Participant's name: .....

Participant's Contact Details (if appropriate):

.....

.....

.....

.....

Date:

Approved by the Auckland University of Technology Ethics Committee on 20th September 2019, AUTEC Reference number 19/03

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

Confidentiality Agreement

Project title: Impact incontinence. Can we put the ambulance at the top of the cliff?

Project Supervisor: Dr Gael Mearns, Dr Diana Austin and Dr Graham Howie

Researcher: Celeita Williams

- ○ I understand that the contents of the information provided, tapes, recordings, note pages or hard copy material produced or interview notes can only be discussed with the researchers involved in the action research working group.
- ○ I will not keep any copies of the information nor allow third parties access to them.

Participants signature: .....

Participants name: .....

Participants Contact Details (if appropriate):

.....

.....

.....

.....

Date:

Approved by the Auckland University of Technology Ethics Committee on 20th September 2019 AUTEC Reference number 19/309

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

Appendix H

Copy of Survey One

Participant Information Sheet
This information sheet is for participants involved in the anonymous electronic survey of Horowhenua ambulance clinicians.

Date Information Sheet Produced:
12th November 2020

Project Title:
Improving the assessment of incontinence and falls by ambulance clinicians.

An Invitation:
Hi, my name is Celeita Williams and I am an Intensive Care Paramedic and University Lecturer who is looking to investigate the impact of urinary incontinence on falls, as seen by ambulance clinicians. I invite you to participate in a research project that aims to introduce an assessment tool to be used by ambulance clinicians to assess patients who slip, trip or fall in the community.

This stage of the research project involves the ambulance clinicians completing an anonymous electronic survey to identify their knowledge and experience around patient's and urinary incontinence, and to understand key issues associated with urinary incontinence and falls.

This research project is being conducted as part of my doctoral qualification, the Doctor of Health Science, as delivered by AUT University.

What is the purpose of this research?
Patients who fall are within in the top three reasons an ambulance is called in the Horowhenua District, and each month approximately 50 people fall and require ambulance assistance. It is hoped that the introduction of a continence screening tool as part of a falls risk assessment will improve patient safety and mobility in the community. This tool will assist ambulance clinicians in identifying patients who have continence concerns and allow them to have the opportunity to talk openly with patients about a taboo subject. The findings of this research may be used for academic publications and presentations.

How was I identified and why am I being invited to participate in this research?
I am inviting you to participate in this research project because you have been identified as an ambulance clinician working in the Horowhenua. What happens next is that I need to gain your consent to participate. While I would appreciate your expertise as a participant in this anonymous electronic survey, it is important that we are clear and transparent to avoid conflicts of interest throughout this project. If you have a conflict of interest such as sponsorship by an incontinence product or pharmaceutical company or other interest that may promote bias, you will not be able to participate in this group. Furthermore, if you are an ambulance clinician who works outside of the Horowhenua region, or an ambulance clinician who shares the same residence as the lead researcher, then you will not be able to participate in this survey.

How do I agree to participate in this research?
Your participation in this research is voluntary (it is your choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You will need to complete a consent form, giving your consent to take part in the research. The consent form is provided at the beginning of the electronic survey. If you would like to participate, you can give consent on the electronic survey.

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

What will happen in this research?
I am using a research methodology called participatory action research. This type of research involves a group of people working together to attempt to find a solution to the problem and decide how best to answer a research question. The question I have proposed for this project involves using ambulance clinicians to assess the impact of incontinence and falls in the community and is "How can the development of an assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community".

The nature of participatory action research is that we as a team work as co-participants in a research project. We are completing a series of smaller projects and reflect on these projects to help answer the research question. One of these projects is to assess ambulance clinician's knowledge about urinary incontinence and falls using an anonymous electronic survey.

Any data collected will form the raw data that will be analysed, and it will be stored in accordance with the sensitive data safety protocol required for storage of data. A copy of the sensitive data safety protocol is available from the lead researcher on request.

What are the discomforts and risks?
The potential discomfort or risk to you as a member of the research project is predicted to be minimal as this is an anonymous survey conducted online. The questions about incontinence and falls may be relatable to a situation you or a loved one is in and make provoke unexpected emotional responses.

What are the benefits?
The benefits of being a participant in this research means that together we can move one step closer to helping improve care for patients who fall and have continence concerns.

How will my privacy be protected?
Your personal details provided for the purposes of consent, and the offer of a prize or koha for completing the survey if you choose to share your details for this purpose. These details will be stored on a password protected computer, in a password protected file on AUT's secure server. Furthermore, any comments you make in the

survey will be anonymous prior to feeding any information back to the participatory action research working group or any publication being made.

What are the costs of participating in this research?
I have permission from the St John Clinical Audit and Research Team and your Area Support Manager Lynne Chapman for you to participate voluntarily in this project in your work time. You can only participate in this research project on station once you have completed all your station duties, any other duties and you are in between jobs. There will not be any back filled positions, additional hours or overtime paid to cover your involvement in this project. There is no financial remuneration if you choose to participate in the research.

In order for you to participate in this electronic survey I can leave a computer tablet on station for you to use to complete the electronic survey on, or you can complete the survey in your own time online via the survey link shared with you. I will visit station across all of the watch colours to ensure everyone has an equal opportunity to complete the electronic survey. This will be done in order to involve as many staff as possible and collect the many fantastic ideas you have.

What opportunity do I have to consider this invitation?
You have up to eight weeks to consider this invitation.

Will I receive feedback on the results of this research?
As a result of this research, the information gathered might be used in conference presentations, posters, academic journals or for development of teaching material to improve education around the impact of incontinence. A summary of the findings and research publications produced will be available for participants to view.

Results will be disseminated back to the participants involved and a copy of any reports produced provided. Furthermore, it is important to share these results not only locally, but also within national and international medical circles, journals and tertiary training institutions to ensure better knowledge and understanding of incontinence and falls in the community in New Zealand. Where appropriate those participants involved as co-participants will be acknowledged in publications.

What do I do if I have concerns about this research?
Any concerns regarding the nature of this project should be notified in the first instance to the lead researcher, Celeita Williams, Celeita.Williams@aut.ac.nz , 09 921 9999 ext 6698

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEC, ethics@aut.ac.nz, 921 9999 ext 6038.

Please keep this Information Sheet and a copy of the Consent Form for your future reference.

Whom do I contact for further information about this research?
You are also able to contact the research team as follows:

Researcher Contact Details:

Celeita Williams, Celeita.Williams@aut.ac.nz, 09 921 9999 ext 6698

Project Supervisor Contact Details:
Dr Gael Mearns, Gael.Mearns@aut.ac.nz, 09 921 9999 ext 7305

Approved by the Auckland University of Technology Ethics Committee on 7th of September 2021, AUTEC Reference number 19/309.

- I wish to continue to the consent form
- I do not wish to continue

Consent Form

This information sheet is for participants involved in an anonymous electronic survey of Horowhenua ambulance clinicians.

Project title: Impact incontinence. Can we put the ambulance at the top of the cliff?

Project Supervisor: Dr Gael Mearns, Dr Diana Austin and Dr Graham Howie.

Researcher: Celeita Williams.

I have read and understood the information provided about this research project in the Participant Information Sheet dated 12th of November 2020.

I have had an opportunity to ask questions and to have them answered.

I understand that the survey is electronic and I will not be identified as part of this electronic survey.

I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.

I understand that if I withdraw from the study then I will be offered the choice between having any data that is identifiable as belonging to me removed or allowing it to continue to be used.

However, once the findings have been produced, removal of my data may not be possible.

- Yes, I give consent
- No, I do not give consent

The gender pronoun I identify with is:

- Male
- Female
- Non-binary
- Prefer not to disclose
- Prefer to self describe

Please describe the gender pronoun you identify with

_____

What questions do you currently ask about patient's bladder habits?

_____

What do you identify as key issues associated with urinary incontinence and falls?

_____

How can the development of an assessment tool enable ambulance clinicians to assess the impact of urinary incontinence on falls in the community?

_____

Appendix I

Clinical Assessment Tool Questions – 40 to 14

Initial 40 questions for assessment tool:

1. How long has the problem been occurring for: How many days, weeks, months, or years?
2. Past medical history
3. Past surgical history
4. Medications taken by the patient
5. Living environment assessment/overview
6. Access to toilet (inside/outside/commode/bottle/IDC/SPC other)
7. 'Symptom profile'
8. Access to handwashing facilities
9. What have I got in front of me that is worrying/concerning
10. What is their vison like
11. What is their hearing like
12. What is their mobility like
13. Do they think their fall or incontinence is a problem as the patient may perceive that what they do is normal
14. How many times a day to you pass urine/wee/water
15. How many times a week do you pass poo/stool/faeces
16. What is the thing that bothers you about your incontinence
17. Is there any cognitive decline
18. What time of day is the call – relevant to sundowners etc
19. Does dipstick urinalysis indicate UTI or other pathology eg. Large glucose or ketones
20. Other signs of UTI?
21. MSU sent? Who is receiving MSU result
22. Have you had recurrent UTIs (how many in the last 6 months and last year)
23. Has this patient had more than one course of antibiotics for a UTI in the last 6 months, if so what were they and did they finish the prescription?
24. Who gave you the antibiotics? GP? Nurse? Ambulance? Pharmacy? Hospital? Other person?
25. General UTI signs and symptoms?
26. Burning, increased frequency, pain on micturition, colour change, blood, decreased or increase volume, if IDC or SPC any bypassing or other abnormal changes you have noticed?
27. Any increased urgency?
28. Does your urine leakage keep you at home?
29. Do you use pads? If so how many per day?
30. Do you feel socially isolated or that you have not been able to get out as much since you have had a fall or leakage or urine?
31. Do you feel more withdrawn from the community or your social life because you leak urine?
32. Think back to a time you last leaked urine/wee, - what were you doing when you had an accident when you leaked wee?
33. Do you ever stop taking medication prescribed to you because you are worried about not making it to the toilet?
34. Do you ever leak urine when you cough, laugh or sneeze?

35. What is the strength of the urine stream you are passing?? Dribbling, hosing, trickling
36. How much water do you drink per day?
37. How much tea/coffee do you drink per day?
38. How much other drink do you have per day?
39. How much alcohol do you have per day?
40. Do you pass a bowel motion each day? If not how often do you pass a bowel motion and how would you describe it (image of Bristol stool chart) – what is your normal bowel motion pattern?

Final 14 questions for assessment tool:

Patient perspectives and experiences:
1. What were you doing when you fell?
a. Were you walking to the toilet?
2. Do you have any problems passing wee, poo and do you feel empty when you wee?
a. Do you use pads for leakage of wee or poo, or just in case?
b. How many do you use per day?
c. Do you worry about not making it to the toilet on time?
d. Do you experience any urgency when passing wee or having a poo?
e. Do you feel that you have not been able to get out as much, or does it affect what you do during the day since you have had leakage of wee or poo?
3. How long have the symptoms been occurring for: days, weeks, months, or years?
Does anything trigger these symptoms?
How much does your incontinence affect your day/life?
4. Have you ever had any diagnosis of prolapse bowel/bladder – if so, have you had any surgery or (if patient is female) do you use a pessary to manage?
5. How many cups of fluid do you drink per day?
Do you restrict how much fluid you drink because of your incontinence?
How many of these drinks contain caffeine, e.g coffee, tea, chocolate drinks or fizzy drinks?

Symptom profile - Bowels
6. How often do you go for a poo (move your bowels)?
How often do you check your poo (bowel motion), and how would you describe it (you would show the patient an image of Bristol stool chart)?

Symptom profile - Bladder
7. How often do you wee?
Do you ever get up at night to wee?
8. How would you describe the strength of the wee/urine stream you are passing?
Strong and constant or broken up is it dribbling, hosing, trickling or intermittent?
9. Do you ever leak wee when you cough, laugh, sneeze, bend or lift?
Do you leak without noticing?
Is it a lot or just a dribble?
10. Do you have any symptoms of a urine infection (UTI) such as burning, stinging, frequency, pain, colour change, blood in the urine or toilet paper, decreased or increased amount, fevers (hot and cold sweats) or confusion?

Urinary Tract Infection

11. Have you had recurrent UTIs in the last 6-12 months?
Were these confirmed by a urine sample?
Did you get antibiotics for a UTI?
If so, who gave you the antibiotics? GP? Nurse? Ambulance? Pharmacy? Hospital? Other person?

12. Have you had more than one course of antibiotics for a UTI in the last 6 months?
Do you remember what it was called and did you finish all the tablets?

Evaluation

13. Have you ever asked for any help to manage incontinence?
If yes or no - Would you like some more information or someone to contact you about managing incontinence?

14. Would you consent to a referral to the continence nursing service to further evaluate the causes for your urinary incontinence?

Appendix J

Copy of Survey Two

Participant Information Sheet
This information sheet is for participants involved in the anonymous electronic survey of Horowhenua ambulance clinicians.

Date Information Sheet Produced:
30th June 2023

Project Title:
Impact incontinence. Can we put the ambulance at the top of the cliff?

An Invitation:
Hi, my name is Celeita Williams and I am an Intensive Care Paramedic and University Lecturer who is looking to investigate the impact of urinary incontinence on falls, as seen by ambulance clinicians. I invite you to participate in a research project that aims to introduce an assessment tool to be used by ambulance clinicians to assess patients who slip, trip or fall in the community.

This stage of the research project involves the ambulance clinicians completing an anonymous electronic survey to review the assessment tool that has been developed through input from ambulance clinicians and other health care professionals who provide continence care.

This research project is being conducted as part of my doctoral qualification, the Doctor of Health Science, as delivered by AUT University.

What is the purpose of this research?
Patients who fall are within in the top three reasons an ambulance is called in the Horowhenua District, and each month approximately 50 people fall and require ambulance assistance. It is hoped that the introduction of a continence screening tool as part of a falls risk assessment will improve patient safety and mobility in the community. This tool will assist ambulance clinicians in identifying patients who have continence concerns and allow them to have the opportunity to talk openly with patients about a taboo subject. The findings of this research may be used for academic publications and presentations.

How was I identified and why am I being invited to participate in this research?
I am inviting you to participate in this research project because you have been identified as an ambulance clinician working in the Horowhenua. What happens next is that I need to gain your consent to participate. While I would appreciate your expertise as a participant in this anonymous electronic survey, it is important that we are clear and transparent to avoid conflicts of interest throughout this project. If you have a conflict of interest such as sponsorship by an incontinence product or pharmaceutical company or other interest that may promote bias, you will not be able to participate in this survey. Furthermore, if you are an ambulance clinician who works outside of the Horowhenua region, or an ambulance clinician who shares the same residence as the lead researcher, then you will not be able to participate in this survey.

How do I agree to participate in this research?
Your participation in this research is voluntary (it is your choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You will need to complete a consent form, giving your consent to take part in the research. The consent form is provided at the beginning of the electronic survey. If you would like to participate, you can give consent on the electronic survey.

You are able to withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable as belonging to you removed or allowing it to continue to be used. However, once the findings have been produced, removal of your data may not be possible.

What will happen in this research?
I am using a research methodology called participatory action research. This type of research involves a group of people working together to attempt to find a solution to the problem and decide how best to answer a research question. The question I have proposed for this project involves using ambulance clinicians to assess the impact of incontinence and falls in the community and is "How can the development of an assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community".

The nature of participatory action research is that we as a team work as co-participants in a research project. We are completing a series of smaller projects and reflect on these projects to help answer the research question. One of these projects is to get ambulance clinician's feedback about an assessment tool designed to help assess urinary incontinence and falls using an anonymous electronic survey.

Any data collected will form the raw data that will be analysed, and it will be stored in accordance with the sensitive data safety protocol required for storage of data. A copy of the sensitive data safety protocol is available from the lead researcher on request.

What are the discomforts and risks?
The potential discomfort or risk to you as a member of the research project is predicted to be minimal as this is an anonymous survey conducted online. The questions about incontinence and falls may be relatable to a situation you or a loved one is in and make provoke unexpected emotional responses.

What are the benefits?
The benefits of being a participant in this research means that together we can move one step closer to helping improve care for patients who fall and have continence concerns.

How will my privacy be protected?
Your personal details provided for the purposes of consent, and the offer of a prize or koha for completing the survey if you choose to share your details for this purpose. These details will be stored on a password protected computer, in a password protected file on AUT's secure server. Furthermore, any comments you make in the survey will be anonymous prior to feeding any information back to the participatory

action research working group or any publication being made.

What are the costs of participating in this research?
I have permission from the St John Clinical Audit and Research Team and the Mid-Central Horowhenua Group Operations Manager Lynne Chapman for you to participate voluntarily in this project in your work time. You can only participate in this research project on station once you have completed all your station duties, any other duties and you are in between jobs. There will not be any back filled positions, additional hours or overtime paid to cover your involvement in this project. There is no financial remuneration if you choose to participate in the research.

In order for you to participate in this electronic survey I can leave a computer tablet on station for you to use to complete the electronic survey on, or you can complete the survey in your own time online via the survey link shared with you. I will visit station across all of the watch colours to ensure everyone has an equal opportunity to complete the electronic survey. This will be done in order to involve as many staff as possible and collect the many fantastic ideas you have.

What opportunity do I have to consider this invitation?
You have up to eight weeks to consider this invitation.

Will I receive feedback on the results of this research?
As a result of this research, the information gathered might be used in conference presentations, posters, academic journals or for development of teaching material to improve education around the impact of incontinence. A summary of the findings and research publications produced will be available for participants to view.

Results will be disseminated back to the participants involved and a copy of any reports produced provided. Furthermore, it is important to share these results not only locally, but also within national and international medical circles, journals and tertiary training institutions to ensure better knowledge and understanding of incontinence and falls in the community in New Zealand. Where appropriate those participants involved as co-participants will be acknowledged in publications.

What do I do if I have concerns about this research?
Any concerns regarding the nature of this project should be notified in the first instance to the lead researcher, Celeita Williams, Celeita.Williams@aut.ac.nz , 09 921 9999 ext 6698

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEC, ethics@aut.ac.nz, 09 921 9999 ext 6038.

Please keep this Information Sheet and a copy of the Consent Form for your future reference.

Whom do I contact for further information about this research?
You are also able to contact the research team as follows:

Researcher Contact Details:
Celeita Williams, Celeita.Williams@aut.ac.nz, 09 921 9999 ext 6698

Project Supervisor Contact Details:
Dr Gael Mearns, Gael.Mearns@aut.ac.nz, 09 921 9999 ext 7305

Approved by the Auckland University of Technology Ethics Committee on the 26th of July 2023, AUTEC Reference number 19/309.

- I wish to continue to the consent form
- I do not wish to continue

Consent Form
This consent form is for participants involved in an anonymous electronic survey of Horowhenua ambulance clinicians to give feedback on an assessment tool.

Project title: Impact incontinence. Can we put the ambulance at the top of the cliff?
Project Supervisors: Dr Gael Mearns, Dr Diana Austin and Dr Graham Howie.
Researcher: Celeita Williams.

I have read and understood the information provided about this research project in the Participant Information Sheet dated 30th of June 2023.

I have had an opportunity to ask questions and to have them answered.
I understand that the survey is electronic and I will not be identified as part of this electronic survey.

I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.

I understand that if I withdraw from the study then I will be offered the choice between having any data that is identifiable as belonging to me removed or allowing it to continue to be used.

However, once the findings have been produced, removal of my data may not be possible.

- Yes, I give consent
- No, I do not give consent

The gender pronoun I identify with is:

- Male
- Female
- Non-binary
- Prefer not to disclose
- Prefer to self describe

Please describe the gender pronoun you identify with

_____

The following is a list of questions created as part of an assessment tool for the assessment of urinary incontinence and falls.

As an ambulance clinician, we are interested in your opinions on the content of this assessment tool.

The questions are grouped into patient perspectives and experiences, symptom profile - bowel and bladder, urinary tract infection and evaluation.

Not every patient would be asked every question. It depends on the answer the patient gives to the question beforehand.

Please read the questions below carefully (make notes if you need too) and be prepared to answer some questions about your opinion of the assessment tool.

Patient perspectives and experiences:

1. What were you doing when you fell?

a. Were you walking to the toilet?

2. Do you have any problems passing wee, poo and do you feel empty when you wee?

a. Do you use pads for leakage of wee or poo, or just in case?

b. How many do you use per day?

c. Do you worry about not making it to the toilet on time?

d. Do you experience any urgency when passing wee or having a poo?

e. Do you feel that you have not been able to get out as much, or does it affect what you do during the day since you have had leakage of wee or poo?

3. How long have the symptoms been occurring for: days, weeks, months, or years?

Does anything trigger these symptoms?

How much does your incontinence affect your day/life?

4. Have you ever had any diagnosis of prolapse bowel/bladder – if so, have you had any surgery or (if patient is female) do you use a pessary to manage?

5. How many cups of fluid do you drink per day?

Do you restrict how much fluid you drink because of your incontinence?

How many of these drinks contain caffeine, e.g coffee, tea, chocolate drinks or fizzy drinks?

Symptom profile - Bowels

6. How often do you go for a poo (move your bowels)?

How often do you check your poo (bowel motion), and how would you describe it (you would show the patient an image of Bristol stool chart)?

Symptom profile - Bladder

7. How often do you wee?

Do you ever get up at night to wee?

8. How would you describe the strength of the wee/urine stream you are passing?

Strong and constant or broken up is it dribbling, hosing, trickling or intermittent?

9. Do you ever leak wee when you cough, laugh, sneeze, bend or lift?

Do you leak without noticing?

Is it a lot or just a dribble?

10. Do you have any symptoms of a urine infection (UTI) such as burning, stinging, frequency, pain, colour change, blood in the urine or toilet paper, decreased or increased amount, fevers (hot and cold sweats) or confusion?

Urinary Tract Infection

11. Have you had recurrent UTIs in the last 6-12 months?

Were these confirmed by a urine sample?

Did you get antibiotics for a UTI?

If so, who gave you the antibiotics? GP? Nurse? Ambulance? Pharmacy? Hospital? Other person?

12. Have you had more than one course of antibiotics for a UTI in the last 6 months?

Do you remember what it was called and did you finish all the tablets?

Evaluation

13. Have you ever asked for any help to manage incontinence?

If yes or no - Would you like some more information or someone to contact you about managing incontinence?

14. Would you consent to a referral to the continence nursing service to further evaluate the causes for your urinary incontinence?

Please detail what impact you think this assessment tool would have on a patient's health outcomes to remain safe and well in the community?

_____

How useful would this assessment tool be to help you assess continence concerns?

- Extremely useful
- Very useful
- Moderately useful
- Slightly useful
- Not at all useful

If the option was available, would you refer a patient for further assessment if you identified a continence concern related to these screening questions?

- Yes, I would refer a patient for further assessment
- No, I would not refer a patient for further assessment

Is the time spent working through these questions with patients valuable?
Please select yes or no and add a comment.

- Yes

_____

- No

_____

Is this tool a good assessment guide?
Please select yes or no and add a comment.

- Yes

_____

- No

_____

Would you like to see this assessment tool introduced as an App, on ePRF or another platform?
You can select multiple answers.

- App
- ePRF
- Other platform (please make a suggestion below)

_____

How could this assessment tool change your clinical practice?

_____

What improvements do you recommend to make this assessment tool easier to use in the ambulance setting?

_____

How has completing this survey challenged your thinking around assessing incontinence and falls?

_____

I wish to enter the prize draw for $200 of grocery vouchers for completing this survey - your response will still remain anonymous

- Yes please
- No thank you

Appendix K

Video Protocol Sheet

Video Protocol Sheet

Date Protocol Sheet Produced:

20th April 2020

Project Title

Improving the assessment of incontinence and falls by ambulance clinicians.

Video Protocol

The use of video recording in this research project is so that meetings held via Zoom or other digital platforms can be recorded for transcription in case of other audio recording failure – NOT for use of videos as part of presentations about the research project or in the researchers thesis.

Videos recordings will be transferred to password protected hard drive storage, then deleted from the device or programme used to make the recording. This digital media will be stored in accordance with the sensitive data safety protocol already established for this research project.

Consent will be obtained from participants prior to making any recording, and the use of video recording is discussed in the participant information sheet and states:

> It is important that you know that for the purposes of transcribing and data analysis, these interviews or focus groups may be audio or video recorded. This recording will not be made available to anyone other than the lead researcher and her supervisors. Any transcription of audio or video recording or data analysis will form the raw data that will be analysed, and it will be stored in accordance with the sensitive data safety protocol required for storage of audio and video recordings.

The term transcription for the purposes of this research project refers to the lead researcher transcribing audio/video to text without the use of an external party or digital transcription service, this transcription will ensure all participants are deidentified.

All video recordings will be deleted once transcription has been completed.

Researcher Contact Details:

Celeita Williams, Celeita.Williams@aut.ac.nz, 09 921 9999 ext 6698

Project Supervisor Contact Details:

Dr Gael Mearns, Gael.Mearns@aut.ac.nz, 09 921 9999 ext 7305

Approved by the Auckland University of Technology Ethics Committee on xxxxx, AUTEC Reference number 19/03

Appendix L

Presentation to ARWG

Impact incontinence.
Can we put the ambulance at the top of the cliff?

Celeita Williams

1

Who am I?

2

Who are you?

3

The Ambulance Down in the Valley

'Twas a dangerous cliff, as they freely confessed,
Though to walk near its crest was so pleasant;
But over its terrible edge there had slipped
A duke and full many a peasant.
So the people said something would have to be done,
But their projects did not at all tally;
Some said, "Put a fence 'round the edge of the cliff,"
Some, "An ambulance down in the valley."

4

The Ambulance Down in the Valley

Better guide well the young than reclaim them when old,
For the voice of true wisdom is calling:
"To rescue the fallen is good, but 'tis best
To prevent other people from falling."
Better close up the source of temptation and crime
Than deliver from dungeon or galley;
Better put a strong fence round the top of the cliff.
Than an ambulance down in the valley!

Joseph Malins (1895)

(Cook, 2019)

5

My research

To investigate the impact of urinary incontinence in patients who slip, trip or fall, as seen by ambulance clinicians.

6

7

8

Context

A fall with or without injury can have life changing consequences

Quarter of the NZ population has a continence concern[1]

In Levin, from 1st January 2019 to 31st April 2019

150 people fell – the ones we know about

1: (Esplin, Smith, Doust, & Poynton, 2017)

9

Literature Review

Limitations:

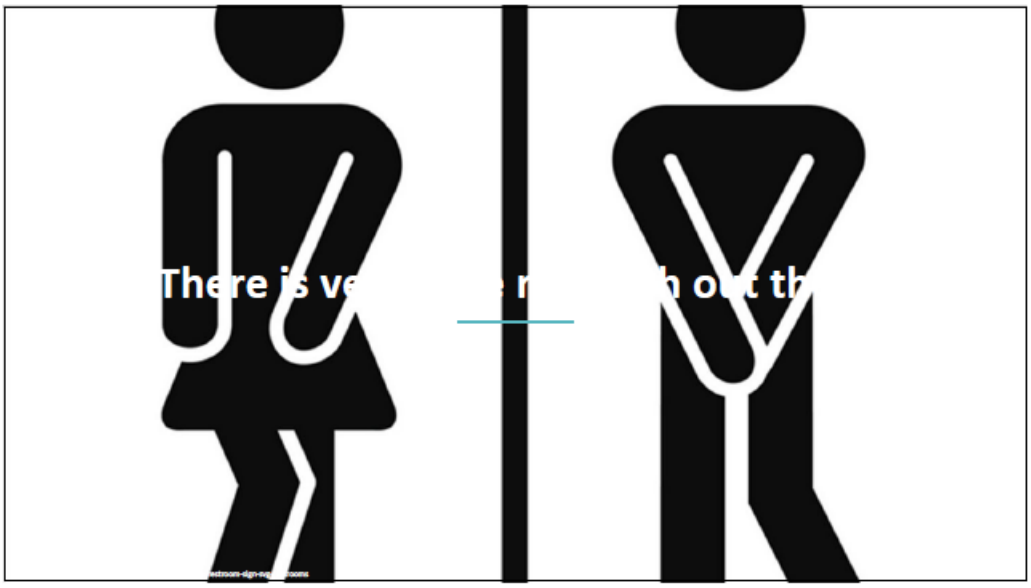
- Full text, peer reviewed, English only publications
- Publication dates of 2002-2018
- Duplicates removed

10

Literature Review

Databases searched	Terms used	Results
AUT library platform EBSCO Health: CINAHL MEDLINE Cochrane Scopus Library search (which is not a specific database but a collection that was searched simultaneously using the EBSCO software)	"falls prevention or preventing falls or prevent falls or reduce falls" AND "ems or prehospital or emergency medical services or paramedic or medical service" AND "urinary incontinence or urinary leakage or urinary urgency" AND "education" AND "slip trip falls"	0
	"paramedic or ems or emergency medical service or prehospital or pre-hospital or ambulance or emergency medical technician or emt" AND "incontinence"	2
	"falls prevention or preventing falls or prevent falls or reduce falls" AND "urinary incontinence" AND "education"	14

11



12

My question

How can the development and implementation of an assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community?

13

My supervisors

Dr Gael Mearns PhD
Senior Lecturer
Associate Head Postgraduate
School of Clinical Sciences

14

My supervisors

Dr Diana Austin DHSc

Lecturer

School of Clinical Sciences

15

My supervisors

Dr Graham Howie PhD

Senior Lecturer

Head of Postgraduate

School of Clinical Sciences

16

Ethics

AUTEC approved project

Matauranga Māori

St John

17

Methodology

Action research

What is action research?

Action research involves people working TOGETHER to enable a way forward for the people who need a voice

18

Methods of data collection

Could be anything ....

- Semi structured interview
- Focus Groups
- Questionnaire

19

Data analysis

Action research is a prospective process

Until our group determines the data collection method I can not confirm how data analysis will occur

20

Methodology

Action research can have different purposes based on

Habermans's theory of knowledge:

- Technical
- Practical
- Critical

21

My methodology

Critical Participatory Action Research

22

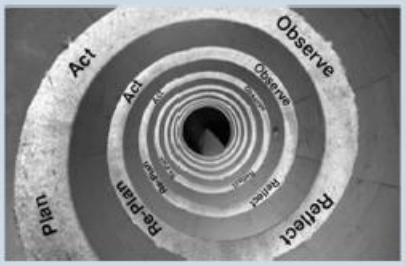
Overview

Planning

Act/Observe

Reflect

Revised plan



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Planning phase

The action research group

Creating public spheres

Making initial decisions

24

Making initial decisions

What do you as a group identify as the key issues associated with incontinence and falls?

25

Making initial decisions

What is the groups expectation and understanding of ambulance clinician's knowledge about incontinence?

26

Making initial decisions

What is the groups expectation and understanding of ambulance clinician's knowledge about falls?

27

Making initial decisions

What is the current ambulance clinician knowledge and education about assessment of incontinence and falls?

28

Overview

Planning

Act/Observe

Reflect

Revised plan

29

Planning and action

How can the development and implementation of an assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community?

30

Thinking beyond today…

What resources and tools can improve incontinence and falls assessment by ambulance clinicians?

31

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Appendix M

Public Sphere Document, Also Known As the Critical Participatory Action Research Group Protocol

Our Agreements for Participation in Public Spheres (our action research working group meetings)

Participants in the critical participatory action research initiative agree to participate in the following protocols:

1. **Respect and open communication.**

    1. Group members agree to communicate respectfully and openly with one another throughout the project. In particular, this means that they agree, individually and collectively, sincerely to seek (a) intersubjective agreement about the ideas and language they use, (b) mutual understanding of one another's points of view, and (c) unforced consensus about what to do under the circumstances that exist when a decision about what to do is needed.

    2. Each group member agrees to respect the rights of others to withdraw from the study at any time, or to decline participation in particular aspects of the study. Group members agree to respect the right of any group member to withdraw from the group, the research, or part of the research.

    3. Group members agree to be open with other group members if they think the research is having a negative impact on the group, or them personally.

2. **Access to empirical material.**

    1. All group members will have access to empirical material/transcripts that are generated or collected within the context of the group meetings (that is, as 'common empirical material').

    2. Access to material that is collected outside of group meetings, but that directly involves group members, for instance in observations or face to face interviews, will be restricted to those collecting the information and those about whom it is collected unless the group members concerned negotiate for such material to be released to the group for analysis or discussion (for example, at a group meeting) or in reports or publications. Group members agree that where others are involved (such as participating students who may appear in video-recorded teaching), such release of empirical material to the group will occur only with the consent of those involved.

    3. Group members agree that if they wish (for their publications and/or research purposes) to use common empirical material generated within this project, they need to negotiate that use of the empirical material with other members of the group.

3. **Identifiability in reports and publications.**

    1. Group members understand that participants may be identifiable in any representations of the critical participatory action research initiative where this

involvement is acknowledged. Group members agree that this needs to be considered in all phases of the initiative and agree to act with discretion so that the institution and the participants can be appropriately safeguarded.

2. Considering the conditions outlined in point 1, group members agree that:

   a. it is appropriate to acknowledge the group members by name (e.g., in footnotes or 'Acknowledgement' sections of reports of published accounts of the research); but that

   b. non-gender specific pseudonyms (e.g., for direct quotes) are to be used in the main text of accounts so that it is difficult for readers to attribute particular comments to particular people; and

   c. if through the course of the study, the group members collectively decide that the naming of the group members in accounts of the research (beyond general acknowledgements) would be beneficial to both the individuals concerned and the institution, and not harmful to others, then individual written consent to be named would be obtained from each of the group members before anyone is named.

4. Reflecting on the research process.

1. To ensure that the research process does not compromise the integrity of the group, or impact negatively on those involved, group members agree to periodically review (as a group) how the research is unfolding and impacting on the group and the individual group members.

5. Changes to group membership.

1. Group members agree that, if new members join the group during the project, the new members will be invited to take part in the research and written informed consent will be obtained before they become involved. Group members agree that the new group members will be required to agree to these group protocols.

2. Group members agree that if one or more of the group members no longer wish to be involved in the study, then other group members respect that group member's right to determine what of his or her previous statements can be used in the research.

6. Representation.

1. If not directly involved in the writing of reports about the initiative, group members will be given an opportunity to check that their work and comments are fairly, relevantly and accurately represented in any reports of the research.

2. Group members agree that, if they feel that representations relating to them are not fair, relevant or accurate, they will negotiate with the authors of the report, and with other members of the group, to resolve the issue, keeping in mind the principle of respect and open communication above (see 1.1).
3. The authors of any reports about the work of the group will notify the group about the writing and the existence of the reports, and will give group members

access to the report and, so far as is practicable, will make copies available to group members on request.

7. Mediation

In the unlikely event that there is conflict/relationship breakdown (between group members) that cannot be resolved and that is detrimental to the project and/or well-being of group members, group members agree that [a credible and neutral person] will be asked to act as mediator to help those concerned work through the issues.

8. Certification of agreement

We, the undersigned, collectively, individually, and voluntarily give consent to our participation in the critical participatory action research initiative. In providing our group consent, we agree that:

1. We have each read an outline of the proposed initiative, discussed it, and understand the purpose, methods, potential risks and benefits of the research.
2. We agree that our participation will be of value to us as professionals reflecting on our teaching, beneficial to scholarship in the discipline and our profession, and likely to contribute to the development of participatory action research as a research approach.
3. We regard the study as an extension of and contribution to what we are already committed to doing in our professional practice and our involvement with this group. We see the study as an addition to our established process of collective self-reflection.
4. We undertake individually and collectively to participate in the study in accordance with the group protocols above, and in keeping with the values of respect, justice and beneficence.
5. Each of us recognises that we have a right to withdraw without penalty at any time. If a group member withdraws, we respect the group member's right to determine what of his or her previous statements can be used in the research.
6. We understand that not everyone will be able to attend every meeting dedicated to the research project and assume that evidence will continue to be gathered in a group member's absence.
7. We understand that if we have any complaints, concerns, conflicts or disputes about this research we can contact the person identified below, who has agreed to mediate if a complaint, concern, conflict or dispute arises in the course of this critical participatory action research initiative:

Name
Position
Address
Phone
Email
Name (print) **Signature** **Date**

Appendix N

Email Correspondence with Survey Author

From: Aparna Diwan Shah
To: Celeita Williams
Subject: Re: Hi from Celeita Williams, Doctoral Student in New Zealand.
Date: Thursday, 12 November 2020 9:05:48 am

Yes, no problem. Best of luck!

Aparna D. Shah, MD

On Wednesday, November 11, 2020, 02:50:58 PM EST, Celeita Williams <celeita.williams@aut.ac.nz> wrote:

Dear Aparna,

I am a Doctoral student at AUT University, New Zealand, who is researching the impact of urinary incontinence on falls as seen by ambulance clinicians.

As part of my study I am assessing ambulance clinician knowledge about urinary incontinence.

I have read the article you and your colleagues published from 2008 about a reliable, valid instrument to assess patient knowledge about urinary incontinence and pelvic organ prolapse.

The survey question set in survey a published in the article fits the question set I would like to utilise in my survey as ambulance clinicians. I appreciate that this survey is aimed at laypeople in the community, but feel it is an appropriate place to start for the ambulance clinician group I am researching with, as they do not have any specific training on urinary incontinence.

With you permission I'd like to use this survey with one or two minor wording changes to ensure it is relevant to the New Zealand context.

Please don't hesitate to be in touch if you have any questions. I look forward to hearing from you soon.

Kind regards

Celeita.

AUT
Celeita Williams - MHealSc
Lecturer
Paramedicine
Auckland University of Technology

P 09 921 9999 ext 6698 E celeita.williams@aut.ac.nz W aut.ac.nz

Appendix O

Expert Participants in ARWG

Continence Nurse – A clinical nurse specialist who works in the community and hospital setting and specialises in the management of conditions associated with bowel and bladder dysfunction.

Extended Care Paramedic – A paramedic who works in the ambulance service with additional postgraduate training who has advanced patient assessment skills and clinical practice.

Falls and Fracture Nurse – A clinical nurse specialist who works in the community and specialises in the assessment and management of falls and fractures related to falls.

Gerontology Nurse – A clinical nurse specialist who works in a rest home and hospital clinic and specialises in the assessment and management of geriatric patients.

Intensive Care Paramedic – A paramedic who works in the ambulance service with additional postgraduate training who has advanced resuscitation skills and clinical practice.

Neurourologist – A medical doctor who works in the hospital and the community and is trained in the specialities of neurology and urology and how the two are interrelated.

Practice Nurse – A clinical nurse specialist who practices in the general practice environment, providing primary healthcare.

Women Health Nurse – A clinical nurse specialist who practices in a hospital clinic setting and specialises in women's healthcare, specifically urology or gynaecological conditions.

Appendix P

Content Design Feedback for Survey One

1. **Urinary incontinence (loss of urine or leaky bladder) is more common in young women than in older women.**

Two people wanted to change the word old to older and one person questioned if the wording of the is the right way around meaning that they thought it should be written as …is more common in older women than young women – this is deliberately written like this as a 'trick' question to try and establish the ambulance clinician's knowledge base.

2. **Women are more likely than men to leak urine.**

There was a 50:50 split on the feedback for change of this question. Three people wanted a wording change only, two wanted to add in an extra question specifically about men leaking urine, and another wanted to highlight that an enlarged prostate tends to tip the balance of men becoming more likely to leak urine than women. The group agreed to change the question to: I am more likely to ask a women about incontinence issue than a male patient.

3. **Other than pads and diapers, not much can be done to treat leakage of urine.**

Two people agree some change is needed to this question. Two people want to change from negative phrasing to positive phrasing and suggest the question should be changed to 'other than pads and products, there are many ways to treat and manage incontinence. The remaining four would like it to remain the same but use terminology relevant to the Aotearoa New Zealand context: Other than pads and nappies, not much can be done to treat leakage of urine.

4. **It is NOT important to diagnose the type of urine leakage before trying to treat it.**

Three people wanted to change the wording of this question and two want to change the focus of the question. The suggested changes were around bothersome symptoms because these are the focus of starting treatment. While this is a really important point, I think that the level of knowledge and understanding this survey is aimed at, it is relevant to assess the underlying knowledge of ambulance clinicians, and if we were to repeat the survey after the education package, then we could look toward including this focused question.

5. **Many things can cause urine leakage.**

All agree to change this question. The group would like to change this to a free text answer question. This will give us better understanding of the ambulance clinicians base knowledge before we provide education. It will help us to target the training to the right level. The question was considered to be changed to an open-ended question, but ultimately, despite everyone initially agreeing to change the question, on another round of review, they decided not to.

6. Certain exercises can be done to help control urine leakage.

All agree that this question should remain unchanged.

7. Some medications may cause urinary leakage.

Three people suggested a change to this question, but only one gave a recommendation for change and would like to list some medications that can cause urine leakage. For the clinician with no knowledge about medications that can cause urinary incontinence, it is best that this remains unchanged at this time. However, feedback from the question review will be reconsidered if the ambulance clinicians are surveyed after an education package is delivered.

8. Once people start to leak urine, they are never able to control their urine again.

All agree this question should remain unchanged.

9. Doctors can do special types of bladder testing to diagnose urine leakage.

All suggest change of the wording around this question: They suggested the change to:

Medical investigations are available to assess different types of urinary leakage. This change was requested as the group wanted to acknowledge that it is not necessarily doctors who complete these tests anymore, with many nurses or other healthcare professionals performing these assessments. While the lead researcher was happy to change the question, ultimately, despite everyone initially agreeing to change the question, on another round of review, they decided not to.

10. Surgery is the only treatment for urinary leakage.

All agree this question should remain unchanged.

11. Giving birth many times may lead to urine leakage.

Two suggest adding in the words ‘even once’, but otherwise, all agree this question should remain unchanged.

12. Most people who leak urine can be cured or improved with some kind of treatment.

Most people agree this question should remain unchanged, but one person suggests this should be worded for a more positive approach and another suggests the question is too easy. These suggestions will not affect the results gathered, so it will remain unchanged as the majority indicates.

An additional two questions were also included for review, but did not end up included in survey one.

1. **How can the development of an assessment tool enable ambulance clinicians to assess the impact of urinary incontinence on falls in the community?**

Five people agreed to change this question. Three wanted to add in ‘incontinence may be the cause of contributing factor’, one wanted to add in ‘relevance of the connection between the fall and incontinence, and one wanted to change the wording to ‘as an ambulance clinician, what do you think are the important components of a urinary incontinence assessment’.

When collating the group's responses and discussing this with them, it was agreed to propose this question in a different style. The suggested question was: Research has demonstrated a link between falls and incontinence (such as hurrying to the toilet and tripping on the way). While it is important to assess the patient for injuries from the fall, incontinence may be the longer-lasting problem, which may be the cause of the fall or a contributing factor.

2. **If an incontinence assessment tool was developed for ambulance clinicians, how willing would you be to use it?**

All agree this question should remain unchanged.

3. **What do you identify as key issues associated with urinary incontinence and falls?**

All agree this question should be changed. A case scenario is suggested as a question or to have a free text box for a long answer question. One suggested question to include is ‘what questions do you currently ask about patient’s bladder habits’ or to include the following: From the following scenario, please identify the contributing factors to the fall:

   a. Mr Jones has a history of congestive heart failure. He is on a fluid restriction of one litre per day. He takes one zopiclone (7.5mg) at night to help settle to sleep. He gets up in the dark and walks five metres down the hall to reach the toilet. He falls when trying to access the toilet.

   b. Please identify the factors contributing to Mr Jones’ fall.

I think both are a good idea. AUT’s biostatistician (N. Garett, personal communication, March 15, 2021), supports the use of the scenario question in terms of giving better data to demonstrate understanding. Ultimately, the group decided not to use this type of question structure in survey one, and it was reverted back to the original question suggestion.

Appendix Q

Action Research Working Group Initial Responses to Questions

Question	Responses
What do you as a group identify as the key issues associated with incontinence and falls?	Transient -> ongoing issue. Extrinsic factors. Co-morbidities. Stigma for themselves/others/family. Awareness of the 'norm'. Functional incontinence. Frequency. Increased breathlessness from not taking furosemide, rapid deterioration in health. Urgency. Shame. Cost of products/wet towels. Decrease in urge to pee, not aware and then sprung on the person so need to move fast. Awareness of what 'normal' is. Intermittent self catheterisation – infections. Not wanting to talk about it. Urgency. Anxiety. Fear of wetting bed/chair/settee. Embarrassment. Shame. Vulnerability. Fear of being shipped off to a rest home. Physical injuries. Anticholinergics and cognitive decline. Atonic bladder from benign prostatic hyperplasia. Recognised process from referring patients from community system where the problem can be found. What do you want to do – identify, quantify and get appropriate referral made. Accurate timely assessment and support for incontinence (2 respondents). Funding for support. Embarrassment/Whakamā. Co-morbidities. Lack of time to follow through with general practice. High level of acceptance of elderly who experience incontinence.

What is the groups expectation and understanding of ambulance clinicians' knowledge about incontinence?	Not aware incontinence overview is provided (to the ambulance clinicians).
	Individual and personal experience would differ greatly and therefore there will be big differences in awareness levels.
	Possibly a 'firefighting' approach – not planned.
	Possibly related to prior knowledge.
	Must know about this from experience as must 'pick up' wet patients (referring to those who have been incontinent when they have fallen).
	UCC (Urgent Community Care) must have increased training as they put in 'fallen out' indwelling urethral catheters and suprapubic catheters.
	Urinary tract infection (UTI) (2 respondents).
	Surprised ambulance staff don't have any specific training.
	Delirium with UTI.
	Must be able to smell a UTI.
What is the groups expectation and understanding of ambulance clinicians knowledge about falls?	Two or three good sentences are really important to describe how the patient fell on the ePRF.
	How/what/when someone has fallen and assessment of injury.
	Need to hand over specific history of fall to clinical staff to aid diagnosis.
	Document the frequency of falls.
	Document how they found the patient.
	Document how did they get 'there' (the position the person who has fallen ended up in).
	They know they happen frequently.
	They pick up the same person all the time.
	Reports describe how someone fell.
	Not always transferred to the emergency department.
	Referral to falls pathway.
	Falls cause damage and loss of independence.
How can the development and implementation of an assessment tool enable ambulance clinicians to assess the impact of incontinence on falls in the community?	Falls or incontinence and habitual incontinence of faeces or urine are at the same level.
	There is a gap.
	Incontinence is part of the gap.
	It is not a stand-alone subject.
	Medications need review.
	PRISMA test (for frailty) (A copy is in Appendix R).
	Relies on someone else.
	Hopefully make it easy/fast to assess need.
	Highlight and emphasis need for a major issue.
	Help provide/start discussion for change/funding and prevention.
	Put this to front of mind of clinicians.
	Guide practice.
	Algorithm of best practice including referrals etc.

	Look at HQSC Ask, Assess, Act – slipped, tripped, fallen (A copy is in Appendix S). Avoiding activity for fear of falling. Can you get out of a chair without using your hands. Ask have you stopped or avoided any activity because of bladder function or control.

Appendix R

PRISMA Test (For Frailty)

PRISMA Frailty Assessment

STOPFALLS

The PRISMA frailty assessment is a 7 item questionnaire to identify frailty in a person.

Instructions to patient:

To make sure that we can get you the best available care in your situation, we would like to do a few tests. There is no passing or failing in these tests, they just help us to make sure that you receive any extra help you might need. Please answer yes or no to each of the questions.

Instructions for you:

This is a self-completion questionnaire; however you will need to assist the person if English is not a first language and those who may not be able to read the questions or write answers. Please do not answer questions on the persons behalf or influence their answers, but allow them to answer themselves.

Questions to ask:

1. Are you more than 85 years old?
2. Are you Male?
3. In general, do you have any health problems that require you to limit your activities?
4. Do you need someone to help you on a regular basis?
5. In general, do you have any health problems that require you to stay at home?
6. In case of need, can you count on someone close to you?
7. Do you regularly use a stick, walker or wheelchair to get about?

How to score:

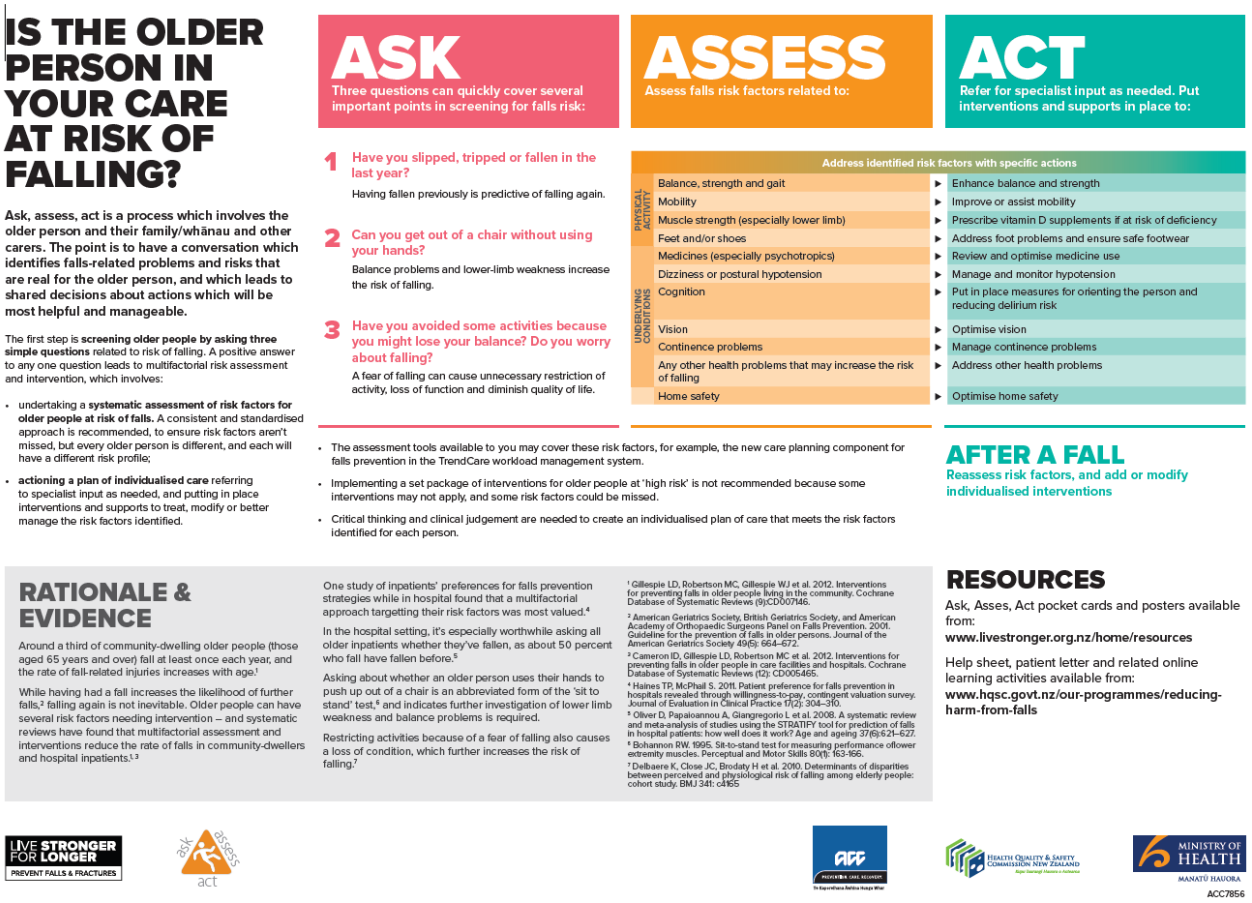
1 point is scored for each question that is answered as yes.
If there are ***3 or more yes*** answers, then the person has a ***risk of frailty.***
You will need to risk assess the result, link with professionals and work on preventative techniques like fitness. Results need to be reflected in care plans.

stopfalls@hcpa.info | www.hcpastopfalls.info | 01707 536 020

Note. PRISMA Frailty Assessment Sourced from Hertfordshire Care Providers Association (2020).

Appendix S

HQSC Ask, Assess, Act



Note. Ask, assess, act pamphlet sourced from the Health Quality and Safety Commission New Zealand (2018).

Appendix T

All Answers Given for Question One

Question	Response from participants	
What questions do you currently ask about patient's bladder habits?	1.	Most questioning would be focused on regularity and volume to gauge input/output fluids rather than specific habits.
	2.	If passing urine is normal and regular, any pain discoloration or odour.
	3.	I ask about any changes in regularity/frequency, any pain, incontinence, unusual smells.
	4.	Frequency, pain/discomfort, odour, colour.
	5.	Have you had any recent increase in frequency, urgency or discomfort while toileting?
	6.	Are you passing water normally, is there any burning or smell, are you going more frequently or just normally?
	7.	Regularity, signs of infection.
	8.	How often they are you going? Are you peeing a lot when you go? Does it hurt when you urinate? What colour is it? What does it smell like? Do you sometimes wet the bed? Do you ever not make it to the toilet? Do you ever wet yourself without realising?
	9.	How is everything with your bowels and bladder? Have you noticed any abnormalities with your urine or bowel motion?
	10.	How frequently are you urinating? Is this your normal amount? Do you have any pain when urinating? Is there any stinging or burning? What's the colour like - dark, light, red? How much are you passing? Is this normal? Is there any strong smells? Does it feel like you've emptied your bladder?
	11.	About urine: do you go regularly? How often, has that changed, what colour (dark/light), is it painful (stinging/burning), amounts (increasing/decreasing).
	12.	Any changes to frequency, colour, smell, discomfort, any associated fluid intake, volume and any incontinence.
	13.	Has your toilet routine changed.
	14.	Have they had any irregularities such as increased urgency, smells, sensations or colour.
	15.	I don't routinely ask specific questions unless I have concerns about UTI or similar diagnoses. Have you had any increase in frequency or urgency? Is there any change in colour, sensation or smell?
	16.	Regular? Smell? Feel finished? Pain?
	17.	Have they been urinating normally? Has there been any increase in frequency? What if any changes have they noticed in their urinary habits.
	18.	You going to the bathroom normally? Number 1s and 2s?
	19.	Have your habits been regular, have you noticed any changes?
	20.	Do you have bladder continence? Do you have any issues passing urine?
	21.	Urgency, smell, colour, discomfort, has it been normal for you, history of infections.

Question	Response from participants	
	22.	Are you urinary habits normal for you? Burning/stinging sensations? Increased frequency? Good colour?
	23.	Change in colour, smell, frequency or any pain.
	24.	Frequency, pain on urination, smell, colour.
	25.	Frequency, any changes, quantity, pain on urination, colour, smell.
	26.	None unless I want to rule out UTI's.
	27.	Frequency, difficulty or easy to urinate, colour and smell.
	28.	Baseline level of incontinence, any changes, and urinary symptoms of a UTI.
	29.	Frequency, urgency, discolouration, odour, altered sensations, pain or discomfort, incontinence or loss of control, presence of blood or other abnormalities, feelings of bladder not fully emptying, reduced/increased amounts, fluid intake, unable to urinate or difficultly starting/stopping.

Appendix U

All Answers Given for Question Two

Question	Response from participants	
What do you identify as key issues associated with urinary incontinence and falls?	1.	Falls have potential for harm/injury and if incontinence is a key factor for falls causation, then this should be directly addressed.
	2.	Lack of voluntary motor control.
	3.	I believe that a lot of people are embarrassed by their incontinence difficult to get to the bathroom or change pads etc. themselves and
	4.	Dignity, length of time in that situation.
	5.	Risks of infection. Hypothermia, urinary dermatitis.
	6.	If the patient has incontinence, they need to get up in the night to go to the toilet, this is when a lot of patients fall.
	7.	Infections being missed. Reduced focus on pelvic floor health.
	8.	People falling at night because they are in a rush to get to the toilet
	9.	Toll on families, effect of day-to-day living, loss of confidence.
	10.	Getting up to going to the bathroom and falling, then having incontinence.
	11.	Having to rush to toilet when feeling an urge, or go more often in order to prevent leakage, worries when going out about bladder control, incontinence products.
	12.	How does a patient manage with mobility issues and getting to toilet. Any products used for incontinence. Is the patient aware of urinary incontinence. Layout of house, how easy is it to get to facilities with walker.
	13.	Product use.
	14.	Time of ambulance response to arrival, incontinence is increased the longer they are on the floor.
	15.	Frail cohort – high risk of serious injury, or increased likelihood of deterioration of other comorbidities. Hypothermia risk. Patients neglecting to use lights at nighttime.
	16.	Rushing to get to the toilet, frequent trips to bathroom causing fatigue or in the dark.
	17.	Getting out of bed frequently to use the bathroom increases the risk of falls.
	18.	Stinky patients.
	19.	Falls can be precipitated by a need to void and a trip or fall on the way to or from a toilet.
	20.	Falls can be associated at night either getting to the toilet and back as they are getting up multiple times to go to the toilet.
	21.	Not getting to toilet on time, embarrassment, anger from others i.e. carers, family.
	22.	UTIs, ongoing independence, follow up care, elder abuse.
	23.	People wetting themselves after they have fallen, getting up in the night to pee and tripping.
	24.	Issues around laying in urine when having fallen.
	25.	Embarrassment and shame associated with using incontinence devices.

Question	Response from participants
	26. UTIs.
	27. Elderly rushing to the toilet, causing falls due to haste.
	28. Urinary issues can increase someone's risk of falling.

Appendix V

Dispatch Decision-making Information from Hato Hone St John

Figure 4

Response colours for Hato Hone St John Ambulance

Response colours determine which incident a dispatcher is required to dispatch first, and whether an ambulance crew is required to respond under lights and sirens to an incident. The ambulance sector in Aotearoa New Zealand currently has five primary response colours; these are outlined in the table below. (Hato Hone St John, 2014)

Priority	% status 0, 1 or 2	Resources dispatched or requested	
PURPLE Suspected cardiac or respiratory arrest	60%	Immediately send: • Closest resource • Closest ICP if practical • Closest FRU/FRG • Notify PRIME • Request Fire Co-Response • GoodSAM (automatic for selected incidents) • Break rest break	UNDER LIGHTS
RED 1 Appears immediately life threatening	30%	Send: • Most appropriate resource • Closest FRU/FRG • Notify PRIME • Request Fire First-Response • Break rest break	
RED 2	25%	• Same rules as RED1. Dispatch RED1 before RED2	
ORANGE 1 Appears serious but not immediately life threatening	20%	Send: • Most appropriate resource • Closest FRU/FRG • Consider PRIME notification • Consider Fire First Response • Do not break rest break	ROAD SPEED (Under lights if clinically significant time saving)
ORANGE 2 Appears serious but not immediately life threatening	10%	Send: • Most appropriate resource • Consider FRU/FRG • Consider PRIME notification • Do not break rest break	
GREEN 1 Does not appear to be serious	5%	Send: • Most appropriate resource • Consider FRU/FRG • Consider PRIME notification • Do not break rest break	ROAD SPEED
GREEN 2 Does not appear to be serious	<5%	Send: • Most appropriate resource • Consider FRU/FRG • Do not break rest break	
GREY Clinical Telephone Advice	Very low incidence	• 111 Clinical Hub for triage.	

Note. Figure reproduced with permission from https://wiki.stjohn.org.nz/ambulance-communications/response-colours/

Appendix W

All Answers Given for Question Three

Question	Response from participants	
How can the development of an assessment tool enable ambulance clinicians to assess the impact of urinary incontinence on falls in the community?	1.	Gathering data at the coal face allows for big picture thinking and strategies to be developed.
	2.	Enable clinicians to identify risk factors before they occur.
	3.	An assessment tool could provide prompts and reminders for exploring avenues of questioning.
	4.	Patient wellbeing, support staff preparation.
	5.	The development of an assessment tool would enable us to get help for the patient and to discuss freely the incontinence problem.
	6.	Assist in looking the holistic aspects of their condition. Is there a cause of the incontinence, is the fall causing the incontinence, is the urinary symptoms causing the falls.
	7.	Gives a consistent tool for ambulance clinicians to use and a mechanism to help reporting and future research.
	8.	Creates a prompt for personnel to initiate conversation and ask relevant questions around this topic.
	9.	I think a flow chart to prompt thinking would be helpful, a clinical tool maybe.
	10.	Would be good to get an overall picture of falls caused by urinary distress. Making subject more open, as I do forget to ask patients about it. Tips for patients should go with it.
	11.	This may help prevent the falls that lead to patient not being able to remain at home due the injuries and now having to be in Rest Home Care etc.
	12.	How problematic it is for the patient in a holistic view.
	13.	Better patient outcomes.
	14.	A resource to help reduce incidents or refer a patient to the most appropriate healthcare provider before any potential injury occurs and create a safety net for a vulnerable population.
	15.	Data gathering, product availability, prevents forgetting to ask.
	16.	I think it would be hugely beneficial as we can be proactive in our approach.
	17.	Good.
	18.	Capture data to allow development if tools. Establish the incidence of incontinence related falls. All to aid in reducing falls.
	19.	Can provide valuable statistic about the occurrence of this which will enable education and tools for patients in the community to use.
	20.	Through questioning, finding patterns of falling enroute to toilet in patients.
	21.	Yet another ePRF checklist and referral scheme could be developed that could then lead to an expedited review.
	22.	Don’t know.
	23.	Unsure.
	24.	I suppose by making it easier for clinicians to easily recall and

Question	Response from participants
	enquire. 25. It would enable us to have another tool in the box when making assessments. 26. By linking this connection, we can raise awareness and look at ways of reducing risk. 27. Perhaps enable us an easier way to gather information specific to a patient we are with and their experience with incontinence and falls, which would be able to be passed on to their GP to try assist with implementing ways to reduce a patient's risk of falling and subsequently injuring themselves.

Appendix X

Free Text Answers Given for The Question 'Is the Time Spent Working Through These Questions with Patients Valuable?' In Survey Two

Answer	Response from participants
Yes	1. It is useful for particular patients. Personally, I feel like pre-existing bias from the clinician and a lack of passion for low acuity work in some ambulance officers would be the main reason this tool is not used. 2. It is quite detailed meaning any clinically significant observations would result in an ongoing positive influence on a patient's health. 3. Absolutely. It is taking a holistic approach to patient care and it does not stray too far from a standard assessment so should not take a huge amount of time to complete compared with transport. 4. Gives insight for both the clinician and the patient as to how they are coping in their current state and if they potentially need support for an unmet need. 5. By working through the tool and spending extra time to go through the tool we can potentially save a patient a trip to the hospital and manage them at home. 6. Yes, it doesn't take long and it allows us to paint an overall picture of the patients health prior to the ambulance being called. This is valuable as we can then gather what has changed for the patient to call 111 and if the appropriate cares are in place or if this needs actioning. 7. I feel it would be but would be more benefit for extended care paramedics to be using this. It would not be appropriate for all emergency ambulance service patients. 8. Yes, if there is not more time sensitive concern, and I'd say less valuable if transported to the emergency department. 9. This forms part of a comprehensive assessment of the patients' needs. 10. It's helpful to understand baseline activity first. Currently we often ask if bowel/urine motions are "normal" for them, can be a difficult and subjective question that is subject to a variety of responses. I think this is partly because this is the uncomfortable and private nature of the topic. 11. I think as we are seeing more primary health issues and situations where patients aren't needing to go to hospital, ambulance crews are in a unique position of having a bit more time to ask these questions. Our exposure to different environmental situations with patients once we identify there is a potential of incontinence, we can gain further information and the history. I am thinking after reading through the questions, that incontinence maybe more common than I am aware of.

Answer	Response from participants
	12. This was my query though, perhaps something more succinct for pre-hospital with a referral to further information gathering and actions?
	13. Yes, in certain scenarios. obviously not appropriate for a status 1 [critically injured] trauma patient.
	14. Sure is but may take up a lot of time. However, going through an 'algorithm' is good when you could quickly establish there is no incontinence problem.
	15. However, it mustn't take the place of other assessments and ambulance have been historically lax in their assessments of people who have "just fallen". There needs to be a value to the patient as they often see us as emergency response not primary health assessors - this could include a referral meaning they get cheaper products etc.
	16. Following a fall, is an incontinence assessment the right time?
	17. Yes, in particular for community care focussed staff, any tool to aid assessment, especially if it can lead to better long-term options.
	18. These questions allow us to gather important information to further assist and benefit our patients.
No	1. I already use some of these questions but not as detailed from what I have read. Very useful though.
	2. Possibly for an extended care paramedic, as an ambulance officer it may be too long.

Appendix Y

Free Text Answers Given for The Question 'Is This Tool a Good Assessment Guide?' In Survey Two

Answer	Response from participants
Yes	1. Yes, it provides a good basis of what to ask and document. I feel like this is an area of low acuity care we do poorly and inconsistently in the ambulance service and developing a standardized tool would help resolve these issues. 2. Because not every question needs to be asked, it will mean that a focused incontinence-based questionnaire will help guide any proposed support they might need. 3. Yes, it will be a helpful prompt. 4. I think it would be valuable, covers a good range of questions. 5. There is currently no tools or guides to use for patients experiencing incontinence which usually leads to hospital transfer. 6. Yes, a systematic and thorough approach. 7. Yes, it looks at multiple different aspects and the questions seem straight forward. 8. I hesitate at the use of "wee" and "poo" - perhaps urine and bowels or similar would be better? 9. This is a useful framework and provides a good start point for non extended care paramedic clinicians at all levels to provide insight in this area. 10. Allows for structured and methodical assessment in a consistent manner across clinicians. My only thought is it might be difficult to remember it all... 11. Yes, I think it covers a good basis. I would need to put it to use to be able to add any further input on this. 12. Compared to other assessments performed pre-hospitally, I think this is possibly a little too detailed, very worthwhile, but an abbreviated version would possibly be more readily utilised. 13. Yes it's very in depth. 14. It appears too good; too many questions. Certainly, good for extended care paramedics. However, if you quickly find out incontinence is a factor you can go through the whole assessment. 15. It is thorough, however it is long. There also needs to be some more definition of terms such as "urgency" that have particular medical meanings. 16. As before, timing. 17. This would be a useful tool, even more so if there were referral options.

Answer	Response from participants
	18. This tool allows for an in-depth ambulance assessment on a patient's continence.

Appendix Z

Free Text Answers Given for the Question 'Would you like to see this assessment tool introduced as an App, on ePRF or another platform?' in Survey Two

Answer	Response from participants
Other platform	1. App for other health providers, so we are all on the same page. ePRF as this would be easier for the ambulance crew to use as a drop-down clinical tools. 2. Could be helpful on the clinical practice guidelines app as a side bar of questions to ask when attending these jobs. Or an online 'QR' code. 3. Under clinical tools in the ePRF 4. ePRF would be problematic as it takes about two years to make changes currently as we do not own the software - we are looking at changing soon. 5. Not at all 6. A clinical tool in the ePRF that dynamically changes the next questions depending on the previous questions answer. i.e. if they answer no to recent UTIs, then this skips all the following UTI questions. I'm strongly of the opinion that the information communication and technology is segmenting into too many different apps/platforms and this should be integrated into the existing into the ePRF if possible. 7. MDCalc, as a multi-disciplinary tool. 8. In guidelines. 9. MDCalc or New Zealand clinical practice guidelines app, or BPAC. I have multiple apps and would prefer to not need to download another one. 10. A section in the clinical practice guidelines.

Appendix AA

All Answers Given for Free Text Question One Survey Two

Question	Response from participants
Please detail what impact you think this assessment tool would have on a patient's health outcomes to remain safe and well in the community?	1. I believe this tool would allow us to pick up patients at higher risk of developing further negative health and social outcomes due to bowel and bladder issues. Provided there would be some sort of follow up and change to our care plan with using this tool I think it could add great benefit in preventing patients from further deteriorating and keeping them socially happy in the community. This could also positively impact the social aspect that goes along with urinary incontinence and patients being socially withdrawn and anxious. 2. I believe the assessment tool will help identify those where being incontinence has a detrimental impact on their daily life and by association their wellbeing. 3. I think this is a great tool. It keeps people out of hospitals and gets them targeted care. It raises the subject (which can be taboo) in a non-threatening way. It will also help prevent falls for patients that are a falls risk. 4. This would greatly improve patient health. Patient may not be aware that they have any issues and by using this tool may provide help that patient may not of been aware they have an issue and there may be a solution. The tool may also prevent patient from getting septic and falling with injuries. 5. Might help address one of the causes of their falls, particularly if they are on a diuretic medication and are needing to get up frequently in the night to use the bathroom. If this is the case their oral intake and medication type and dosage could be reviewed to see if they are on the right medication/dose and if they are potentially restricting oral fluid intake too much to try and reduce trips to the bathroom and therefore reduce falls. Potentially could help identify prostate issues or alert the clinician to advise the GP that the patient could be eligible for bowel screening services if abnormalities with bowel motions are present. Could help the individual feel more confident to leave the home if their incontinence issues are better supported. 6. It would allow further investigation into the patients level of incontinence and whether it is affecting their daily living. By further investigating this we can understand if this is the main concern for the patients call and therefore can try to manage the patient in the community rather than taking them to hospital. the use of a referral team at the end of the tool better improves the likelihood of keeping in the community. 7. A thorough head to toe approach and covering all basis which could then result in the appropriate cares being put

Question	Response from participants
	in place, i.e. extended care paramedic/general practice follow up. And also keeps older and vulnerable people out of the emergency department and therefore exposure to further bugs and illness.
	8. I think this would be great as the patients I visit multiple times were up in the night going toilet. They lose their balance in the dark and suffer other injuries in the fall. It would also stop these people being on the floor for hours and hours waiting for an ambulance. Some have gone toilet where they are as they couldn't get back up. If we could help prevent the toilet trip in the first place then we could prevent the fall and ambulance trip to the emergency department due to injuries. They are generally sent to the waiting room which is an awful long wait for an elderly person.
	9. Massive - would be a great tool to help with referral options.
	10. Not our job.
	11. Well it may pick up on bladder/bowel issues that may have not been addressed or picked up on as the patient may just think it will be normal. May allow for treatment and allow further time for independent living. Rushing to toilet is often causes of falls due to not focussing on the surroundings when moving or taking time to move safely.
	12. There are so many people that have incontinence issues that don't speak up about them unless asked.
	13. This is a very thorough assessment. It seems like a long tool for an ambulance officer to use. How would this assessment tool affect the outcomes.
	14. Would provide good additional information for referral to general practice or community based care.
	15. This tool could be a useful adjunct to identifying potential risks and causes of falls. This could allow intervention earlier meaning patients could be treated safely in the community.
	16. I believe it would have a positive impact to safety netting and ensuring that clinicians have the right information needed to make an assessment. The structured format is helpful to enable staff to cover all bases, particularly as we have received little training on this. Currently if these questions and the in depth nature of the questioning is only asked by very experienced staff through their experience. Even so, I'm confident aspects would still be missed.
	17. I think it would possibly be an awkward conversation for a patient. However, I think this assessment tool has great potential for creating an opportunity for patients to see that they aren't alone, and that potentially there is help in the community and achieving an outcome of being at the top of the cliff for these patients.

Question	Response from participants
	18. I think they are valid questions and would have a far wider impact than is first assumed, nocturnal micturition does account for loads of elderly falls so minimising this risk would be brilliant. My question is how do the questions then connect to action for the patient and also, how is that level of incontinence assessment/detailed questioning utilised efficiently within the pre-hospital environment?
	19. I think it would have a positive impact on patients, as it would give a better insight into what their urinary and bowel habits are and whether they are increasing their falls risk.
	20. I think it's a great screening tool, very in depth and should have good patient outcomes.
	21. Not sure. Even if it comes to light that this was the reason for the fall, it could happen again. Seeking assistance from the general practice or nurse is good but does not resolve the problem straight away.
	22. Would help a patient to realise that incontinence is not just a normal part of aging and that there is medical support so they don't need to be as embarrassed. May draw their attention to it interfering with their daily life and make them more likely to engage in programs.
	23. Excellent initiative.
	24. It may aid if confirming continence issues and then, to seek medical advice. This could allow assessment for referral where appropriate.
	25. Being able to assess and refer these patients could provide more information to them and tools to assist them with their continence which could improve their safety and potentially keep them independent for longer at home.

Appendix BB

All Answers Given for Free Text Question Two Survey Two

Question	Response from participants
How could this assessment tool change your clinical practice?	1. It would help to standardize my assessment questions and documentation. It would also ensure I don't miss anything. 2. All assessment tools provide the benefit of a consistent approach to your assessment. As a result, it would definitely change my clinical practice, and in fact, some of these questions have already made me think differently in this space. 3. I think it would add to my practice as it has patient centric focus. 4. Provide more details for follow up for other health providers. Improve patient outcome and prevent falls/hospital admissions. 5. Provides a more holistic assessment, utilising the extra time we have with patients compared to other types of clinicians and building on the trust they have with the service it seems appropriate to be getting ambulance officers to be asking these questions. 6. It could better my own clinical practice by being able to offer another option for patients to be kept in the community. It will also aid in promoting better patient care. 7. This tool would allow me to compete more thorough assessments and ask questions I probably haven't thought about in the past. It would allow me to really delve deeper into the patient's condition and hopefully find a positive source and a means of leaving these patients safely in the community with follow ups and involvement from primary care providers. 8. I would feel like we can better address these patients for future prevention. At the moment we just have to deal with the fall and subsequent injuries at the time as it's already occurred. There's not much in the way of preventative options going forward. A lot of these patients live alone and are fiercely independent and don't want to go into a rest home. So if we could do some wrap around care to help them with their wishes then I'd feel I'm doing a better job by them. 9. More detailed assessment. 10. Complicates a simple job. 11. I feel I already ask many of these when I assess patient (depending on patient acuity). It would allow us to be more involved especially since appointments with GPs in the area are hard to get. 12. An easier more in-depth assessment than off the cuff. 13. If there was an avenue for dependant on outcomes, I may use it.

Question	Response from participants
	14. Assist with additional information for referral to primary and community care. 15. It would help identify potential causes for falls (especially if they are caused by needed to get to the bathroom). While possibly not influencing the current attendance, a referral may prevent further events and injury occurring. 16. Allows for consistency. Will help to guide junior clinicians in their questioning and decision making. This content is not heavily covered at the emergency medical technician level, so it's a foreign and uncomfortable domain for most of us. 17. I think positively, as clinically it has a potential for helping patients with incontinence issues that may not have been identified previously. Though the ambulance service is emergency focused, the reality is we deal with primary healthcare issues. 18. It is looking more at the holistic care model, and exploring the pre-emptive processes which is fantastic, some will be excited to take it up, however some clinicians are not concerned with this aspect of care. Personally, I think it takes us more into that extended care paramedic territory, which when we have the time to spend is awesome, but we don't always have the time. If appropriate, I would use it. 19. Allow for better investigation of bowel and urinary habits. 20. At the extended care paramedic level it's very good for providing the appropriate care for the patient. 21. Be more aware, more suspicious, of incontinence problems. 22. It would further guide questions on an awkward subject. If it was on the ePRF it could also be given to the patient for them to fill out saving some embarrassment. I would need to know that there was a purpose beyond information gathering as a GP is overwhelmed with info in our reports and often ignores things that are not critical. 23. Won't change the practice, but may increase time at a non-transport when we may clear earlier. 24. This would improve my continence assessments and identification of dysfunction as a cause of falls and impacts on activities of daily living. 25. This would give us more ability to understand a patient's needs in the community and if we could refer them further to the appropriate resources this could improve their independence and safety at home.

Appendix CC

All Answers Given for Free Text Question Three Survey Two

Question	Response from participants
What improvements do you recommend to make this assessment tool easier to use in the ambulance setting?	1. I would recommend making it as user friendly with as little effort. I believe integrating this as a clinical tool into the ePRF would increase usage rate substantially compared with using a separate platform. 2. No general improvements at this time. 3. None, I think it looks good. 4. Tick box drop down in ePRF, with criteria flow chart for recommendation of direction for treatment. 5. Make it user friendly - tick box set up with easy referral process (automatic or internal within the ePRF) if the tick box indicated that the patient needed to be referred. Uptake of use of referral services is low if clinicians have to use multiple platforms to do the referral, especially if the information is having to be duplicated. 6. The use of a tick box system, by ticking yes to the first question it would then automatically take you to the next questions related to it e.g. Yes to question 2 would then go to question 2a and so on. It would also be perfect in the ePRF so documentation is all done together and there's no need to make sure it's documented from an app. 7. N/A fairly straight forward. 8. I like the idea of a tick box checklist under clinical tools just like the non-transport checklist. Also have it in the CPGs under falls. 9. A picture of stool chart could be helpful. 10. Don't do it. 11. Have a set of indications when to use this. 12. I have none. 13. Give the patient a tablet to complete themselves. 14. As previous. 15. Put it in the clinical tools section so it's easy to access and enter details. 16. Either having it available electronically via a flow chart type solution. Or making sections more streamlines, for example the same child questions to each system profile (for simplicity). 17. I think have it set up in the clinical tools section with tick boxes and space for notes to be added. 18. As previously described, refining/reducing it a little to make it more accessible to the majority of staff. 19. No specific changes. 20. Maybe if you could make a catchy acronym for ease of remembering.

Question	Response from participants
	21. Algorithm: first some general question to then proceed further down this tool. 22. Clear indications of what situations this could be used in much like a contraindication/caution list for medications. Implementation is also important, making tools like this compulsory often leads to poorer information and adverse events because it becomes a box ticking/information gathering exercise rather than an assessment to improve health outcomes. 23. Phone follow up instead? Are the medications collected in the ePRF passed back to this research? Other reasons before fall? Previous use of catheters? Other medical history impacting incontinence? 24. Consider including the Bristol Stool Chart into the tool so another page or app doesn't need to be opened to use the chart. 25. I am unsure. This tool would be great to give a robust understanding in the ambulance setting however, this tool has many questions and could potentially be skipped over by some clinicians.

Appendix DD

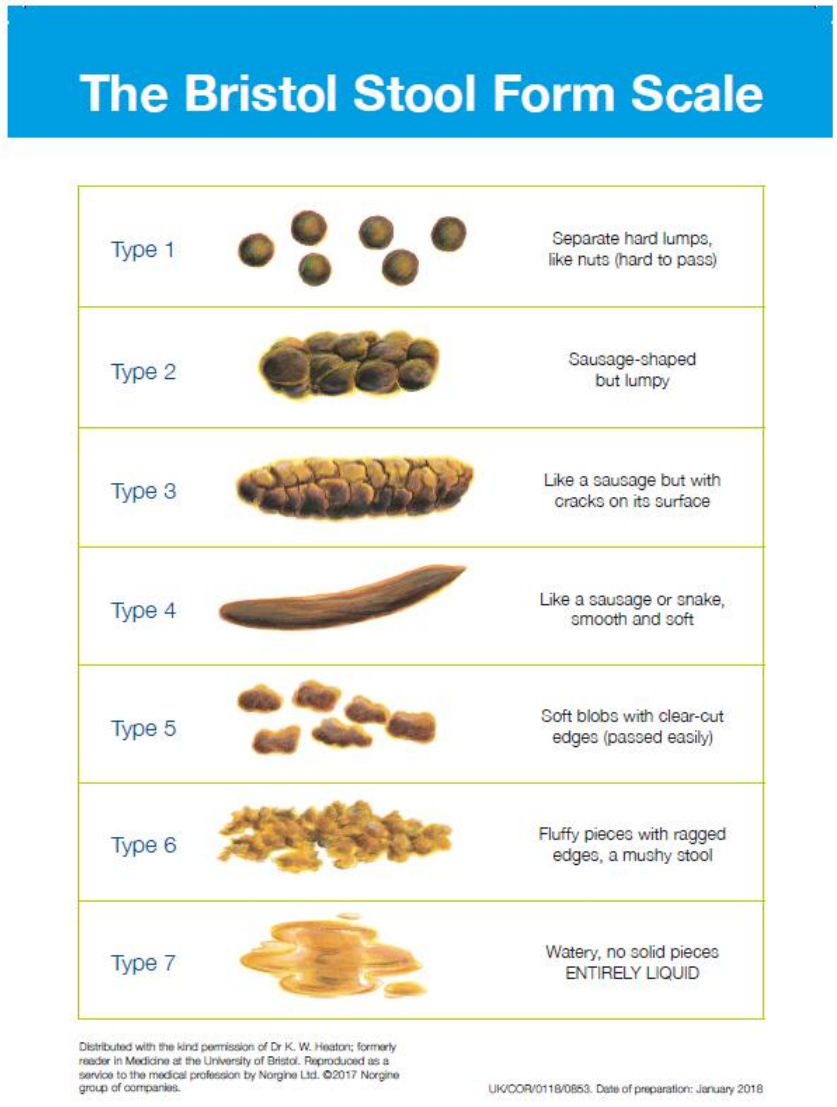
Bristol Stool Chart Also Known as The Pictorial Stool Chart

The Bristol Stool Chart, also known as The Pictorial Stool Chart is defined by the International Continence Society as:

> It is a pictorial chart of stool consistencies. The "Bristol stool chart" seems to have widespread face validity and recognition and is useful in conversations with patients about their stool consistency, despite little validation work. It has not been validated as an outcome measure and a reported change in category may not represent sufficient degree of precision for use as a trial end point. (Sultan et al., 2017, p. 16)

Figure 5

The Bristol Stool Chart



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Appendix EE

Hato Hone St John Referral Pathways

Figure 6

Pathways Short Codes

Pathways short codes

Hato Hone St John

Pathways short code	For full requirements refer to the Wiki ***Always document an NHI, phone number, GP details and consent to refer***
referral@falls	Link able bodied people over the age of 65 years to an exercise class or in home strength and balance program to develop muscle and improve balance to prevent falls. **Do not** refer patients who have a palliative/terminal illness, dementia, are amputees, wheelchair bound or have a degenerative condition such as MND, MS or Parkinson's. **Not a referral for equipment.**
referral@smoking	Put people in touch with services that can help them to reduce or quit smoking or vaping. If the patient is pregnant include expected delivery date (EDD).
referral@nasc	Make daily living as safe and comfortable as possible so the patient can remain at home living safely and comfortably. This can include providing help with ADLs, meals, walking aides and safe medicine management. **Exclusions** › Home support services already in place › Transported to hospital.
referral@medicalalarm	Feel safer in the home with more confidence to perform daily activities and reduced anxiety for the client and their family alike.
referral@caringcaller	A telephone friendship service that aims to reduce the loneliness experienced by some people.
referral@child	Refer children under 18 years to appropriate providers who can put plans in place to reduce harm and the risk of harm. This pathway is for abuse and neglect concerns and reporting **only**.
referral@olderadult	Refer people aged 65+ to appropriate providers who can put plans in place to reduce harm and the risk of harm. This pathway is for abuse and neglect concerns and reporting **only**. This pathway is for abuse and neglect concerns and reporting **only**. It is **not** for socially vulnerable people.
referral@consult	Is your patient status 3 or 4? Are you planning to transport the patient to an ED by ambulance. Call **0800 GET DOC** to see if admission can be avoided. Pain relief and ABs can be prescribed over the phone.

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Appendix FF

All Answers Given for Free Text Question Four Survey Two

Question	Response from participants
How has completing this survey challenged your thinking around assessing incontinence and falls?	1. It has made me realize that I need to put more time and effort into low-acuity patients. This is where I as an ambulance officer can make a significant impact in someone's life, I feel we often forget this. 2. We often know that a fall is subject to a number of different medical conditions, many of which can be triggered by the patient's attitude towards their health. If you can make a patient, see reason and logic behind the condition, then you're more likely to get buy in. Therefore, this is definitely made me think differently around the connection between incontinence and a fall, or perhaps multiple falls. 3. Yes, I think it is something that we as paramedics need to be mindful of. 4. Yes. 5. Other than the effects of diuretics on urinary frequency, it wasn't something I had thought much about previously. I will look to implement some of the questions outlined in this survey into my practice now. 6. Although it's not a current tool, the idea of the survey has made me think about the importance of a deeper assessment into these habits to allow for treatment in the community rather than deciding hospital needs to deal with it. 7. I think this has made me realise that as a clinician I am only really touching the surface when assessing these patients. I admit to trying to find immediately life-threatening issues or issues that must be resolved then and there (i.e. feeling dizzy or unwell prior to falling) however don't currently investigate the urinary incontinence side of things very deeply. 8. I have learnt that as we age our bladder muscles become weaker and we can't hold on as much. It is great to think that we could still help people with a referral service, so it doesn't become "the normal". 9. Solidified it more. 10. It hasn't. 11. I feel having a tool like this would be beneficial, more so for ECP and low acuity but I feel it does make you think about how much of an impact that incontinence has and what we can do for this. 12. It has highlighted the importance of questioning around urine/bowel habits and the role it may play on the cause of the fall. 13. It is a consideration.

Question	Response from participants
	14. (no response given here – compulsory field skipped with a full stop). 15. It's made me a little more aware of the impact incontinence has for some of our patients. 16. Yes definitely. The in depth questioning and range of questioning possible shows this is an entire conversation worthy, not just normal throw away questions such as "are your bowel/urine movements and frequency normal at the moment" which seems to be common practice currently. 17. Bought an awareness around incontinence. 18. I've already had discussions around this topic, so the survey hasn't challenged me at all, but the topic is a great one to increase awareness of, I hope it brings about some positive change for our patients. 19. It has made me realise my current questioning is very limited. 20. It has reinforced that what is traditionally seen as a simple, shallow part of an assessment is actually a rich, in-depth topic that I need to be more aware of. 21. I will ask patients with falls about incontinence, being aware they may not share that without asking. 22. It hasn't really, but I would look forward to implementation of this tool to provide more of a structure to my assessment. 23. None really. 24. I have learnt new things along the process of this research, and it was good to see the tool, I look forward to trying this tool out in the future. 25. Realising the benefits to be had in fully assessing these issues in patients could impact their risk of falling. Being able to refer these patients to an appropriate service would be beneficial and potentially reduce their risk around falling due to continence problems.

Appendix GG

Pathways and Guidance Available for Managing Urinary Incontinence In Women From NICE, The Australian College Of GPs And BPAC NZ

NICE National Institute for Health and Care Excellence

NICE quality standard

Urinary incontinence in women

Quality standard
Published: 22 January 2015
www.nice.org.uk/guidance/qs77

Contents

This standard is based on NG123.

This standard should be read in conjunction with QS15.

Introduction

This quality standard covers the management of urinary incontinence in women aged 18 years and over. It does not cover urinary incontinence in women with neurological disease. For more information see the urinary incontinence in women overview.

Why this quality standard is needed

Urinary incontinence is the involuntary leakage of urine. It may result from a number of abnormalities of function of the lower urinary tract or from other conditions, which tend to cause leakage in different situations:

- Stress incontinence is the involuntary leakage of urine on effort, exertion, sneezing or coughing.
- Urgency incontinence is the involuntary leakage of urine with or immediately preceded by urgency (a sudden compelling desire to urinate that is difficult to delay).
- Mixed urinary incontinence is the involuntary leakage of urine associated with both urgency and exertion, effort, sneezing or coughing.
- Overactive bladder (OAB) is defined as urgency with or without urgency incontinence and usually with frequency and nocturia. When it occurs with incontinence it is known as 'OAB wet'; when it occurs without incontinence it is known as 'OAB dry'. These combinations of symptoms suggest detrusor muscle overactivity, but can result from other forms of urethrovesical dysfunction.

Urinary incontinence is an embarrassing problem for many women. It may be significantly underreported because they are too embarrassed to seek advice, they do not wish to bother their GP; they believe urinary incontinence is normal in older women or they do not know that treatments are available.

Studies have shown that urinary incontinence affects one-third of women, with the prevalence increasing with age. Data also show that slight to moderate incontinence is more common in

younger women, with moderate and severe incontinence mostly affecting older women.

The management of urinary incontinence can be conservative, pharmacological or surgical. Conservative management refers to therapies such as lifestyle interventions and physical, behavioural and non-therapeutic interventions (such as products that collect or contain leakage).

Pharmacological treatment includes drugs with antimuscarinic action, mirabegron, desmopressin, duloxetine and oestrogens.

When conservative management and pharmacological treatment have not adequately treated the symptoms associated with overactive bladder or stress urinary incontinence, surgery or other invasive treatment may be considered.

The quality standard is expected to contribute to improvements in the following outcomes:

- quality of life for women with urinary incontinence
- experience of care for women with urinary incontinence.

How this quality standard supports delivery of outcome frameworks

NICE quality standards are a concise set of prioritised statements designed to drive measurable quality improvements within a particular area of health or care. They are derived from high-quality guidance, such as that from NICE or other sources accredited by NICE. This quality standard, in conjunction with the guidance on which it is based, should contribute to the improvements outlined in the following 2 outcomes frameworks published by the Department of Health:

- The Adult Social Care Outcomes Framework 2014–15 (Department of Health, November 2012)
- NHS Outcomes Framework 2014–15

Tables 1 and 2 show the outcomes, overarching indicators and improvement areas from the frameworks that the quality standard could contribute to achieving.

Table 1 The Adult Social Care Outcomes Framework 2014–15

Domain	Overarching and outcome measures

1 Enhancing quality of life for people with care and support needs	***Overarching measurer*** 1A Social care-related quality of life*
Aligning across the health and care system * Indicator shared with NHS Outcomes Framework (NHSOF)	

Table 2 NHS Outcomes Framework 2014–15

Domain	Overarching indicators and improvement areas
2 Enhancing quality of life for people with long-term conditions	***Overarching indicator*** 2 Health-related quality of life for people with long-term conditions* ***Improvement areas*** **Ensuring people feel supported to manage their condition** 2.1 Proportion of people feeling supported to manage their condition
4 Ensuring that people have a positive experience of care	***Overarching indicators*** 4a Patient experience of primary care i GP services ***Improvement areas*** **Improving people's experience of outpatient care** 4.1 Patient experience of outpatient services
Alignment across the health and social care system * Indicator complementary with Adult Social Care Outcomes Framework (ASCOF)	

Patient experience and safety issues

Ensuring that care is safe and that people have a positive experience of care is vital in a high-quality service. It is important to consider these factors when planning and delivering services relevant to urinary incontinence in women.

NICE has developed guidance and an associated quality standard on patient experience in adult NHS services (see the NICE Pathway on patient experience in adult NHS services), which should be considered alongside this quality standard. They specify that people receiving care should be treated with dignity, have opportunities to discuss their preferences, and be supported to understand their options and make fully informed decisions. They also cover the provision of information to patients and service users. Quality statements on these aspects of patient experience are not usually included in topic-specific quality standards. However, recommendations in the development source(s) for quality standards that impact on patient experience and are specific to the topic are considered during quality statement development.

Coordinated services

The quality standard for urinary incontinence in women specifies that services should be commissioned from and coordinated across all relevant agencies encompassing the whole continence care pathway. A person-centred, integrated approach to providing services is fundamental to delivering high-quality care to women with urinary incontinence.

The Health and Social Care Act 2012 sets out a clear expectation that the care system should consider NICE quality standards in planning and delivering services, as part of a general duty to secure continuous improvement in quality. Commissioners and providers of health and social care should refer to the library of NICE quality standards when designing high-quality services.

Training and competencies

The quality standard should be read in the context of national and local guidelines on training and competencies. All healthcare professionals involved in assessing, caring for and treating women with urinary incontinence should have sufficient and appropriate training and competencies to deliver the actions and interventions described in the quality standard. Quality statements on staff training and competency are not usually included in quality standards. However, recommendations in the development source(s) on specific types of training for the topic that exceed standard professional training are considered during quality statement development.

Role of families and carers

Quality standards recognise the important role families and carers have in supporting women with urinary incontinence. If appropriate, healthcare professionals should ensure that family members and carers are involved in the decision-making process about investigations, treatment and care.

List of quality statements

Statement 1 Women first presenting with urinary incontinence have a physical examination, recording of the type and duration of symptoms, and categorisation of the urinary incontinence.

Statement 2 Women first presenting with urinary incontinence are asked to complete a bladder diary for a minimum of 3 days and given advice about the impact that lifestyle changes can have.

Statement 3 Women with urinary incontinence are only offered containment products as a temporary coping strategy, or as long-term management if treatment is unsuccessful.

Statement 4 Women with stress or mixed urinary incontinence who are able to contract their pelvic floor muscles are offered a trial of supervised pelvic floor muscle training of at least 3 months' duration as first-line treatment.

Statement 5 Women with symptoms of urgency or mixed urinary incontinence are offered bladder training for a minimum of 6 weeks as first-line treatment.

Statement 6 Women with urinary incontinence have indwelling urethral catheters for long-term treatment only if they have an assessment and discussion of the practicalities and potential urological complications.

Statement 7 Women with overactive bladder or stress urinary incontinence symptoms have a local multidisciplinary team review before surgery or other invasive treatment.

Quality statement 1: Initial assessment

Quality statement

Women first presenting with urinary incontinence have a physical examination, recording of the type and duration of symptoms, and categorisation of the urinary incontinence.

Rationale

Physical assessment and recording of the type and duration of symptoms help to categorise the urinary incontinence and enable referral for the correct treatment. Categorising urinary incontinence is important because different types of incontinence need different treatments.

Quality measures

Structure

Evidence of local arrangements to ensure that women first presenting with urinary incontinence have a physical examination, recording of the type and duration of symptoms, and categorisation of urinary incontinence.

Data source: Local data collection.

Process

Proportion of women first presenting with urinary incontinence who receive a physical examination, recording of the type and duration of symptoms, and categorisation of urinary incontinence.

Numerator – the number in the denominator who receive a physical examination, recording of type and duration of symptoms, and categorisation of urinary incontinence.

Denominator – the number of women first presenting with urinary incontinence.

Data source: Local data collection and National Audit of Continence Care.

What the quality statement means for different audiences

Service providers (such as GP practices, community continence services and hospitals) ensure that

women first presenting with urinary incontinence receive a physical examination, recording of the type and duration of symptoms, and categorisation of urinary incontinence.

Healthcare professionals ensure that when women first present with urinary incontinence they carry out a physical examination, record the type and duration of symptoms, and categorise the incontinence.

Commissioners (such as clinical commissioning groups and NHS England local area teams) ensure that they commission services that offer women first presenting with urinary incontinence a physical examination, recording of the type and duration of symptoms, and categorisation of urinary incontinence.

Women first going to their doctor with leakage of urine have an examination, with recording of the types of symptom and how long they have had them. This helps the healthcare professional to identify the type of problem and decide whether referral to a specialist is needed.

Source guidance

Urinary incontinence and pelvic organ prolapse in women (2019) NICE guideline NG123, recommendation 1.3.1

Definitions of terms used in this quality statement

Categorisation of urinary incontinence

Urinary incontinence can be categorised into stress urinary incontinence, urgency, urinary incontinence due to overactive bladder, or mixed urinary incontinence.

[Expert opinion]

Physical examination

As a minimum, physical examination should include palpation of the abdomen to look for gross abnormalities and inspection of the external genitalia.

[Expert opinion]

Equality and diversity considerations

Women with physical disabilities may have difficulty accessing the service so provision needs to be made for a home visit if necessary.

Women with learning disabilities may need to be escorted by a support worker or family member and may need to receive information about the condition in a way that is easy for them to understand.

Some women, including those from certain ethnic groups, religious or cultural backgrounds, may prefer to be examined by a female healthcare professional. Provision for this should be made, if possible.

Quality statement 2: Bladder diaries and lifestyle changes

Quality statement

Women first presenting with urinary incontinence are asked to complete a bladder diary for a minimum of 3 days and given advice about the impact that lifestyle changes can have.

Rationale

Bladder diaries can provide a variety of information about urinary incontinence and may also be used for monitoring the effects of treatment. A bladder diary can help healthcare professionals and the woman to understand when urgency or leakage occurs, which is important when considering the management options.

Lifestyle changes can improve symptoms in women with urinary incontinence or overactive bladder. Giving lifestyle advice to women when they first present means they can benefit from these improvements as soon as possible.

Quality measures

Structure

a) Evidence of local arrangements to ensure that women first presenting with symptoms of urinary incontinence are asked to complete a bladder diary for a minimum of 3 days.

Data source: Local data collection.

b) Evidence of local arrangements to ensure that women first presenting with urinary incontinence are given lifestyle advice.

Data source: Local data collection.

Process

a) Proportion of women first presenting with urinary incontinence who are asked to complete a bladder diary for a minimum of 3 days.

Numerator – The number in the denominator who are asked to complete a bladder diary for a minimum of 3 days.

Denominator – The number of women first presenting with urinary incontinence.

Data source: Local data collection and National Audit of Continence Care.

b) Proportion of women first presenting with urinary incontinence who are given advice about lifestyle changes.

Numerator – The number in the denominator who are given advice about lifestyle changes.

Denominator – The number of women first presenting with urinary incontinence.

Data source: Local data collection

What the quality statement means for different audiences

Service providers (such as GP practices and community continence services) ensure that staff are trained to ask women first presenting with urinary incontinence to complete a bladder diary for a minimum of 3 days and give advice about the impact that lifestyle changes can have.

Healthcare professionals ensure that they ask women first presenting with urinary incontinence to complete a bladder diary for a minimum of 3 days and give them advice about the impact that lifestyle changes can have.

Commissioners (such as clinical commissioning groups and NHS England local area teams) ensure that they commission services in which staff are trained to ask women first presenting with urinary incontinence to complete a bladder diary for a minimum of 3 days and give them advice about the impact that lifestyle changes can have.

Women first going to their doctor with leakage of urine are asked to fill in a bladder diary for at least 3 days and given advice about how lifestyle changes can help. A bladder diary is used to record how much liquid they drink, how often they need to urinate and how much urine they pass. This diary is important to help understand patterns when considering options for management. Making lifestyle changes can improve symptoms.

Source guidance

Urinary incontinence and pelvic organ prolapse in women (2019) NICE guideline NG123, recommendations 1.3.13, 1.4.1, 1.4.2 and 1.4.3

Definitions of terms used in this quality statement

Bladder diary

A diary that records times and amounts of urine passed, leakage episodes, pad usage and other information such as fluid intake, degree of urgency and degree of incontinence. A bladder diary should cover variations in the usual activities, such as both working and leisure days.

[Adapted from NICE's guideline on urinary incontinence and pelvic organ prolapse in women]

Lifestyle changes

These are part of conservative management and include weight loss, fluid management and caffeine reduction.

[Adapted from NICE's guideline on urinary incontinence and pelvic organ prolapse in women]

Equality and diversity considerations

Women with physical disabilities may have difficulty accessing the service so provision needs to be made for a home visit if necessary.

Women with learning disabilities may need to be escorted by a support worker or family member and may need to receive information about the condition in a way that is easy for them to understand. They may also need support to complete the bladder diary.

Some women, including those from certain ethnic groups, religious or cultural backgrounds, may prefer to discuss urinary incontinence with a female healthcare professional. Provision for this should be made, if possible.

Different versions of bladder diaries should be available for women who do not speak or read English. These women may also need support to complete the diary.

Quality statement 3: Containment products

Quality statement

Women with urinary incontinence are only offered containment products as a temporary coping strategy, or as long-term management if treatment is unsuccessful.

Rationale

Containment products such as absorbent products, hand-held urinals and toileting aids can offer security and comfort for women with urinary incontinence. The products can help women to continue their normal daily activities and therefore improve quality of life. However, they are costly, can affect the woman's dignity and do not offer a long-term solution. Therefore they should not be offered in the long term unless other treatments have failed.

Quality measures

Structure

Evidence of local arrangements to ensure that containment products are offered only as a temporary coping strategy for urinary incontinence in women or as long-term management if treatment is unsuccessful.

Data source: Local data collection.

Process

Proportion of women with urinary incontinence who are offered containment products as a temporary coping strategy or as long-term management if treatment is unsuccessful.

Numerator – the number in the denominator offered containment products as a temporary coping strategy or as long-term management if treatment is unsuccessful.

Denominator – the number of women with urinary incontinence who are offered containment products.

Data source: Local data collection and National Audit of Continence Care.

What the quality statement means for different audiences

Service providers (such as GP practices, community continence services and hospitals) ensure that services offer containment products (absorbent products, hand-held urinals and toileting aids) to women with urinary incontinence only as a temporary coping strategy or as long-term management if treatment is unsuccessful.

Health and social care professionals ensure that they offer containment products (absorbent products, hand-held urinals and toileting aids) to women with urinary incontinence only as a temporary coping strategy or as long-term management if treatment is unsuccessful.

Commissioners (such as clinical commissioning groups) ensure that they commission services that offer women with urinary incontinence containment products (absorbent products, hand-held urinals and toileting aids) only as a temporary coping strategy or as long-term management if treatment is unsuccessful.

Women with leakage of urine may be offered products such as pads, hand-held urinals and toileting aids, but only as a temporary measure or in the longer term if treatment is unsuccessful. These products will help women to carry on with their normal daily activities.

Source guidance

Urinary incontinence and pelvic organ prolapse in women (2019) NICE guideline NG123, recommendation 1.4.16

Quality statement 4: Supervised pelvic floor muscle training

Quality statement

Women with stress or mixed urinary incontinence who are able to contract their pelvic floor muscles are offered a trial of supervised pelvic floor muscle training of at least 3 months' duration as first-line treatment.

Rationale

Women with stress or mixed urinary incontinence are often given a leaflet on pelvic floor muscle training but are not given additional support. As a result, many women who attend for specialist treatment have been incorrectly performing pelvic floor muscle exercises for many years with no improvement in their symptoms. Supervised pelvic floor exercise programmes with trained healthcare professionals can improve symptoms significantly, avoiding surgery or other invasive treatment.

For women with mixed urinary incontinence, supervised pelvic floor training is first-line treatment alongside bladder training.

Quality measures

Structure

Evidence of local arrangements to ensure that a trial of supervised pelvic floor muscle training of at least 3 months' duration is available as first-line treatment for women with stress or mixed urinary incontinence who are able to contract their pelvic floor muscles.

Data source: Local data collection.

Process

a) Proportion of women with stress or mixed urinary incontinence who can contract their pelvic floor muscles who have a trial of supervised pelvic floor muscle training of at least 3 months' duration as first-line treatment.

Numerator – the number in the denominator who have a trial of supervised pelvic floor muscle training of at least 3 months' duration as first-line treatment.

Denominator – the number of women with stress or mixed urinary incontinence who can contract their pelvic floor muscles.

Data source: Local data collection.

b) Proportion of women with urinary incontinence who have a digital vaginal assessment to confirm correct pelvic floor muscle contraction before referral for supervised pelvic floor muscle training.

Numerator – the number in the denominator who have a digital vaginal assessment to confirm correct pelvic floor muscle contraction before referral.

Denominator – the number of women with urinary incontinence who are referred for supervised pelvic floor muscle training.

Data source: Local data collection.

What the quality statement means for different audiences

Service providers (such as GP practices, community continence services and hospitals) ensure that supervised pelvic floor muscle training of at least 3 months' duration is available as first-line treatment for women with stress or mixed urinary incontinence who can contract their pelvic floor muscles. Those delivering the training should be suitably trained to do so.

Healthcare professionals ensure that they offer supervised pelvic floor muscle training of at least 3 months' duration as first-line treatment for women with stress or mixed urinary incontinence who can contract their pelvic floor muscles.

Commissioners (such as clinical commissioning groups) ensure that they commission services that offer women with stress or mixed urinary incontinence who can contract their pelvic floor muscles supervised pelvic floor muscle training of at least 3 months' duration as first-line treatment.

Women with leakage of urine caused by conditions called stress or mixed urinary incontinence who can contract their pelvic floor muscles are offered at least 3 months of training in pelvic floor exercises with a healthcare professional as a first treatment. This can lead to big improvements in symptoms and can mean that surgery or other invasive treatment is avoided.

Source guidance

Urinary incontinence and pelvic organ prolapse in women (2019) NICE guideline NG123, recommendation 1.4.4

Definitions of terms used in this quality statement

Pelvic floor muscle training

Training in repetitive selective voluntary contraction and relaxation of specific pelvic floor muscles that is delivered and evaluated by a trained healthcare professional.

[Adapted from NICE's guideline on urinary incontinence and pelvic organ prolapse in women]

Equality and diversity considerations

Women with physical disabilities may have difficulty accessing the service so provision needs to be made for a home visit if necessary.

Women with learning disabilities may need to be escorted by a support worker or family member and may need to receive information about the condition in a way that is easy for them to understand.

Some women, including those from certain ethnic groups, religious or cultural backgrounds, may prefer a female healthcare professional to supervise their pelvic floor exercises. Provision for this should be made, if possible.

Quality statement 5: Bladder training

Quality statement

Women with symptoms of urgency or mixed urinary incontinence are offered bladder training for a minimum of 6 weeks as first-line treatment.

Rationale

Bladder training teaches a woman how to hold more urine in her bladder and so reduce the number of times she needs to pass urine. It also includes lifestyle advice on the amount and types of fluids to drink, and coping strategies to reduce urgency.

For women with mixed urinary incontinence, bladder training is first-line treatment alongside supervised pelvic floor training.

Quality measures

Structure

Evidence of local arrangements to ensure that women with symptoms of urgency or mixed urinary incontinence are offeredbladder training for a minimum of 6 weeks as first-line treatment.

Data source: Local data collection.

Process

Proportion of women with symptoms ofurgency or mixed urinary incontinence who have bladder training for a minimum of 6 weeks as first-line treatment.

Numerator – The number in the denominator who have bladder training for a minimum of 6 weeks as first-line treatment.

Denominator – The number of women having first-line treatment for urgency or mixed urinary incontinence.

Data source: Local data collection.

What the quality statement means for different audiences

Service providers (such as GP practices, community continence services and hospitals) ensure that systems are in place for women with symptoms of urgency or mixed urinary incontinence to have bladder training for at least 6 weeks as first-line treatment.

Healthcare professionals offer bladder training for at least 6 weeks as first-line treatment to women with symptoms of urgency or mixed urinary incontinence.

Commissioners (such as clinical commissioning groups) ensure that they commission services that offer women with symptoms of urgency or mixed urinary incontinence bladder training for at least 6 weeks as first-line treatment.

Women with urine leakage caused by conditions called urgency or mixed urinary incontinence are offered bladder training (advice on reducing urine leakage) for at least 6 weeks as a first treatment. This can help reduce the number of times a woman needs to pass urine.

Source guidance

Urinary incontinence and pelvic organ prolapse in women (2019) NICE guideline NG123, recommendation 1.4.11

Definitions of terms used in this quality statement

Bladder training

Bladder training (also described as bladder retraining, bladder re-education, bladder drill, bladder discipline) actively involves the woman in trying to increase the interval between the desire to pass urine and actually doing so.

[Adapted from NICE's guideline on urinary incontinence and pelvic organ prolapse in women].

Equality and diversity considerations

Women with physical disabilities may have difficulty accessing the service so provision needs to be made for a home visit if necessary.

Women with learning disabilities may need to be escorted by a support worker or family member

and may need to receive information about the condition in a way that is easy for them to understand.

Some women, including those from certain ethnic groups, religious or cultural backgrounds, may prefer a female healthcare professional to offer them bladder training. Provision for this should be made, if possible.

Quality statement 6: Indwelling catheters

Quality statement

Women with urinary incontinence have indwelling urethral catheters for long-term treatment only if they have an assessment and discussion of the practicalities and potential urological complications.

Rationale

Long-term use of indwelling urethral catheters can be associated with increased risk of urinary tract infections and urethral complications, and can affect daily life. Therefore, healthcare professionals should discuss with the woman (and her family or carer if appropriate) the practicalities, benefits and risks of this treatment.

Quality measures

Structure

Evidence of local arrangements to ensure that healthcare professionals offer women with urinary incontinence long-term treatment with indwelling urethral catheters only if they have had assessment and discussion aboutthe practicalities and potential urological complications.

Data source: Local data collection.

Process

Proportion of women with urinary incontinence who had assessment and discussion of the practicalities and potential urological complications of the long-term use of indwelling urethral catheters.

Numerator – the number in the denominator who had assessment and discussion of the practicalities and potential urological complications of long-term use of indwelling urethral catheters before the fitting of the indwelling urethral catheter.

Denominator – the number of women with urinary incontinence who have indwelling urethral catheters for long-term use.

Data source: Local data collection.

What the quality statement means for different audiences

Service providers (such as GP practices, community continence services and hospitals) ensure that systems are in place to assess and discuss the practicalities and potential urological complications of indwelling urethral catheters with women with urinary incontinence before these are fitted for long-term use.

Healthcare professionals ensure that they assess women with urinary incontinence and discuss the practicalities and potential urological complications before they offer indwelling urethral catheters for long-term use.

Commissioners (such as clinical commissioning groups) ensure that they commission services that assess and discuss the practicalities and potential urological complications of indwelling urethral catheters with women with urinary incontinence before these are fitted for long-term use.

Women with leakage of urine are offered an assessment and a discussion with their healthcare professional about the day-to-day use and possible complications of having a catheter before they are offered this for long-term treatment. This will help the woman to decide whether a catheter is right for her.

Source guidance

Urinary incontinence and pelvic organ prolapse in women (2019) NICE guideline NG123, recommendation 1.4.21

Equality and diversity considerations

Women with physical disabilities may have difficulty accessing the service so provision needs to be made for a home visit if necessary.

Women with learning disabilities may need to be escorted by a support worker or family member and may need to receive information about the condition in a way that is easy for them to understand.

Some women, including those from certain ethnic groups, religious or cultural backgrounds, may prefer to have an assessment and discussion with a female healthcare professional. Provision for this should be made, if possible.

Quality statement 7: Multidisciplinary team review before surgery or invasive treatment

Quality statement

Women with overactive bladder or stress urinary incontinence symptoms have a local multidisciplinary team review before surgery or other invasive treatment.

Rationale

Surgery or other invasive treatment should only be considered if conservative management and pharmacological treatment have been unsuccessful. Multidisciplinary team review can ensure that all other possible treatments have been considered before surgery and other invasive treatments. The whole team approach can also help the decision of whether invasive treatment is suitable for the woman.

Quality measures

Structure

Evidence of local arrangements to ensure that a local multidisciplinary team reviews the treatment options before surgery or other invasive treatment for women with overactive bladder or stress urinary incontinence.

Data source: Local data collection.

Process

Proportion of women with overactive bladder or stress urinary incontinence who have a local multidisciplinary team review before surgery or other invasive treatment.

Numerator – The number in the denominator who had a local multidisciplinary team review before surgery or other invasive treatment.

Denominator – The number of women with overactive bladder or stress urinary incontinence who have surgery or other invasive treatment.

Data source: Local data collection.

What the quality statement means for different audiences

Service providers (such as community continence services and hospitals) ensure that local multidisciplinary teams are in place to discuss management strategies before surgery or other invasive treatment for women with overactive bladder or stress urinary incontinence.

Healthcare professionals ensure that women with overactive bladder or stress urinary incontinence have a local multidisciplinary team review before surgery or other invasive treatment.

Commissioners (such as clinical commissioning groups) ensure that they commission services that carry out a local multidisciplinary team review before surgery or other invasive treatment for women with overactive bladder or urinary incontinence.

Womenwith leakage of urinecaused by conditions called overactive bladder or stress urinary incontinence have a review of their condition by a team of healthcare professionals before surgery or other invasive treatment. This review will make sure that all other treatments have been considered and help with the decision of whether invasive treatment is right for the woman.

Source guidance

Urinary incontinence and pelvic organ prolapse in women (2019) NICE guideline NG123, recommendation 1.1.1

Definitions of terms used in this quality statement

Invasive treatments

These include:

- botulinum toxin type A injection
- percutaneous sacral nerve stimulation
- augmentation cystoplasty
- urinary diversion.

[Adapted from NICE's guideline on urinary incontinence and pelvic prolapse in women]

Local multidisciplinary team

A multidisciplinary team for urinary incontinence that should include:

- 2 consultants with expertise in managing urinary incontinence in women and/or pelvic organ prolapse
- a urogynaecology, urology or continence specialist nurse
- a pelvic floor specialist physiotherapist

and may also include:

- a member of the care of the elderly team
- an occupational therapist
- a colorectal surgeon.

[NICE's guideline on urinary incontinence and pelvic organ prolapse in women]

Using the quality standard

Quality measures

The quality measures accompanying the quality statements aim to improve the structure, process and outcomes of care in areas identified as needing quality improvement. They are not a new set of targets or mandatory indicators for performance management.

See NICE's how to use quality standards for further information, including advice on using quality measures.

Levels of achievement

Expected levels of achievement for quality measures are not specified. Quality standards are intended to drive up the quality of care, and so achievement levels of 100% should be aspired to (or 0% if the quality statement states that something should not be done). However, NICE recognises that this may not always be appropriate in practice, taking account of safety, choice and professional judgement, and therefore desired levels of achievement should be defined locally.

Using other national guidance and policy documents

Other national guidance and current policy documents have been referenced during the development of this quality standard. It is important that the quality standard is considered alongside the documents listed in development sources.

Diversity, equality and language

During the development of this quality standard, equality issues have been considered and equality assessments are available.

Good communication between health, public health and social care practitioners and women with urinary incontinence is essential. Treatment, care and support, and the information given about it, should be culturally appropriate. It should also be accessible to people with additional needs such as physical, sensory or learning disabilities, and to people who do not speak or read English. Women with urinary incontinence should have access to an interpreter or advocate if needed.

Commissioners and providers should aim to achieve the quality standard in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity and foster good relations. Nothing in this quality standard should be interpreted in a way that would be inconsistent with compliance with those duties.

Development sources

Further explanation of the methodology used can be found in the quality standards process guide.

Evidence sources

The document below contains recommendations from NICE guidance or other NICE-accredited recommendations that were used by the Quality Standards Advisory Committee to develop the quality standard statements and measures.

- Urinary incontinence and pelvic organ prolapse in women: management (2019) NICE guideline NG123

Policy context

It is important that the quality standard is considered alongside current policy documents, including:

- All Party Parliamentary Group for Continence Care (2013) Continence care services in England 2013 – survey report
- Royal College of Physicians (2010) National audit of continence care – combined organisational and clinical report

Definitions and data sources for the quality measures

Primary source

- Urinary incontinence and pelvic organ prolapse in women: management (2019) NICE guideline NG123

Quality Standards Advisory Committee and NICE project team

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Update information

Minor changes since publication

April 2019: Changes have been made to align this quality standard with the updated NICE guideline on urinary incontinence and pelvic organ prolapse in women. Links and source guidance references have been updated throughout. The wording of statement 7 has been amended in line with the recommendations on local multidisciplinary teams in the updated guidance.

About this quality standard

NICE quality standards describe high-priority areas for quality improvement in a defined care or service area. Each standard consists of a prioritised set of specific, concise and measurable statements. NICE quality standards draw on existing NICE or NICE-accredited guidance that provides an underpinning, comprehensive set of recommendations, and are designed to support the measurement of improvement.

The methods and processes for developing NICE quality standards are described in the quality standards process guide.

This quality standard has been incorporated into the NICE Pathway on urinary incontinence and pelvic organ prolapse in women.

NICE produces guidance, standards and information on commissioning and providing high-quality healthcare, social care, and public health services. We have agreements to provide certain NICE services to Wales, Scotland and Northern Ireland. Decisions on how NICE guidance and other products apply in those countries are made by ministers in the Welsh government, Scottish government, and Northern Ireland Executive. NICE guidance or other products may include references to organisations or people responsible for commissioning or providing care that may be relevant only to England.

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Endorsing organisation

This quality standard has been endorsed by NHS England, as required by the Health and Social Care Act (2012)

Supporting organisations

Many organisations share NICE's commitment to quality improvement using evidence-based guidance. The following supporting organisations have recognised the benefit of the quality standard in improving care for patients, carers, service users and members of the public. They have agreed to work with NICE to ensure that those commissioning or providing services are made aware of and encouraged to use the quality standard.

- Bladder and Bowel Foundation

- British Society of Urogynaecology
- Pelvic Obstetric and Gynaecological Physiotherapy
- Royal College of General Practitioners
- Royal College of Nursing
- Royal College of Obstetricians and Gynaecologists
- Primary Care Women's Health Forum
- United Kingdom Continence Society

(National Institute for Health and Care Excellence, 2015).

RACGP
Royal Australian College of General Practitioners

RACGP aged care clinical guide (Silver Book)

5th edition

Part A. Urinary incontinence

General principles

- Urinary incontinence is common in older people and has an effect on multiple life domains.
- It is important to understand the different urinary incontinence subtypes, as the causative factor and management approaches to each may be different. These subtypes may overlap in some instances, which could complicate the clinical picture.
- A stepwise approach to urinary incontinence includes taking a detailed history, physical examination, relevant investigations, reviewing medications and ruling out potentially reversible factors.
- A multidisciplinary approach to urinary incontinence management should be in line with the patient's goals and preferences. This may include lifestyle and behavioural advice (Level of Evidence: 1), consideration of medication trials if appropriate (Level of Evidence: 3), containment or bladder drainage strategies and possible referrals for further investigations or specialist reviews if appropriate.

Practice points

Practice points	References	Grade
Step 1. Evaluation		
Evaluate the patient's lower urinary tract and general medical, functional and cognitive status	5	Consensus-based recommendation
Identify and treat transient, potentially reversible causes of incontinence using the DIPPERS mnemonic	5	Grade of Recommendation: B
Step 2. Take a detailed history	7	Consensus-based recommendation
Step 3. Review medication		Consensus-based recommendation
Review medications that may cause or aggravate urinary incontinence	7	

Step 4. Focused examination		
Use validated, evidence-based frailty screening tool	6	Consensus-based recommendation
Consider the effect of physical disability and possible cognitive impairment	6	Consensus-based recommendation
Conduct abdominal, gynaecological, rectal, perineal skin and lower-limb neurological examinations	6	Consensus-based recommendation
Step 5. Basic investigations		
Consider including urinalysis +/– microscopy and culture as part of the basic investigation	6	Grade of Recommendation: C
Consider including bladder chart over three days as part of the basic investigation	6	Consensus-based recommendation
Consider including portable bladder scan for measurement of post-void residual urine as part of the basic investigation	9	Consensus-based recommendation
Establish goals of care for urinary incontinence by taking into consideration patient factors, personal preference and the capabilities of care providers	6	Consensus-based recommendation
Consider altering lifestyle and behavioural measures; however, it may not be practical to implement many of these lifestyle and behavioural measures for older people who have significant cognitive impairment and/or physical disability	7	Consensus-based recommendation
Consider medications, bladder drainage options and surgical treatment options in some patients	11, 12	Consensus-based recommendation
Consider referral to specialist care based on indications for referral, availability, patient transport and patient preference	1	Consensus-based recommendation

Introduction

Incontinence is common in older people, with increasing prevalence and severity according to age.[1] Three out of four Australians living in supported accommodation have severe incontinence and require assistance with managing bladder or bowel control.[2]

True numbers on the prevalence of incontinence are likely to be underestimated given the nature of incontinence being underreported, underscreened and undertreated. The most recent nationwide census of incontinence from the Australian Bureau of Statistics (ABS) in 2012[3] found a 24% increase in prevalence between 2009 and 2012 (with incontinence defined as the need for assistance with bladder or bowel control, and/or the use of continence aids). Approximately 5% of people aged 65–84 years experience severe incontinence, and this increases by more than five times for those aged ≥85 years (28%).

Incontinence is associated with increased mortality and morbidity, and alters a person's quality of life by affecting multiple domains:

- Physical – increases risk of falls and related fractures,[1] leads to incontinence-associated dermatitis
- Functional – associated with higher levels of care required
- Emotional – linked with shame, depression, social isolation and reduced quality of life[3]
- Financial – the estimated total expenditure of incontinence in Australia was $1.6 billion in 2008–09, with $1.3 billion spent in residential aged care facilities (RACFs).[4] Personal costs include unsubsidised incontinence products, specialised equipment, medications and special dietary modifications
- Residential status – 87% of aged care assessment team respondents listed incontinence as a significant deciding factor for transition to living in residential care[1]

Urinary incontinence is defined as 'the complaint of any involuntary leakage of urine'.[5] It is not a physiological part of ageing, but age-related changes in the urinary tract system leave older people more susceptible to urinary incontinence.[6] Some of the age-related changes include:

- reduced bladder capacity
- reduced sensation of filling
- increased detrusor overactivity
- decreased bladder contractile function
- increased incidence of benign prostatic obstruction in men
- decreased urethral closure pressure and circulating oestrogen in women.

Additional factors such as reduced physiological reserve, multimorbidity (refer to Part A. Multimorbidity), polypharmacy (refer to Part A. Polypharmacy) and environmental obstacles increase this vulnerability even further.

Clinical context

The subtypes of urinary incontinence may overlap and complicate the clinical picture for the treating physician. Refer to Appendix 1. Definitions and terminology relating to urinary incontinence for the specific definitions for the terminology commonly used in clinical practice that relates to incontinence.

Urge incontinence

Key factors to consider:

- Involuntary loss of urine is associated with a strong urge to void.
- This is a result of detrusor overactivity.
- Common causes include medication, age-related atrophic changes, anxiety, urinary tract infections (UTIs), prostatic hypertrophy and neurological disease.

Stress incontinence

Key factors to consider:

- Involuntary loss of urine occurs with raised intra-abdominal pressure (eg laughing, sneezing, coughing, lifting).
- This is a result of either urethral sphincter weakness or hypermobility of the urethra and its consequent failure to close effectively.
- It occurs more commonly in patients who are overweight, have pelvic floor weakness after childbirth, or as a complication of prostatic surgery.

Chronic retention (overflow incontinence)

Key factors to consider:

- Involuntary loss of urine is associated with an overdistended or poorly contractile bladder.
- Continuous or intermittent leakage may occur.
- It may be caused by an atonic bladder (eg neurogenic bladder) or partial obstruction of urine flow (eg prostatomegaly, pelvic mass, faecal impaction; refer to Part A. Faecal incontinence).

Functional or behavioural incontinence

Key factors to consider:

- It occurs in otherwise continent people who are unable to reach the toilet in time or who are not cognitively able to recognise the need to void in an appropriate place at an appropriate time.
- Common causes include mobility problems (eg arthritis, insufficient assistance, medications, Parkinson's disease) and cognitive or psychiatric disorders affecting recognition of the need to void (eg dementia, depression, medications).

Mixed incontinence

Key factors to consider:

- Mixed incontinence is a combination of urge and stress incontinence, for example
  - older women with pelvic floor weakness that leads to idiopathic detrusor overactivity
  - development of urge and stress incontinence following radical prostatectomy.

In practice

Assessment

A stepwise approach to urinary incontinence includes the following five steps:

1. Evaluation
2. Taking a detailed history
3. Medication review
4. Focused examination
5. Basic investigations

Evaluation

Evaluate the lower urinary tract, and general medical, functional and cognitive status. Identify transient, potentially reversible causes of incontinence using the DIPPERS mnemonic (refer to Box 1 for more information; Grade of Recommendation: B).[5]

Box 1. DIPPERS mnemonic[6]

D	Delirium
I	Infection
P	Pharmaceuticals
P	Psychological
E	Excess fluid
R	Restricted mobility
S	Stool impaction

Taking a detailed history

When taking a detailed history of an older patient who is suspected of experiencing urinary incontinence, the following information should be obtained:[7]

- Symptoms including frequency of incontinence, amount of urine loss and use of incontinence products (eg pads), keeping in mind that the bladder alone can often be an unreliable witness of urinary incontinence.
- Fluid intake – volume and type (including caffeine and alcohol).
- Bowel frequency, stool consistency and need to strain.
- Review of medical, past surgical or obstetric history, and conditions affecting mobility or dexterity.

- Psychological factors (ie cognition and mental state; refer to Part A. Mental health).
- Patient management and effect of their incontinence (eg anxiety, low self-esteem, embarrassment in social situations, social isolation, depression, problems with hygiene).

Medication review

It is important to review medications that may cause or aggravate urinary incontinence. For example:[8]

- urge incontinence may be caused/aggravated by diuretics, selective serotonin reuptake inhibitors (SSRIs), cholinergic and anticholinesterase agents
- stress incontinence may be caused/aggravated by alpha-adrenergic blockers
- chronic urinary retention may be caused/aggravated by anticholinergic agents, verapamil, pseudoephedrine, opioids, and many psychotropic medications
- functional incontinence may be caused/aggravated by psychotropics, analgesics.

Refer to Part A. Medication management for more information.

Focused examination

A focused examination should consider the following:[6]

- Does the patient appear frail? The use of a validated, evidence-based screening tool can be helpful as frailty is associated with an increased risk of incontinence (Level of Evidence: 1; refer to Part A. Frailty).
- Consider the effects of physical disability – observe mobility and transfers.
- Consider possible cognitive impairment – briefly assess cognitive function.
- Assess the abdomen (ie enlarged bladder, pelvic masses), bearing in mind that abdominal palpation is a relatively insensitive method of diagnosing urinary retention.
- Gynaecological examination (ie atrophic vulval or vaginal changes, prolapse, loss of urine observed at the urethral meatus on coughing).
- Rectal examination – inspection and digital rectal examination (ie constipation/faecal impaction, prostatic hypertrophy, anal tone, perineal sensation).
- Perineal skin examination – inspect for dermatitis or thrush.
- Lower-limb neurological examination, focusing on weakness and any upper motor neuron signs.
- Signs of conditions associated with incontinence (eg diabetes, neuropathy, cerebrovascular disease, Parkinson's disease, depression).

Basic investigations

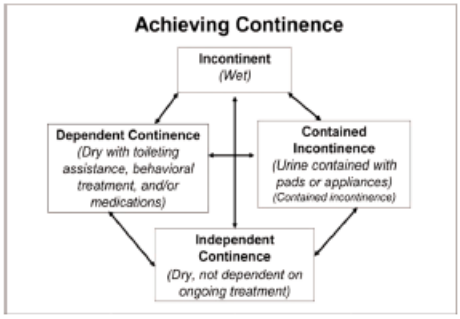
Basic investigations should include the following:[6]

- Urinalysis +/– microscopy and culture (Grade of Recommendation: C). Asymptomatic bacteriuria in this population is common, and general practitioners (GPs) need to be cautious about interpreting a positive culture result in this context.
- Bladder chart over three days (as part of the Aged Care Funding Instrument Assessment), including input and output volumes, times of voiding and fluid intake, episodes of incontinence and some estimate of the severity of the incontinence.
- Portable bladder scan for measurement of post-void residual urine (where possible and available)[9]
  - Normal bladder capacity is about 500 mL with minimal residual urine post-void.
  - A residual urine volume of more than 100 mL may require further investigation.
  - If a portable bladder scan is not available or there is some doubt over the result, a renal tract ultrasound to ascertain post-void residual urine should be ordered.

Management

Following the five assessment steps, it is important to treat causes of potentially reversible, usually transient urinary incontinence. If this is not possible, it is then necessary to establish goals of care for urinary incontinence by taking into consideration patient factors (eg physical disability, cognitive impairment), personal preference and the capabilities of care providers (Figure 1).

Figure 1. Achieving continence



Many regional aged-care service providers offer a specialised continence service with access to a geriatrician, nurse continence specialist and continence physiotherapist:

- Nurse continence specialists can provide advice on assessment, pelvic floor exercises and suitable choice of continence products.
- Continence physiotherapists can assist with lifestyle advice plus education on pelvic floor exercises with or without biofeedback or electrical stimulation.

The National Continence Helpline (1800 330 066) can provide details of these clinics and services. Governmental subsidies such as the Continence Aids Payment Scheme (CAPS) may be available for eligible parties, although most patients in RACFs are ineligible.[10] State and territory specific programs such as the State-wide Equipment Program (SWEP) in Victoria may provide further financial assistance.

Lifestyle and behavioural measures

It may not be practical to implement many of these lifestyle and behavioural measures for older people who have significant cognitive impairment and/or physical disability. For such patients, the use of incontinence products is usually the most important aspect of management, combined with a regular toileting assistance program. If possible, the following lifestyle and behavioural measures should be implemented:[7]

- Appropriate fluid intake (1.5 L/day), limit caffeine and alcohol intake.
- Minimise evening fluid intake and ensure adequate night lighting for those with nocturia.
- Avoidance or treatment of constipation (eg increase dietary fibre).
- Regular toileting habits with good posture and time for complete emptying.
- Bladder retraining for urge incontinence in patients with good cognitive function.
- Pelvic floor exercises for women with stress incontinence and overactive bladder, and men with overactive bladder.
- Toileting assistance and prompting for regular voiding.
- Incontinence products (eg disposable pants, absorbent bedding).
- Mobility aids, bedside commode or urinal, over-toilet frame.

Pharmacological

In some patients, prescribed medications may be indicated:

- Oestrogen cream for atrophic vaginitis can improve incontinence and reduce the recurrence of UTIs.[11]
- Aperients, including bulking agents, osmotic laxatives, stimulant laxatives or stool softeners, and, if necessary, suppositories or enemas for constipation (refer to Part A. Faecal incontinence).
- The role of antibiotic prophylaxis for recurrent urine infections is controversial as this may promote microbial resistance; however, this may be worthwhile to reduce urine infections, especially if there is associated delirium or hospitalisation.[12]
- Oxybutynin is an anticholinergic agent that may help relieve overactive bladder symptoms; however, there are concerns over its side-effect profile (ie xerostomia, constipation, worsening urinary retention, cognitive impairment). Oxybutynin remains the only Pharmaceutical Benefits Scheme (PBS)-funded medication available for the treatment of overactive bladder in Australia. Thus, tips on prescribing include the following
  - Start at low dose of 2.5 mg orally at night, increase slowly according to response and tolerability (maximum dose is 5 mg three times a day, but frail, older people are rarely able to tolerate this dose).
  - Stop if there is no benefit after four to six weeks.
  - The common complaint of dry mouth may be alleviated by switching to a trial of transdermal oxybutynin, which is associated with less dry mouth.
- Non-PBS-funded options for overactive bladder include
  - solifenacin or darifenacin
    - These may have fewer anticholinergic side effects because of their targeted actions on the M3 muscarinic receptors in the bladder smooth muscle.
    - Darifenacin is said to be associated with fewer central nervous system side effects, and may be an alternative to consider in patients with cognitive impairment.
  - mirabegron
    - This is a beta-3 adrenergic receptor agonist that does not have anticholinergic side effects, and is an attractive option for the older population, especially if the patient is cognitively impaired.
    - Side effects include a rise in blood pressure, and is contraindicated if there is severe uncontrolled hypertension (ie ≥180 mmHg systolic +/– ≥110 mmHg diastolic).
- Medications for treating possible bladder outlet obstruction related to prostatic enlargement because of benign prostatic hypertrophy include
  - PBS-funded options: prazosin or dutasteride–tamsulosin
    - Prazosin tends to lower blood pressure, which increases the risk of falls.
    - Dutasteride with tamsulosin has become a preferred option for the geriatric cohort.
    - Tamsulosin alone is funded under the Department of Veterans' Affairs and not the PBS.

Bladder drainage options

Bladder drainage options include the following:

- Condom drainage – this may be an option for men with a penile shaft of reasonable length on which to attach the condom. Condom drainage can be particularly helpful for nocturnal incontinence, although problems such as the condom frequently falling off limits the use of this option (consultation with a nurse continence specialist is advised).
- Indwelling catheter (ie urethral, suprapubic) – this is only considered for urinary incontinence alone if all other treatment options have been tried unsuccessfully. The complications of an indwelling catheter, particularly catheter-associated UTIs, catheter bypassing and recurrent blockage, usually become more of a management problem than the urinary incontinence itself. Therefore, indwelling catheters, as a measure to manage urinary incontinence alone, should be avoided whenever possible. Apart from incontinence, they may be needed for managing chronic urinary retention related to conditions such as benign prostatic hyperplasia, detrusor acontractility or neurological (usually spinal cord pathology) causes, in order to prevent risks of hydronephrosis and renal failure.

Further investigations

A renal tract ultrasound may be used to investigate:

- haematuria on urinalysis
- recurrent UTIs
- benign prostatic hypertrophy to estimate prostate size, although the degree of prostatic enlargement on ultrasound does not necessarily reflect the degree of prostatic obstruction
- chronic retention for observation of bladder trabeculation
- upper-tract dilatation in those with lower urinary tract obstruction.

Consider the following points about urodynamics:

- This is a specialised study looking at bladder function during filling and voiding; it is usually carried out by urologists, urogynaecologists or geriatricians working with a regional continence service.
- Urodynamics should only be considered if the results of the study will clearly influence management (eg deciding surgical treatment).
- For most older patients, urodynamics will not normally be considered; however, for mobile, medically fit patient who are candidates for surgery, urodynamics may be appropriate.

Referral for cystoscopy depends on the patient's clinical circumstances (refer to Indications for specialist referral).

Surgical treatments

Surgical treatments include:

- treatment of urethral obstruction in men (eg dilation of a urethral stricture, transurethral resection of prostate)
- mid-urethral sling for stress incontinence, usually in women
- administration of intravesical botulinum toxin via cystoscopy to patients with refractory overactive bladder (either neurogenic or idiopathic). There is a risk of urinary retention post-operatively, thus patients may need to learn to self-catheterise prior to the procedure which, for most frail older patients, may prove challenging.

Indications for specialist referral

Consider referral to geriatrics, urology or urogynaecology services for urodynamic studies or further investigations and management. Common indications for specialist care referral include:[1]

- persistent haematuria
- persistent pelvic pain
- suspected pelvic mass
- symptomatic prolapse
- suspected neurological disease
- voiding difficulty
- poor response to initial therapy
- unclear type/diagnosis of incontinence.

Appendix 1. Definitions and terminology relating to urinary incontinence

There are specific definitions for the terminology commonly used in clinical practice that relate to incontinence.[5]

Overactive bladder syndrome	Storage symptoms of urgency with or without urgency incontinence, usually with frequency and nocturia
Detrusor overactivity	Diagnosis made on urodynamics testing confirming involuntary detrusor contractions during the filling phase, which may be spontaneous or provoked
Nocturia	Interruption of sleep one or more times at night to void (in practice, a three-day bladder diary should be recorded and assessed)
Nocturnal polyuria	>33% of the total daily urine production occurs at night in older people; >20% in younger people
Nocturnal enuresis	Involuntary loss of urine during sleep
Lower urinary tract symptoms	Includes both storage (ie frequency, urgency, nocturia) and voiding symptoms (ie hesitancy, poor stream, incomplete emptying, post-void dribbling)

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(Royal Australian College of General Practitioners, 2019).

Urinary incontinence in women

The management of urinary incontinence in women

May 2016

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Contents

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www.bpac.org.nz/guidelines/2

4

Introduction

The UK's National Institute for Health and Care Excellence (NICE) provides evidence-based guidance and advice to improve health and social care.

Clinical guidelines are recommendations by NICE on the most effective ways to diagnose, treat and care for people with specific conditions within the NHS and beyond. They are based on the best available evidence of clinical and cost effectiveness. While clinical guidelines help health professionals and others in their work, they do not replace their knowledge and skills.

Good clinical guidelines aim to improve the quality of healthcare and reduce inequalities and variation in practice. They can change the process of healthcare and improve outcomes for patients. Clinical guidelines:

- Help professionals and patients make decisions about the most appropriate treatment and care for specific clinical circumstances.
- Can be used to develop standards to assess the clinical practice of individual health professionals.
- Can support the education and training of health professionals and others.
- Can improve communication between patients and health professionals.

The Best Practice Advocacy Centre New Zealand (bpac^{nz}) has an agreement with NICE to contextualise recently published NICE clinical guidelines for the New Zealand health care sector. The contextualisation process is described in detail on the bpac^{nz} website. As part of this process, bpac^{nz} will convene a Guideline Review and Contextualisation Group (GRCG) for each guideline. The GRCG will carefully consider the NICE guideline recommendations, taking into account the differences between the UK and New Zealand health care systems to produce a guideline that is relevant to those delivering and managing care in New Zealand.

Urinary incontinence (UI) is a common symptom that can affect women of all ages, with a wide range of severity and nature. While rarely life-threatening, incontinence may seriously influence the physical, psychological and social wellbeing of affected individuals. The impact on the families and carers of women with UI may be profound, and the resource implications for the health service considerable.

UI is defined by the International Continence Society as 'the complaint of any involuntary leakage of urine'. UI may occur as a result of a number of abnormalities of function of the lower urinary tract or as a result of other illnesses, which tend to cause leakage in different situations.

- Stress UI is involuntary urine leakage on effort or exertion or on sneezing or coughing.
- Urgency UI is involuntary urine leakage accompanied or immediately preceded by urgency (a sudden compelling desire to urinate that is difficult to delay).
- Mixed UI is involuntary urine leakage associated with both urgency and exertion, effort, sneezing or coughing.

- Overactive bladder (OAB) is defined as urgency that occurs with or without urgency UI and usually with frequency and nocturia. OAB that occurs with incontinence is known as 'OAB wet'. OAB that occurs without incontinence is known as 'OAB dry'. These combinations of symptoms are suggestive of the urodynamic finding of detrusor overactivity, but can be the result of other forms of urethrovesical dysfunction.

Urinary incontinence in neurological disease is outside the scope of this guideline but is covered in the NICE clinical guideline 148 – Urinary incontinence in neurological disease. This guideline has not been contextualised for New Zealand.

The guideline will assume that prescribers will use a medicine according to the New Zealand marketing authorisation (Medsafe) and the relevant sections of the New Zealand Medicines Act (1981).

Patient-centred care

This guideline offers best practice advice on the care of women with urinary incontinence.

Patients and healthcare professionals have rights and responsibilities as set out by the New Zealand Code of Health and Disability Services Consumers' Rights. This contextualised guideline is written to reflect these rights.

Treatment and care should take into account individual needs and preferences. Patients should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals.

The Code of Health and Disability Services Consumers' Rights states that patients have rights as consumers of health and disability services provided by doctors and other health professionals in public and private services, for paid and unpaid services, within hospitals and within private practices. The code of rights is law under the Health and Disability Act 1994 (the HDC Act).

6

Key priorities for implementation

The following recommendations have been identified by the GRCG as priorities for implementation.

Cultural considerations

- During any clinical assessment or management the clinician should be respectful of a patient's cultural and ethnic background, specifically acknowledging that for Māori and Pacific peoples all bodily waste (urine, menstrual blood, faeces) can be considered tapu. It is important to keep things that are tapu, or restricted, separate from things that are noa, or unrestricted. In many cases, these concepts align with good health and safety practice.

History-taking and physical examination

- At the initial clinical assessment, categorise the woman's urinary incontinence (UI) as stress UI (SUI), mixed UI, or urgency UI/overactive bladder (OAB). Start initial treatment on this basis. In mixed UI, direct treatment towards the predominant symptom.

Assessment of pelvic floor muscles

- Undertake routine digital assessment to confirm pelvic floor muscle contraction before the use of supervised pelvic floor muscle training for the treatment of UI.

Bladder diaries

- Use bladder diaries in the initial assessment of women with UI or OAB. Encourage women to complete a minimum of 3 days of the diary covering variations in their usual activities, such as both working and leisure days.

Absorbent products, urinals and toileting aids

- Absorbent products, hand held urinals and toileting aids should not be considered as a treatment for UI. Use them only as:
  - a containment strategy pending definitive treatment
  - an adjunct to ongoing therapy
  - long-term management of UI only after treatment options have wbeen explored.

Indwelling urethral catheters

- Give careful consideration to the impact of long-term indwelling urethral catheterisation. Discuss the practicalities, benefits and risks with the patient or, if appropriate, her carer. Indications for the use of long-term indwelling urethral catheters for women with UI include:
  - chronic urinary retention in women who are unable to manage intermittent self-catheterisation
  - skin wounds, pressure ulcers or irritations that are being contaminated by urine
  - distress or disruption caused by bed and clothing changes
  - where a woman expresses a preference for this form of management.

General principles when using overactive bladder (OAB) medicines

- Before OAB medicine treatment starts, discuss with women:
  - the likelihood of success and associated common adverse effects, **and**
  - the frequency and route of administration, **and**
  - that some adverse effects such as dry mouth and constipation may indicate that treatment is starting to have an effect, **and**
  - that they may not see the full benefits until they have been taking the treatment for 4 weeks.

Choosing OAB medicines

- Offer oxybutynin (immediate release) to women with OAB or mixed UI.

If this is not effective or well-tolerated offer another option of tolterodine or solifenacin (subsidised with Special Authority approval).

Surgical approaches for stress urinary incontinence (SUI)

- When offering a surgical procedure discuss with the woman the risks and benefits of the different treatment options for SUI (in the table 'Information to facilitate discussion of risks and benefits of treatments for women with stress urinary incontinence', Page 22).

The multidisciplinary team (MDT)

- Offer invasive therapy (beyond botulinum toxin type A) for OAB and/or recurrent post surgical and complex cases of SUI symptoms only after an MDT review.

Maintaining and measuring surgical expertise and standards for practice

- A national audit of continence surgery should be undertaken.

1. Recommendations

The following guidance is based on the best available evidence. The NICE full guideline (CG171)[1] gives details of the methods and the evidence used to develop the NICE guidance. The process and methods for contextualising the NICE guideline for the New Zealand health sector is available on the bpac^{nz} website.[2]

The wording used in the recommendations in this guideline (for example words such as 'offer' and 'consider') denotes the certainty with which the recommendation is made (the strength of the recommendation). See the 'Strength of recommendations' section in this guideline (Page 33).

1.1 Assessment and investigation

1.1.1 During any clinical assessment or management the clinician should be respectful of a patient's cultural and ethnic background, specifically acknowledging that for Māori and Pacific peoples all bodily waste (urine, menstrual blood, faeces) can be considered tapu. It is important to keep things that are tapu, or restricted, separate from things that are noa, or unrestricted. In many cases, these concepts align with good health and safety practice.

History-taking and physical examination

1.1.2 At the initial clinical assessment, categorise the woman's urinary incontinence (UI) as stress UI (SUI), mixed UI, or urgency UI/overactive bladder (OAB). Start initial treatment on this basis. In mixed UI, direct treatment towards the predominant symptom.

1.1.3 If stress incontinence is the predominant symptom in mixed UI, discuss with the woman the benefit of conservative management including OAB medicines before offering surgery.

1.1.4 During the clinical assessment seek to identify relevant predisposing and precipitating factors and other diagnoses that may require referral for additional investigation and treatment.

Assessment of pelvic floor muscles

1.1.5 Undertake routine digital assessment to confirm pelvic floor muscle contraction before the use of supervised pelvic floor muscle training for the treatment of UI.

Assessment of prolapse

1.1.6 Refer women with UI who have symptomatic prolapse that is visible at or below the vaginal introitus to a specialist.

Urine testing

1.1.7 Undertake a urine dipstick test in all women presenting with UI to detect the presence of blood, glucose, protein, leucocytes and nitrites in the urine.

1. See; www.nice.org.uk/guidance/cg171
2. See: www.bpac.org.nz/guidelines/development-process.html

1.1.8 If women have symptoms of urinary tract infection (UTI) and their urine tests positive for both leucocytes and nitrites send a midstream urine specimen for culture and analysis of antibiotic sensitivities. Prescribe an appropriate course of antibiotic treatment pending culture results.

1.1.9 If women have symptoms of UTI and their urine tests negative for either leucocytes or nitrites send a midstream urine specimen for culture and analysis of antibiotic sensitivities. Consider the prescription of antibiotics pending culture results.

1.1.10 If women do not have symptoms of UTI, but their urine tests positive for both leucocytes and nitrites, do not offer antibiotics without the results of midstream urine culture.

1.1.11 If a woman does not have symptoms of UTI and her urine tests negative for either leucocytes or nitrites do not send a urine sample for culture because she is unlikely to have UTI.

Assessment of residual urine

1.1.12 Measure post-void residual volume by bladder scan or catheterisation in women with symptoms suggestive of voiding dysfunction or recurrent UTI.

1.1.13 Use a bladder scan in preference to catheterisation on the grounds of acceptability and lower incidence of adverse events.

1.1.14 Refer women who are found to have a palpable bladder on bimanual or abdominal examination after voiding to a specialist.

Referral

1.1.15 Urgently refer women with UI who have suspected malignant mass arising from the urinary tract.

Haematuria (macroscopic and microscopic) should be investigated urgently and referred according to local referral pathways.

1.1.16 In women with UI, further indications for consideration for referral to a specialist service include:

- persisting bladder or urethral pain
- recurrent or persisting UTI
- clinically benign pelvic masses
- associated faecal incontinence
- suspected neurological disease
- symptoms of voiding difficulty
- suspected urogenital fistulae
- previous continence surgery
- previous pelvic cancer surgery
- previous pelvic radiation therapy[3]

3. For further indications for consideration for referral, see recommendations 1.1.5 and 1.1.13.

Symptom scoring and quality-of-life assessment

1.1.17 Use the following incontinence-specific quality-of-life scales when therapies are being evaluated: ICIQ, BFLUTS, I-QOL, SUIQQ, UISS, SEAPI-QMM, ISI and KHQ.[4]

Bladder diaries

1.1.18 Use bladder diaries in the initial assessment of women with UI or OAB. Encourage women to complete a minimum of 3 days of the diary covering variations in their usual activities, such as both working and leisure days.

Pad testing

1.1.19 Do not use pad tests in the routine assessment of women with UI.

Urodynamic testing

1.1.20 Do not perform multi-channel cystometry or videourodynamics before starting conservative management.

1.1.21 After undertaking a detailed clinical history and examination, perform multi-channel filling and voiding cystometry before surgery in women who have:

- symptoms of OAB leading to a clinical suspicion of detrusor overactivity, **or**
- symptoms suggestive of voiding dysfunction or anterior compartment prolapse, **or**
- had previous surgery for stress incontinence.

1.1.22 Do not perform multi-channel filling and voiding cystometry in the small group of women where pure SUI is diagnosed based on a detailed clinical history and examination.

1.1.23 Consider videourodynamics if the diagnosis is unclear after multi-channel cystometry.

Other tests of urethral competence

1.1.24 Do not use the Q-tip, Bonney, Marshall and Fluid-Bridge tests in the assessment of women with UI.

Cystoscopy

1.1.25 Do not use cystoscopy in the initial assessment of women with UI alone.

Imaging

1.1.26 Do not use imaging (MRI, CT, X ray) for the routine assessment of women with UI. Do not use ultrasound other than for the assessment of residual urine volume.

4. See the NICE full guideline for details. Available from www.nice.org.uk/guidance/CG171

1.2 Lifestyle interventions

Caffeine

1.2.1 Recommend a trial of caffeine reduction to women with OAB.

Fluid intake

1.2.2 Consider advising modification of high or low fluid intake in women with UI or OAB.

Weight

1.2.3 Advise women with UI or OAB who have a BMI greater than 30 to lose weight.

1.3 Physical therapies

Pelvic floor muscle training

1.3.1 Offer a trial of supervised pelvic floor muscle training of at least 3 months' duration as first-line treatment to women with stress or mixed UI.

1.3.2 Pelvic floor muscle training programmes should comprise at least 8 contractions performed 3 times per day.

1.3.3 Do not use perineometry or pelvic floor electromyography as biofeedback as a routine part of pelvic floor muscle training.

1.3.4 Continue an exercise programme if pelvic floor muscle training is beneficial.

Therapeutic stimulation

1.3.5 Do not routinely use electrical stimulation in the treatment of women with OAB.

1.3.6 Do not routinely use electrical stimulation in combination with pelvic floor muscle training.

1.3.7 Electrical stimulation and/or biofeedback should be considered in women who cannot actively contract pelvic floor muscles in order to aid motivation and adherence to therapy.

1.4 Behavioural therapies

Bladder training

1.4.1 Offer bladder training lasting for a minimum of 6 weeks as first-line treatment to women with urgency or mixed UI.

Multicomponent behavioural therapy

1.4.2 If women do not achieve satisfactory benefit from bladder training programmes or, in the case of some elderly women, anticipated to not achieve satisfactory benefit due to poor adherence to bladder training or pelvic floor muscle training, the combination of an OAB medicine with bladder training should be considered if frequency and urge UI are troublesome symptoms.

1.5 Neurostimulation

Within this guideline neurostimulation covers transcutaneous sacral nerve stimulation (surface electrodes placed above the sacrum), transcutaneous posterior tibial nerve stimulation (surface electrodes place above the posterior tibial nerve) and percutaneous posterior tibial nerve stimulation (needles inserted close to the posterior tibial nerve).

Transcutaneous sacral nerve stimulation

1.5.1 Do not offer transcutaneous sacral nerve stimulation to treat OAB in women.

Transcutaneous posterior tibial nerve stimulation

1.5.2 Explain that there is insufficient evidence to recommend the use of transcutaneous posterior tibial nerve stimulation to treat OAB.

1.5.3 Do not offer transcutaneous posterior tibial nerve stimulation for OAB.

Percutaneous posterior tibial nerve stimulation

1.5.4 Do not offer percutaneous posterior tibial nerve stimulation for OAB unless:

- there has been a multidisciplinary team (MDT) review, **and**
- conservative management including OAB medicine treatment has not worked adequately, **and**
- the woman does not want botulinum toxin type A[5] or percutaneous sacral nerve stimulation.

1.5.5 Explain that there is insufficient evidence to recommend the use of percutaneous posterior tibial nerve stimulation to routinely treat OAB.

1.6 Alternative conservative management options

Absorbent products, urinals and toileting aids

1.6.1 Absorbent products,[6] hand held urinals and toileting aids should not be considered as a treatment for UI. Use them only as:

- a coping strategy pending definitive treatment
- an adjunct to ongoing therapy
- long-term management of UI only after treatment options have been explored.

Catheters

1.6.2 Bladder catheterisation (intermittent or indwelling urethral or suprapubic) should be considered for women in whom persistent urinary retention is causing incontinence, symptomatic infections, or renal dysfunction, and in whom this cannot otherwise be

5. At the time of publication (May 2016), the Botulinum toxin type A with NZ Medsafe marketing authorisation for this indication is the BOTOX (Allergan) preparation.
6. District Health Board (DHB) provision of absorbent products is subject to the relevant Ministry of Health (MOH) service specification (The Community Health Care, Transitional and Support Services – Specialist Community Nursing Service – Continence Education and Consumables Services – Tier Level Three- Service Specification)

corrected. Healthcare professionals should be aware, and explain to women, that the use of indwelling catheters in urgency UI may not result in continence.

Intermittent urethral catheters

1.6.3 Offer intermittent urethral catheterisation to women with urinary retention who can be taught to self-catheterise or who have a carer who can perform the technique.

Indwelling urethral catheters

1.6.4 Give careful consideration to the impact of long-term indwelling urethral catheterisation. Discuss the practicalities, benefits and risks with the patient or, if appropriate, her carer. Indications for the use of long-term indwelling urethral catheters for women with UI include:

- chronic urinary retention in women who are unable to manage intermittent self-catheterisation
- skin wounds, pressure ulcers or irritations that are being contaminated by urine
- distress or disruption caused by bed and clothing changes
- where a woman expresses a preference for this form of management.

Indwelling suprapubic catheters

1.6.5 Indwelling suprapubic catheters should be considered as an alternative to long-term urethral catheters. Be aware, and explain to women, that they may be associated with lower rates of symptomatic UTI, 'bypassing', and urethral complications than indwelling urethral catheters.

Products to prevent leakage

1.6.6 Do not use intravaginal and intraurethral devices for the routine management of UI in women. Do not advise women to consider such devices other than for occasional use when necessary to prevent leakage, for example during physical exercise.

Complementary therapies

1.6.7 Do not recommend complementary therapies for the treatment of UI or OAB.

Preventive use of conservative therapies

1.6.8 Offer pelvic floor muscle training to women in their first pregnancy as a preventive strategy for UI.

Women who choose not to have further treatment

1.6.9 If a woman chooses not to have further treatment for urinary incontinence:

- offer her advice about managing urinary symptoms, **and**
- explain that if she changes her mind at a later date she can book a review appointment to discuss past tests and interventions and reconsider her treatment options.

1.7 Pharmacological treatment

General principles when using OAB medicines

1.7.1 When offering antimuscarinic medicines to treat OAB always take account of:

- the woman's coexisting conditions (for example, poor bladder emptying)
- use of other existing medication affecting the total anticholinergic load
- risk of adverse effects.

1.7.2 Before OAB medicine treatment starts, discuss with women:

- the likelihood of success and associated common adverse effects, **and**
- the frequency and route of administration, **and**
- that some adverse effects such as dry mouth and constipation may indicate that treatment is starting to have an effect, **and**
- that they may not see the full benefits until they have been taking the treatment for 4 weeks.

1.7.3 Prescribe the lowest recommended dose when starting a new OAB medicine treatment.

1.7.4 If a woman's OAB medicine treatment is effective and well-tolerated, do not change the dose or medicine.

Choosing OAB medicines

1.7.5 Offer oxybutynin (immediate release) to women with OAB or mixed UI.

1.7.6 Consider oxybutynin (immediate release) with caution for frail older women.[7]

1.7.7 If oxybutynin (immediate release) is not effective or well-tolerated, offer tolterodine or solifenacin (subsidised with Special Authority approval).

1.7.8 Transdermal oxybutynin or other transdermal OAB medicines can be offered to women unable to tolerate oral medication but are not currently subsidised in New Zealand.

1.7.9 Mirabegron is classified as a prescription medicine in New Zealand but there are currently no medicines containing mirabegron registered for use in New Zealand. For guidance on mirabegron for treating symptoms of overactive bladder, refer to Mirabegron for treating symptoms of overactive bladder (NICE technology appraisal guidance 290).[8]

1.7.10 Do not use propantheline, imipramine (or other tricyclic antidepressants) or flavoxate[9] for the treatment of UI or OAB in women.

Reviewing OAB medicine treatment

1.7.11 Offer a face-to-face or telephone review 4 weeks after the start of each new OAB

7. The NICE Guideline Development Group defined 'frail older women' as those with multiple comorbidities, functional impairments such as walking or dressing difficulties and any degree of cognitive impairment.
8. Available from: www.nice.org.uk/guidance/TA290
9. At the time of publication (May 2016), flavoxate had no marketing authorisation in New Zealand.

medicine treatment. Ask the woman if she is satisfied with the therapy:

- If improvement is optimal, continue treatment.
- If there is no or suboptimal improvement or intolerable adverse effects change the dose, or try an alternative OAB medicine (see recommendations 1.7.8–1.7.9), and review again 4 weeks later.

1.7.12 Offer review before 4 weeks if the adverse events of OAB medicine treatment are intolerable.

1.7.13 Offer referral to secondary care if the woman does not want to try another medicine, but would like to consider further treatment.

1.7.14 Offer a further face-to-face or telephone review if a woman's condition stops responding optimally to treatment after an initial successful 4-week review.

1.7.15 Review women who remain on long-term medicine treatment for UI or OAB annually in primary care.

1.7.16 Offer referral to secondary care if OAB medicine treatment is not successful.

1.7.17 If the woman wishes to discuss the options for further management (non-therapeutic interventions and invasive therapy) refer to secondary care for urodynamic investigation to determine whether detrusor overactivity is present and responsible for her OAB symptoms and subsequent MDT review:

- If detrusor overactivity is present and responsible for the OAB symptoms offer invasive therapy (see recommendations in section 1.9).
- If detrusor overactivity is present but the woman does not wish to have invasive therapy, offer advice as described in recommendation 1.6.9.
- If detrusor overactivity is not present refer back to the MDT for further discussion concerning future management.

Desmopressin

1.7.18 The use of desmopressin may be considered specifically to reduce nocturia[10] in women with UI or OAB who find it a troublesome symptom. Use particular caution in women with cystic fibrosis and avoid in those over 65 years with cardiovascular disease or hypertension.

Duloxetine

1.7.19 Do not use duloxetine[11] as a first-line treatment for women with predominant stress UI. Do not routinely offer duloxetine as a second-line treatment for women with stress UI, although it may be offered as second-line therapy if women prefer pharmacological to surgical treatment or are not suitable for surgical treatment. If duloxetine is prescribed, counsel women about its adverse effects.

10. At the time of publication (May 2016), desmopressin tablets had marketing authorisation for nocturia but was not subsidised for nocturia. Desmopressin spray does not have marketing authorisation for nocturia, and is only subsidised for primary nocturnal enuresis under Special Authority in New Zealand.
11. At the time of publication (May 2016), Duloxetine did not have current marketing authorisation for UI in New Zealand, and was not a subsidised medicine.

Oestrogens

1.7.20 Do not offer systemic hormone replacement therapy for the treatment of UI.

1.7.21 Offer intravaginal oestrogens for the treatment of OAB symptoms in postmenopausal women with vaginal atrophy.

1.8 The multidisciplinary team (MDT)

1.8.1 Inform any woman wishing to consider surgical treatment for UI about:

- the benefits and risks of surgical and non-surgical options
- their provisional treatment plan.

Include consideration of the woman's child-bearing wishes in the counselling.

1.8.2 Offer invasive therapy (beyond botulinum toxin type A) for OAB and/or recurrent post surgical and complex cases of SUI symptoms only after an MDT review.

1.8.3 When recommending optimal management the MDT should take into account:

- the woman's preference
- past management
- comorbidities
- treatment options (including further conservative management such as OAB medicine therapy).

1.8.4 The MDT for urinary incontinence should include (if available):

- a gynaecologist (ideally with sub-specialist interest in urogynaecology)
- a urologist (ideally with a sub-specialist interest in female urology)
- a specialist continence nurse
- a physiotherapist with a special interest in pelvic floor health
- a colorectal surgeon with a sub-specialist interest in functional bowel problems, for women with coexisting bowel problems
- a member of the care of the elderly team and/or occupational therapist, for women with functional impairment.

1.8.5 Inform the woman of the outcome of the MDT review if it alters the provisional treatment plan.

1.8.6 All MDTs should work within an established regional clinical network, and be funded to ensure all women are offered the appropriate treatment options and high quality care.

1.9 Invasive procedures for OAB

Botulinum toxin type A[5]

1.9.1 Offer bladder wall injection with botulinum toxin type A to women with OAB caused by proven detrusor overactivity that has not responded to conservative management (including OAB medicine therapy).

1.9.2 Discuss the risks and benefits of treatment with botulinum toxin type A with women before seeking informed consent, covering:

- the likelihood of being symptom free or having a large reduction in symptoms
- the risk of clean intermittent catheterisation and the potential for it to be needed for variable lengths of time after the effect of the injections has worn off
- the absence of evidence on duration of effect between treatments and the long-term efficacy and risks
- the risk of adverse effects, including an increased risk of urinary tract infection.

1.9.3 Start treatment with botulinum toxin type A only if women have been assessed and are able and willing to perform clean intermittent catheterisation on a regular basis for as long as needed.

1.9.4 Use **100** units when offering botulinum toxin type A.

1.9.5 Consider a higher dose of botulinum toxin type A if 100 units has not been effective.

1.9.6 If botulinum toxin type A treatment has no effect discuss with the MDT.

1.9.7 If botulinum toxin type A treatment is effective, offer follow-up at 6 months or sooner if symptoms return for repeat treatment without an MDT referral.

1.9.8 Tell women how to self-refer for prompt specialist review if symptoms return following a botulinum toxin type A procedure. Offer repeat treatment as necessary.

1.9.9 Do not offer botulinum toxin type B to women with proven detrusor overactivity.

Percutaneous sacral nerve stimulation

1.9.10 Offer percutaneous sacral nerve stimulation to women after MDT review if:

- their OAB has not responded to conservative management including medicines, **and**
- they are unable to perform clean intermittent catheterisation.

1.9.11 Consider percutaneous sacral nerve stimulation after MDT review if a woman's OAB has not responded to conservative management (including medicines) and botulinum toxin type A.

1.9.12 Discuss the long-term implications of percutaneous sacral nerve stimulation with women including:

- the need for test stimulation and probability of the test's success
- the risk of failure
- the long-term commitment
- the need for surgical revision
- the adverse effects.

1.9.13 Tell women how to self-refer for prompt specialist review if symptoms return following a percutaneous sacral nerve stimulation procedure.

Augmentation cystoplasty

1.9.14 Restrict augmentation cystoplasty for the management of idiopathic detrusor overactivity to women whose condition has not responded to conservative management and who are willing and able to self-catheterise. Preoperative counselling for the woman or her carer should include common and serious complications: bowel disturbance, metabolic acidosis, mucus production and/or retention in the bladder, UTI and urinary retention. Discuss the small risk of malignancy occurring in the augmented bladder. Provide life-long follow-up.

Urinary diversion

1.9.15 Urinary diversion should be considered for a woman with OAB only when conservative management has failed, and if botulinum toxin type A, percutaneous sacral nerve stimulation and augmentation cystoplasty are not appropriate or are unacceptable to her. Provide life-long follow-up.

1.10 Surgical approaches for SUI

1.10.1 In New Zealand, ranking patients for elective publicly funded surgical procedures for incontinence, and other gynaecology conditions, uses Clinical Priority Access Criteria (CPAC).[12] These criteria are based on a combination of:

- Impact on life; whether a patient's incontinence compromises or causes her to avoid activities for some or all of the month
- Effectiveness of the procedure in improving impact on life
- Risk of complications /adverse effects of the surgical procedures.

The threshold CPAC score for surgery varies between DHBs throughout New Zealand. It is recommended that this be urgently addressed to ensure equitable access for surgery for all women in New Zealand, irrespective of their domicile.

1.10.2 When offering a surgical procedure discuss with the woman the risks and benefits of the different treatment options for SUI using the information (in the table 'Information to facilitate discussion of risks and benefits of treatments for women with stress urinary incontinence', Page 22).

1.10.3 If conservative management for SUI has failed, offer:

- synthetic mid-urethral tape (see recommendations 1.10.4–9), **or**
- open colposuspension (see also recommendation 1.10.10), **or**
- autologous rectus fascial sling (see also recommendation 1.10.11).

Synthetic tapes

1.10.4 When offering a synthetic mid-urethral tape procedure, surgeons should:

- use procedures and devices for which there is current high quality evidence of efficacy and safety[13]
- only use a device that they have been trained to use (see recommendations in section 1.11)

- use a device manufactured from type 1 macroporous polypropylene tape
- consider using a tape coloured for high visibility, for ease of insertion and revision.

1.10.5 If women are offered a procedure involving the transobturator approach, make them aware of the lack of long-term outcome data.

1.10.6 Refer women to an alternative surgeon if their chosen procedure is not available from the consulting surgeon.

1.10.7 Use 'top-down' retropubic tape approach only as part of a clinical trial.

1.10.8 Refer to 'single-incision sub-urethral short tape insertion for stress urinary incontinence' (NICE interventional procedure guidance 262)[14] for guidance on single-incision procedures.

1.10.9 Offer a follow-up appointment (including vaginal examination to exclude erosion) within 6 months to all women who have had continence surgery.

Colposuspension

1.10.10 Do not offer laparoscopic colposuspension as a routine procedure for the treatment of stress UI in women. Only an experienced laparoscopic surgeon working in an MDT with expertise in the assessment and treatment of UI should perform the procedure.

Biological slings

1.10.11 Do not offer anterior colporrhaphy, needle suspensions, paravaginal defect repair and the Marshall–Marchetti–Krantz procedure for the treatment of stress UI.

Intramural bulking agents

1.10.12 Consider intramural bulking agents[15] (silicone, carbon-coated zirconium beads or hyaluronic acid/dextran copolymer) for the management of stress UI if conservative management has failed. Women should be made aware that:

- repeat injections may be needed to achieve efficacy
- efficacy diminishes with time
- efficacy is inferior to that of synthetic tapes or autologous rectus fascial slings.

1.10.13 Do not offer autologous fat and polytetrafluoroethylene as intramural bulking agents for the treatment of stress UI.

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12. CPAC rankings are available from Ministry of Health website: www.health.govt.nz
13. The guideline only recommends the use of tapes with proven efficacy based on robust RCT evidence. However, technological advances are frequent; therefore the choice of tape should include devices that are shown in future clinical trials to have equal or improved efficacy at equal or lower cost. At the time of publication (September 2013) the following met the NICE Guideline Development Group criteria:
    - TVT or Advantage for a 'bottom-up' retropubic approach
    - TVT-O for an 'inside-out' transobturator approach
    - Monarc and obtryx halo for an 'outside-in' transobturator approach.
14. Available from: www.nice.org.uk/guidance/IPG262
15. At the time of publication (May 2016), Bulking agents were not listed in the Community or Hospital Pharmaceutical Schedules.

Artificial urinary sphincter

1.10.14 In view of the associated morbidity, the use of an artificial urinary sphincter should be considered for the management of stress UI in women only if previous surgery has failed. Life-long follow-up is recommended.

Considerations following unsuccessful invasive SUI procedures or recurrence of symptoms

1.10.15 Women whose primary surgical procedure for SUI has failed (including women whose symptoms have returned) should be:

- referred to tertiary care for assessment (such as repeat urodynamic testing including additional tests such as imaging and urethral function studies) and discussion of treatment options by the MDT, **or**
- offered advice as described in recommendation 1.6.9 if the woman does not want continued invasive SUI procedures.

1.11 Maintaining and measuring surgical expertise and standards for practice

1.11.1 Surgery and invasive procedures for UI should be undertaken only by surgeons who have received appropriate training in the management of UI and associated disorders or who work within an MDT with this training, and who regularly carry out surgery for UI in women.

1.11.2 Training should be sufficient to develop the knowledge and generic skills documented below. Knowledge should include the:

- specific indications for surgery
- required preparation for surgery including preoperative investigations
- outcomes and complications of proposed procedure
- anatomy relevant to procedure
- steps involved in procedure
- alternative management options
- likely postoperative progress.

Generic skills should include:

- the ability to explain procedures and possible outcomes to patients and family and to obtain informed consent
- the necessary hand–eye dexterity to complete the procedure safely and efficiently, with appropriate use of assistance
- the ability to communicate with and manage the operative team effectively
- the ability to prioritise interventions
- the ability to recognise when to ask for advice from others
- a commitment to MDT working.

1.11.3 Training should include competence in cystourethroscopy.

1.11.4 Operative competence of surgeons undertaking surgical procedures to treat UI or OAB in women should be formally assessed by trainers through a structured process.

1.11.5 Surgeons who are already carrying out procedures for UI should be able to demonstrate that their training, experience and current practice equates to the standards laid out for newly trained surgeons.

1.11.6 Only surgeons who carry out a sufficient case load to maintain their skills should undertake surgery for UI or OAB in women. An annual workload of at least 20 cases of each primary procedure for stress UI is recommended. For appropriately trained surgeons, in regional centres in particular, a lesser number of procedures may be acceptable, provided there are documented good clinical surgical outcomes. Surgeons undertaking fewer than 5 cases of any procedure annually should do so only with the support of their Clinical Director; otherwise referral pathways should be in place.

1.11.7 There should be a nominated clinical lead within each surgical unit with responsibility for continence and prolapse surgery. The clinical lead should work within the context of an integrated continence service.

1.11.8 A national audit of continence surgery should be undertaken.

1.11.9 Surgeons undertaking continence surgery should maintain careful audit data and submit their outcomes to registries such as the Urogynaecological Society of Australasia (UGSA) pelvic floor database or the Urological Society of Australia and New Zealand (USANZ) sling database.

Information to facilitate discussion of risks and benefits of treatments for women with stress urinary incontinence

Procedure	Risks and benefits up to 1 year		Risks and benefits after 1 year						
	Continent <1 year	Perioperative events – tissue injury*		Continent >1 year	Erosion	Retention	Voiding dysfunction	De novo overactive bladder symptoms
Retropubic 'bottom-up'	67% to 90% (24 studies)	3% to 6% (29 studies)	**2 years**	74% to 99% (7 studies)	0% to 4% (4 studies)	0% to 13% 4 studies)	18% (1 study)	0% to 25% (4 studies)
			3 years	81% to 92% (5 studies)	0% (2 studies)	0% (1 study)	No studies	0% to 23% (2 studies)
			5 years	69 to 85% (4 studies)	0% to 1% (4 studies)	0% to 5% (2 studies)	0% to 1% (1 study)	0% to 18% (3 studies)
			7 years	70% to 85% (2 studies)	0% to 1% (2 studies)	No studies	No studies	17% (1 study)
			10 years	56% to 85% (2 studies)	No studies	No studies	No studies	17% (1 study)
Trans-obturator 'outside-in'	60% to 75% (10 studies)	3% to 12% (14 studies)	**2 years**	80% (1 study)	0% (1 study)	4% (1 study)	No studies	7% (1 study)
			3 years	No studies	No studies	No studies	No studies	No studies
			5 years	No studies	No studies	No studies	No studies	No studies
			7 years	No studies	No studies	No studies	No studies	No studies
			10 years	No studies	No studies	No studies	No studies	No studies

Trans-obturator 'inside-out'	62% to 73% (19 studies)	1% to 3% (14 studies)	**2 years**	87% (1 study)	No studies	No studies	No studies	No studies
			3 years	75% to 84% (2 studies)	1% (1 study)	No studies	No studies	No studies
			5 years	69% to 89% (2 studies	1% (2 studies)	No studies	No studies	0% (1 study)
			7 years	No studies	No studies	No studies	No studies	No studies
			10 years	No studies	No studies	No studies	No studies	No studies
Retropubic 'top down'	81% (2 studies)	3% to 7% (3 studies)	**2 years**	No studies	No studies	No studies	No studies	No studies
			3 years	No studies	No studies	No studies	No studies	No studies
			5 years	No studies	No studies	No studies	No studies	No studies
			7 years	No studies	No studies	No studies	No studies	No studies
			10 years	No studies	No studies	No studies	No studies	No studies
Open colpo-suspension	53% to 94% (10 studies)	0% to 11% (6 studies)	**2 years**	70% to 86% (3 studies)	No studies	9% (1 study)	No studies	14% (1 study)
			3 years	89% (1 study)	No studies	No studies	No studies	No studies
			5 years	78% to 79% (2 studies)	No studies	No studies	4% (1 study)	25% (1 study)
Autologous rectus fascial sling	93% (1 study)	No studies	**5 years**	No studies	3% (1 study)	No studies	No studies	16% (1 study)

* Tissue injury includes bladder perforation, vaginal wall perforation, urethral and bladder injury.

2. Research recommendations

The Guideline Review and Contextualisation Group have recommended the following New Zealand-specific research priorities.

2.1 Epidemiology

A detailed prevalence study in New Zealand of UI and other symptoms of pelvic floor dysfunction (PFD), such as faecal incontinence and pelvic organ prolapse related to ethnicity and uptake of continence services is a high priority.

2.2 Surgery

There is an urgent need of a National Register and Audit of surgery and invasive procedures for UI and other types of PFD, in particular pelvic organ prolapse.

2.3 Conservative treatment

There is also a need of an audit of pelvic floor muscle and bladder retraining, both related to assessment (and in particular vaginal examination to assess voluntary pelvic floor muscle contractility and use of urinary diaries) and outcome of conservative treatment.

3. Other information

3.1 Scope and how this guideline was developed

This bpac^{nz} contextualised version of a NICE clinical guideline has been developed in accordance with a scope (available from www.bpac.org.nz/guidelines/2) that defines what the guideline will and will not cover.

How the NICE guideline was developed

NICE commissioned the National Collaborating Centre for Women's and Children's Health to develop the NICE guideline. The Centre established a Guideline Development Group (see Section 4.2), which reviewed the evidence and developed the recommendations.

The methods and processes for developing NICE clinical guidelines are described in 'Developing NICE guidelines: the manual'. See www.nice.org.uk/article/pmg20

3.2 Related NICE information

Further information on NICE Pathways for UI is available on the NICE website. See: pathways.nice.org.uk/pathways/urinary-incontinence-in-women

4. The Guideline Review and Contextualisation Group and the NICE Guideline Development Group

4.1 Guideline Review and Contextualisation Group

Guideline Review and Contextualisation Group

The GRCG was composed of relevant healthcare professionals and bpac^{nz} staff.

Don Wilson (Chair of GRCG)	*Emeritus Professor of Obstetrics and Gynaecology, University of Otago, Consultant Urogynaecologist, Dunedin*
Mark Weatherall	*Consultant Geriatrician and President of the New Zealand Continence Association, Wellington*
Tim Dawson	*Consultant Urogynaecologist, Auckland*
Lynn McBain	*GP, Wellington*
Sharon English (from 1 September 2015 following stakeholder feedback)	*Consultant Urologist, Christchurch (Involved from first draft of guideline to publication)*
Lucy Keedle	*Continence Nurse Advisor, Palmerston North*
Sharon Wilson	*Physiotherapist (Pelvic, Women's and Men's Health), Nelson*
Nigel Thompson	*GP and Clinical Lead, Best Practice Advocacy Centre*
Jared Graham	*Project Manager, Best Practice Advocacy Centre*

4.2 NICE Guideline Development Group

Tony Smith (Chair)	*Consultant Urogynaecologist, Saint Mary's Hospital, Manchester*
Paul Abrams	*Consultant Urological Surgeon, Southmead Hospital, Bristol*
Elisabeth Adams	*Consultant Urogynaecologist, Liverpool Women's Hospital*
Kate Anders	*Senior Nurse, King's College Hospital, London*
Rosie Benneyworth	*GP, Taunton, Somerset*
Stephanie Knight	*Principal Physiotherapist, Airedale General Hospital, Keighley*
Cath Linney	*Patient member*
Susie Orme	*Geriatrician, Barnsley Hospital NHS Trusts*
June Rogers	*Patient member, PromoCon*
Amanda Wells	*Continence Advisor*

4.3 NICE Guideline contextualisation quality assurance team

The NICE guideline contextualisation quality assurance team was responsible for quality assuring the guideline contextualisation process.

Phil Alderson	*Clinical Adviser, NICE Centre for Clinical Practice*
Christine Carson	*Programme Director, NICE Centre for Clinical Practice*
Andrew Gyton	*Programme Manager, NICE Centre for Clinical Practice*
Nichole Taske	*Associate Director (Methodology), NICE Centre for Clinical Practice*

4.4 National Collaborating Centre for Women's and Children's Health

The National Collaborating Centre for Women's and Children's Health was responsible for this guideline throughout its development. It was responsible for preparing information for the NICE GDG, for drafting the guideline and for responding to consultation comments.

About this guideline

This bpac^{nz} contextualised version of a NICE clinical guideline provides recommendations about the treatment and care of people with specific diseases and conditions in New Zealand.

NICE guidelines are developed in accordance with a scope that defines what the guideline will and will not cover. The bpac^{nz} scope (available from www.bpac.org.nz/guidelines/2) outlines what the contextualised guideline will and will not cover.

This guideline was originally developed by the National Collaborating Centre for Women's and Children's Health in the United Kingdom, which is based at the Royal College of Obstetricians and Gynaecologists. The Collaborating Centre worked with a Guideline Development Group, comprising healthcare professionals (including consultants, GPs and nurses), patients and carers, and technical staff, which reviewed the evidence and drafted the recommendations. The recommendations were finalised after public consultation within the UK.

The methods and processes for the bpac^{nz} contextualisation of NICE clinical guidelines are described on the bpac^{nz} website. The NICE guideline was developed using the process described in 'Developing NICE guidelines: the manual'. See www.nice.org.uk/article/pmg20

Update information

The guideline bpac^{nz} have contextualised was an updated guideline which replaced NICE clinical guideline 40 (published October 2006).

Recommendations from NICE CG171 that have been contextualised

Recommendations listed in the table below are those which changes have been made to the NICE clinical guideline to ensure they are appropriate for New Zealand.

Original recommendation from Urinary Incontinence: The management of urinary incontinence in women (CG171)	Recommendation following contextualisation for this guideline	*Rationale for contextualisation*
1.6.4 Refer people using a suspected cancer pathway referral (for an appointment within 2 weeks) for bladder cancer if they are: • aged 45 and over and have: • unexplained visible haematuria without urinary tract infection or • visible haematuria that persists or recurs after successful treatment of urinary tract infection, or aged 60 and over and have unexplained non-visible haematuria and either dysuria or a raised white cell count on a blood test.	1.1.15 Urgently refer women with UI who have suspected malignant mass arising from the urinary tract. Haematuria (macroscopic and microscopic) should be investigated urgently and referred according to local referral pathways	This recommendation has been revised following high stakeholder concern at proposed wording based on the NICE Guideline 'Suspected cancer: recognition and referral' guideline (NG12; 2015). The GRCG has revised this recommendation to address the stakeholder comments received during consultation, and to reflect that local health pathway organisations, and DHBs, have existing health pathways in use throughout the country. Haematuria requires urgent investigation. Local pathways define the age restrictions and criteria for urgent referral for haematuria. 'Recurrent or persisting UTI' moved to 1.1.16
1.1.19 Do not perform multi-channel cystometry, ambulatory urodynamics or videourodynamics before starting conservative management.	1.1.20 Do not perform multi-channel cystometry or videourodynamics before starting conservative management.	*Ambulatory urodynamics is not performed in New Zealand, nor do the GRCG consider future use will be considered.*
1.1.22 Consider ambulatory urodynamics or videourodynamics if the diagnosis is unclear after conventional urodynamics.	1.1.23 Consider videourodynamics if the diagnosis is unclear after multi-channel cystometry.	*In New Zealand, 'conventional' urodynamics is multi-channel cystometry, and so clarity is needed here to avoid confusion highlighted by stakeholder comments. Removal of Ambulatory urodynamics made as noted above.*
1.4.2 If women do not achieve satisfactory benefit from bladder training programmes, the combination of an OAB drug with bladder training should be considered if frequency is a troublesome symptom.	1.4.2 If women do not achieve satisfactory benefit from bladder training programmes or, in the case of some elderly women anticipated to not achieve satisfactory benefit due to poor adherence to bladder training or pelvic floor muscle training, the combination of an OAB medicine with bladder training should be considered if frequency and urge UI are troublesome symptoms.	*In NZ pay-per-service is a limiting factor, particularly in lower socioeconomic areas. The GRCG has acknowledged that a clinician may choose to initiate treatment with a combination of bladder training and OAB medicines in New Zealand to reduce cost to the patient.*

1.7.5	Do not use flavoxate, propantheline and imipramine for the treatment of UI or OAB in women.	1.7.10	Do not use propantheline, imipramine (or other tricyclic antidepressants) or flavoxate for the treatment of UI or OAB in women.	*The GRCG felt prescribers were likely to consider other tricyclic antidepressants as these are able to be prescribed without restriction (although typically outside their marketing authorisation) in New Zealand and are subsidised , whereas the two alternative anticholinergic agents need special authority application, and other anticholinergic agents either do not have marketing authorisation or are not subsidised.* *Following stakeholder comments it was also agreed that the order of recommendations would best read from what was to be offered to what was not to be offered.*
1.7.7	Offer one of the following choices first to women with OAB or mixed UI: • oxybutynin (immediate release), or • tolterodine (immediate release), or • darifenacin (once daily preparation	1.7.5	Offer oxybutynin (immediate release) to women with OAB or mixed UI.	*In New Zealand tolterodine is only subsidised under special authority (otherwise the patient pays) if there is a 'documented intolerance of, or is non-responsive to oxybutynin'. Darifenacin does not have marketing authorisation in New Zealand and would have to be imported by a prescriber, and it would not be subsidised.*
1.7.6	Do not offer oxybutynin (immediate release) to frail older women.	1.7.6	Consider oxybutynin with caution to frail older women.	*See 1.7.9 below.*
1.7.8	If the first treatment for OAB or mixed UI is not effective or well-tolerated, offer another drug with the lowest acquisition cost .	1.7.7	If oxybutynin (immediate release) is not effective or well-tolerated, offer tolterodine or solifenacin (subsidised with Special Authority approval).	*In New Zealand second-line agents (tolerodine and solifenacin) are available only on Special Authority (SA) if there is a 'documented intolerance of, or a patient is non-responsive to oxybutynin'*
1.7.9	Offer a transdermal OAB drug to women unable to tolerate oral medication	1.7.8	Transdermal oxybutynin or other transdermal OAB medicines can be offered to women unable to tolerate oral medication but are not currently subsidised in New Zealand.	*In New Zealand second-line agents (tolerodine and solifenacin) are available only on Special Authority (SA) if there is a 'documented intolerance of, or a patient is non-responsive to oxybutynin'*
1.7.10	For guidance on mirabegron for treating symptoms of overactive bladder, refer to Mirabegron for treating symptoms of overactive bladder (NICE technology appraisal guidance 290	1.7.9	Mirabegron is classified as a prescription medicine in New Zealand but there are currently no medicines containing mirabegron registered for use in New Zealand. For guidance on mirabegron for treating symptoms of overactive bladder, refer to Mirabegron for treating symptoms of overactive bladder (NICE technology appraisal guidance 290).	*Contextual difference as there are currently no medicines containing mirabegron registered in New Zealand*

1.7.15	Review women who remain on long-term drug treatment for UI or OAB annually in primary care (or every 6 months for women over 75).	1.7.15	Review women who remain on long-term drug medicine treatment for UI or OAB annually in primary care	*There is no contract with primary care practitioners to provide any form of regular review for patients of any age in New Zealand. Primary care in New Zealand is subsidised but is fee for service, so that recommendations for regular review will incur costs to the patient.*
1.7.17	If the woman wishes to discuss the options for further management (non-therapeutic interventions and invasive therapy) refer to the MDT and arrange urodynamic investigation to determine whether detrusor overactivity is present and responsible for her OAB symptoms: • If detrusor overactivity is present and responsible for the OAB symptoms offer invasive therapy (see recommendations in section 1.9). • If detrusor overactivity is present but the woman does not wish to have invasive therapy, offer advice as described in recommendation 1.6.9. • If detrusor overactivity is not present refer back to the MDT for further discussion concerning future management.	1.7.17	If the woman wishes to discuss the options for further management (non-therapeutic interventions and invasive therapy) refer to secondary care for urodynamic investigation to determine whether detrusor overactivity is present and responsible for her OAB symptoms and subsequent MDT review: • If detrusor overactivity is present and responsible for the OAB symptoms offer invasive therapy (see recommendations in section 1.9). • If detrusor overactivity is present but the woman does not wish to have invasive therapy, offer advice as described in recommendation 1.6.9. • If detrusor overactivity is not present refer back to the MDT for further discussion concerning future management.	*This reflects the different model of service and the current pathway used in New Zealand , and the role of the MDT [see 1.8.2]* *Not all regions will have MDT involvement as the continence service tends to be a stand-alone service.*
1.8.2	Offer invasive therapy for OAB and/or SUI symptoms only after an MDT review	1.8.2	Offer invasive therapy (beyond botulinum toxin type A) for OAB and/or recurrent post surgical and complex cases of SUI only after an MDT review.	*The GRCG considers that the use of botulinum toxin A for treatment of OAB, and the management of primary SUI is covered by local health pathways within New Zealand.* *The NICE GDG concluded that there was a requirement for the treatment plan to be validated by a group of qualified healthcare professionals who have not contributed to the prior treatment of the woman. Factors within New Zealand dictate that this requirement is not practical across all regions.* *This approach has been strongly supported through stakeholder comments received during consultation.*

1.8.4	The MDT for urinary incontinence should include: • a urogynaecologist • a urologist with a sub-specialist interest in female urology • a specialist nurse • a specialist physiotherapist • a colorectal surgeon with a sub-specialist interest in functional bowel problems, for women with coexisting bowel problems • a member of the care of the elderly team and/or occupational therapist, for women with functional impairment.	1.8.4	The MDT for urinary incontinence should include (if available): • a gynaecologist (ideally with sub-specialist interest in urogynaecology) • a urologist (ideally with a sub-specialist interest in female urology) • a specialist continence nurse • a physiotherapist with a special interest in pelvic floor health • a colorectal surgeon with a sub-specialist interest in functional bowel problems, for women with coexisting bowel problems • a member of the care of the elderly team and/or occupational therapist, for women with functional impairment.	*This section must reflect the limited availability of each listed member.* *New Zealand has limited availability and the insertion of 'if available' to the recommendation has been made to reflect the New Zealand health system.* *Physiotherapist wording has been amended to reflect that at the time of publication the New Zealand Physiotherapy Board was developing a 3 tiered system of speciality. The highest tier had been established and a physiotherapist gaining this title can be called a 'Specialist pelvic floor Physiotherapist.' Other physiotherapists' can use the title 'Physiotherapist with special interest in pelvic floor health'. Both titles recognise training and expertise in treating urinary incontinence.* *The term 'continence' was inserted as within New Zealand a 'specialist nurse' may not have any training in continence.*
1.8.6	All MDTs should work within an established regional clinical network to ensure all women are offered the appropriate treatment options and high quality care.	1.8.6	All MDTs should work within an established regional clinical network and be funded to ensure all women are offered the appropriate treatment options and high quality care	*This is to ensure that DHB's value this exercise and include attendance at MDT's in job descriptions for staff*
1.9.1	After an MDT review, offer bladder wall injection with botulinum toxin A to women with OAB caused by proven detrusor overactivity that has not responded to conservative management (including OAB medicine therapy).	1.9.1	Offer bladder wall injection with botulinum toxin type A to women with OAB caused by proven detrusor overactivity that has not responded to conservative management (including OAB medicine therapy).	*The GRCG considers the use of botulinum toxin A for treatment of OAB, and the management of primary SUI is covered by local pathways within New Zealand.* *The NICE GDG concluded that there was a requirement for the treatment plan to be validated by a group of qualified healthcare professionals who had not contributed to the prior treatment of the woman. The GRCG involved in the contextualised guideline agreed that resource constraints regarding training for ISC in most centres in New Zealand meant the requirement for every case requiring botulinum toxin type A to be discussed at the MDT, or for explicit training in ISC prior to the use of botulinum toxin type A was not practical. The assessment of patients for use of botulinum toxin type A following local pathways was noted to work well and safely.* *This approach has been strongly supported through stakeholder comments received during consultation.*

1.9.3	Start treatment with botulinum toxin A only if women: • have been trained in clean intermittent catheterisation and have performed the technique successfully, and • have been assessed and are able and willing to perform clean intermittent catheterisation on a regular basis for as long as needed.	1.9.3	Start treatment with botulinum toxin type A only if women have been assessed and are able and willing to perform clean intermittent catheterisation on a regular basis for as long as needed	*Please see above comments*
1.9.4	Use 200 units when offering botulinum toxin A	1.9.4	Use 100 units when offering botulinum toxin type A	*In New Zealand the 100 units is the Medafe recommended dose* *With sensitivity to New Zealand's health funding, the initial 100 units, followed by the 200 units is reflected in this guideline.*
1.9.5	Consider 100 units of botulinum toxin A for women who would prefer a dose with a lower chance of catheterisation and accept a reduced chance of success.	1.9.5	Consider a higher dose if 100 units has not been effective.	*Please see above comments*
1.9.6	If the first botulinum toxin type A treatment has no effect discuss with the MDT	1.9.6	If botulinum toxin type A treatment has no effect discuss with the MDT.	*This reflects the lower initial starting dose used within New Zealand.*
Insertion of recommendation (under 1.10.1)		1.10.1	In New Zealand, ranking patients for elective publicly funded surgical procedures for incontinence, and other gynaecology conditions, uses Clinical Priority Access Criteria (CPAC). These criteria are based on a combination of: • Impact on life; whether a patient's incontinence compromises or causes her to avoid activities for some or all of the month. • Effectiveness of the procedure in improving impact on life. • Risk of complications / adverse effects of the surgical procedures. The threshold CPAC score for surgery varies between DHBs throughout New Zealand. It is recommended that this be urgently addressed to ensure equitable access for surgery for all women in New Zealand, irrespective of their domicile.	*GRCG inserted recommendation to address the 'post-code lottery' due to variation across DHBs in New Zealand*

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1.11.1	Surgery for UI should be undertaken only by surgeons who have received appropriate training in the management of UI and associated disorders or who work within an MDT with this training, and who regularly carry out surgery for UI in women.	1.11.1	Surgery and invasive procedures for UI should be **undertaken only by surgeons** who have received appropriate training in the management of UI and associated disorders or who work within an MDT with this training, and who regularly carry out surgery for UI in women.	*This refers to invasive procedures for UI due to OAB and in particular the use of botulinum toxin type A i.e. should only be undertaken by appropriately trained surgeons in New Zealand as well as other surgical procedures.*
1.11.6	Only surgeons who carry out a sufficient case load to maintain their skills should undertake surgery for UI or OAB in women. An annual workload of at least 20 cases of each primary procedure for stress UI is recommended. Surgeons undertaking fewer than 5 cases of any procedure annually should do so only with the support of their clinical governance committee; otherwise referral pathways should be in place within clinical networks	1.11.6	Only surgeons who carry out a sufficient case load to maintain their skills should undertake surgery for UI or OAB in women. An annual workload of at least 20 cases of each primary procedure for stress UI is recommended. Surgeons undertaking fewer than 5 cases of any procedure annually should do so only with the support of their clinical governance committee; otherwise referral pathways should be in place within clinical networks	*There is little robust evidence related to numbers of procedures annually [after appropriate training].* *This is addressed well in the NICE full guideline (10.3 Maintaining and measuring expertise and standards for practice, p297).* *Mention is made of a survey in the UK in 2001 in order to establish the most appropriate number of procedures to maintain competency. There was a differing opinion between general gynaecologists and urogynaecologists, which is also reflected within our own College in New Zealand [RANZCOG]. In this survey, the majority specialist view was 10–20 procedures per year [among general gynaecologists and urologists] while urogynaecologists and gynaecologists with a special interest stated 20–50 procedures per year. The GRCG is not aware of published evidence for these statements and in particular the relationship of numbers with clinical outcomes related to TVT.* *Although the GRCG endorsed the recommendation of an annual workload of at least 20 cases [which would be easily achieved in large centres in New Zealand] they added in comment regarding lesser numbers in regional centres but included "with documented good clinical outcomes, which is the bottom line related to surgery in any event.*
1.11.9	Surgeons undertaking continence surgery should maintain careful audit data and submit their outcomes to national registries such as those held by the British Society of Urogynaecology (BSUG) and British Association of Urological Surgeons Section of Female and Reconstructive Urology (BAUS-SFRU).	1.11.9	Surgeons undertaking continence surgery should maintain careful audit data and submit their outcomes to registries such as the Urogynaecological Society of Australasia (UGSA) pelvic floor database or the Urological Society of Australia and New Zealand (USANZ) sling database.	*Contextual relevance specific to registries for New Zealand*

Strength of recommendations

Some recommendations can be made with more certainty than others. The original NICE Guideline Development Group made recommendations based on the trade-off between the benefits and harms of an intervention, taking into account the quality of the underpinning evidence. For some interventions, the Guideline Development Group is confident that, given the information it has looked at, most patients would choose the intervention. The wording used in the recommendations in this guideline denotes the certainty with which the recommendation is made (the strength of the recommendation).

For all recommendations, NICE expects that there is discussion with the patient about the risks and benefits of the interventions, and their values and preferences. This discussion aims to help them to reach a fully informed decision (see also Patient-centred care, Page 5). The bpac^{nz} Guideline Review and Contextualisation Group have chosen to utilise the same conventions regarding wording for the strength of recommendations.

Interventions that must (or must not) be used

We utilise the NICE wording of 'must' or 'must not' only if there is a legal duty to apply the recommendation. Occasionally we use 'must' (or 'must not') if the consequences of not following the recommendation could be extremely serious or potentially life threatening.

Interventions that should (or should not) be used – a 'strong' recommendation

We utilise the NICE wording of 'offer' (and similar words such as 'refer' or 'advise') when we are confident that, for the vast majority of patients, an intervention will do more good than harm, and be cost effective. We use similar forms of words (for example, 'Do not offer...') when we are confident that an intervention will not be of benefit for most patients.

Interventions that could be used

We utilise the NICE wording of 'consider' when we are confident that an intervention will do more good than harm for most patients, and be cost effective, but other options may be similarly cost effective. The choice of intervention, and whether or not to have the intervention at all, is more likely to depend on the patient's values and preferences than for a strong recommendation, and so the healthcare professional should spend more time considering and discussing the options with the patient.

Recommendation wording in guideline updates

NICE began using their approach to denote the strength of recommendations in guidelines that started development after publication of a 2009 version of 'The guidelines manual' (January 2009). This does not apply to any recommendations ending [2006]. In particular, for recommendations labelled [2006] the word 'consider' may not necessarily be used to denote the strength of the recommendation.

UK versions of this guideline

The full NICE guideline, Urinary incontinence in women: the management of urinary incontinence in women (see: www.nice.org.uk/guidance/cg171/evidence), contains details of the methods and evidence used to develop the guideline which has been contextualised. It was published by the National Collaborating Centre for Women's and Children's Health.

The recommendations from this guideline have been incorporated into a NICE pathway (see: pathways.nice.org.uk/pathways/urinary-incontinence-in-women

Implementation

Bpac^{nz} has developed supplementary material to help organisations implement this guidance. This can be accessed on the bpac^{nz} website. See: www.bpac.org.nz/guidelines/2/tools.html

Your responsibility

This guidance represents the view of bpac^{nz} in contextualising the NICE clinical guideline Urinary Incontinence: The management of urinary incontinence in women (CG171), which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. However, the guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer, and informed by the summaries of product characteristics of any medicines.

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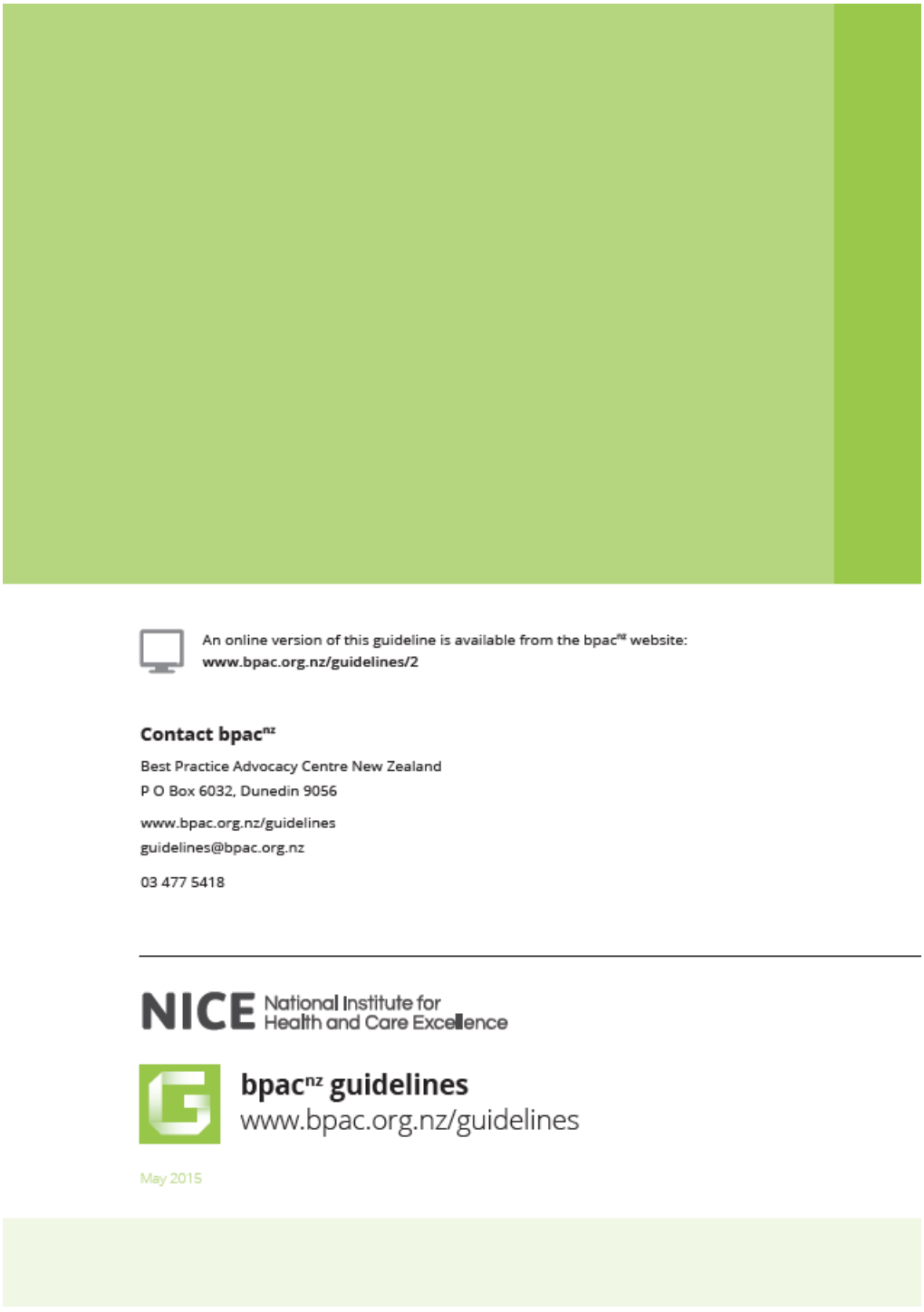

An online version of this guideline is available from the bpac[nz] website:
www.bpac.org.nz/guidelines/2

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NICE National Institute for Health and Care Excellence

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(Best Practice Advisory Centre, 2016).