Teaching manual handling through risk assessment empowers the nursing team to provide safe mobility-related care: A qualitative analysis

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Abstract

Introduction: Mobilisation of hospital patients is important for their functioning, and nurses play an important role in providing assistance. Manual handling training programs aim to help nurses to move patients safely, but most do not include dynamic risk assessment. We aimed to explore the experiences of members of the nursing team working in inpatient wards in a private hospital who participated in the manual handling training program Risk Assessment for moving Individuals SafEly (RAISE).

Methods: Members of the nursing team who attended a 4-hour dynamic risk assessment training program led by physiotherapists participated in one of two focus groups guided by semi-structured questions 4 months post training. Focus groups were facilitated by an experienced qualitative researcher (physiotherapist).

Results: Three themes emerged: (1) empowerment, (2) role and (3) implementation. The training session improved the nurses' confidence and empowerment to employ a risk assessment model for mobility-related care, which was central to their role. Organisational factors, including cluttered environments, equipment and staffing challenges, were identified as the key barriers to implementation.

Conclusion: Risk assessment manual handling training was perceived to improve confidence and empower the nursing team to provide safe mobility-related care. It is recommended that training sessions be relatively short, provide refresher training and consistent access to training within departments across the target health service and take into consideration organisational factors that may affect implementation.

Keywords: patient handling; qualitative research; nurses; risk assessment; continuing education; safety

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Introduction

Patients are at high risk of hospital-associated deconditioning (HAD) while in hospital (Chen et al., 2022), with patients aged 70 years and over undergoing a decline in gait speed and self-reported function after 7 days of admission for elective colorectal surgery, emergency abdominal surgery or acute infections (Welch et al., 2022). For hospital inpatients over the age of 65, walking less than 900 steps daily is strongly associated with HAD (Agmon et al., 2017). Older patients admitted to acute medical wards with cardiopulmonary or infectious diseases averaged 585 steps daily (Fisher et al., 2012), and older patients from a geriatric assessment unit spent an average of 61% of their time lying, 36% sitting and 1% standing and moving (Hartley et al., 2018). Similarly, in the inpatient rehabilitation hospital setting, patients with stroke spend an average of 12.75 h/day (86.6% of their waking hours) sedentary (Barrett et al., 2018).

Due to the 24-hour nature of the profession, the nursing team plays an important role in providing patients with physical assistance for mobilisation to counter the effects of HAD. Mobilisation early in an admission is one of several recommendations to improve clinical outcomes in a number of acute conditions (ACSQHC, 2023; Bernhardt et al., 2015; Black et al., 2013; Freeman & Maley, 2013; Kapritsou et al., 2018; Mohanty et al., 2016; Sallehuddin & Ong, 2021). Increases in both structured and incidental mobilisation are associated with decreases in hospital length of stay (Oestergaard et al., 2018). Nurse-led mobilisation interventions have been shown to significantly increase patient mobility (Drolet et al., 2013; King et al., 2016; Klein et al., 2015; Padula et al., 2009; Teodoro et al., 2016).

A key concern for nurses engaging in patient transfers and mobility is that they are at high risk of work-related musculoskeletal injury (Davis & Kotowski, 2015; Mayeda-Letourneau, 2014). Approximately 10% of Australian nurses report an injury requiring medical attention over a 12-month period (Vecchio et al., 2011), and the majority (70.5%) of serious injury claims by Australian hospital staff are work-related musculoskeletal disorders (Oakman et al., 2019). In the 2021–2022 financial year, 3,100 work-related injuries due to lifting, pushing, pulling or bending were reportedly sustained by Australian hospital staff (Australian Bureau of Statistics, 2023). In 2019 in the USA, 5.5 work-related injuries were recorded for every 100 full-time hospital employees, and over a third of injuries were associated with patient interactions (Occupational Safety and Health Administration, 2013, 2022).

In addition to the risk of injury, another challenge for the nursing team engaging in patient mobilisation is the perception that mobilisation may not be an integral part of the nursing role (Alsop et al., 2023; Clarke, 2014; Intercollegiate Stroke Working Party, 2016; Kneafsey et al., 2013; Kneafsey & Haigh, 2009). A recent systematic review demonstrated that all health professionals, including nurses as the largest workforce, working on medical, surgical, geriatric and rehabilitation wards do not consider physical activity to be a priority (Alsop et al., 2023). A barrier to participation was that the promotion of

physical activity across the 24-hour period was no one profession's defined responsibility. Health professionals felt they lacked adequate understanding of a patient's mobility status and expressed conflicting opinions as to who was responsible for conducting assessments. International guidelines recommend nurses in stroke care take a more active role in patient rehabilitation by supporting practise of functional activities (Intercollegiate Stroke Working Party, 2016). However, nursing involvement in rehabilitation has been limited (Clarke, 2014), with nurses perceiving their role to be primarily to keep patients safe from harm, such as falls, and being rarely involved in supporting mobilisation goals (Kneafsey et al., 2013). In settings where nurses do identify that they play an important role in promoting patient mobility, around 80% report they need more skills and knowledge to help patients to regain mobility and movement (Kneafsey & Haigh, 2009).

To achieve safe and beneficial mobilisation, nursing manual handling programs, typically delivered annually, should aim to address injury prevention and promote patient rehabilitation (McDermott et al., 2012). However, systematic reviews of training programs for working age adults (Hogan et al., 2014) and nurses (Richardson et al., 2018, Van Hoof et al., 2018) have not found strong evidence to support their use to reduce work-related musculoskeletal disorders in these groups. Current training interventions teach task-based manual handling techniques focused on physical characteristics of movement, such as keeping a straight back, bending knees and keeping loads close to the body (Denis et al., 2020). A key gap is the teaching of dynamic risk assessment skills to enable the nursing team to make safe manual handling decisions within the context of each individual nurse–patient interaction (Brusco et al., 2023; Denis et al., 2020).

The concept of risk assessment is supported by regulators such as Safe Work Australia (2018), who recommend that a mobility risk assessment be undertaken to "maximise the person's ability to assist in the move" (p. 42). Available risk assessment tools, including the Movement and Assistance of Hospital Patients (MAPO) index, manual handling assessment charts (MAC) and risk assessment of pushing and pulling (RAPP) tool (Battevi et al., 2006; Health and Safety Executive, 2019), assess wards or tasks as a whole but are not designed to inform dynamic manual handling judgements at the point of care. For example, MAPO uses determinants such as the number of cooperative patients on a ward to assess the level of risk that staff have of sustaining an injury (Cantarella et al., 2020). This gives guidance on manual handling risk that a member of the nursing team is likely to experience while working on that ward, but it does not inform how much an individual patient can cooperate in a transfer at a given point in time or how those risks can be mitigated throughout each individual component of the transfer. Competency-based manual handling programs based on a dynamic risk assessment model have reported a change in clinical practice at the bedside (Kugler et al., 2022), reduction in staff musculoskeletal injuries (Brusco et al., 2007) and have provided opportunities for the patient to actively participate in transfers (Mehan et al., 2008).

We have developed a competency-based Risk Assessment for moving Individuals SafEly (RAISE) manual handling training program with a multi-disciplinary team to address the training gap in dynamic manual handling risk assessment (Kugler et al., 2022). RAISE aimed to teach the nursing team how to perform dynamic risk assessments prior to and during their manual handling interactions with acute and subacute hospital inpatients. RAISE training was well received by the nursing team and successfully taught risk assessment skills that were incorporated into clinical practice immediately following training and sustained at 6 months post training (Kugler et al., 2022).

Aims

The present study aimed to explore nursing team perceptions of RAISE training and their experience of implementing the skills into clinical practice.

Methods

The RAISE project team was responsible for the development, implementation and evaluation of RAISE and included ward nurses, nurse managers, physiotherapists and occupational health and safety staff who had a range of research and clinical expertise. SS had expertise in exercise prescription and qualitative research methods; HK was an experienced clinician, and NT, NB and LB had experience in qualitative research methods in addition to supervision and project management.

RAISE was a 4-hour training program delivered to nurses, qualified ward assistants, occupational therapists, physiotherapists and allied health assistants on two pilot wards at a private hospital in Melbourne, Australia. The primary aim of the pilot was to teach dynamic manual handling risk assessment skills. The secondary aims were that these skills would be incorporated into practice and reduce patient falls and staff injury rates. An acute neurological ward and a sub-acute rehabilitation ward were selected for the pilot, as they typically include patients with neurological disorders who required physical assistance to transfer and mobilise. RAISE focused on teaching health professionals how to conduct a dynamic manual handling risk assessment, adapted from Health and Safety Executive (2016, 2021), that considers the task, individual, load and environment (TILE) prior to and during a patient manual handling interaction. Physiotherapists who were at least 4 years' post-graduation, had skills in neurological physiotherapy and had experience with the patient cohort delivered RAISE training. These attributes were selected as it has been suggested that facilitators with knowledge and experience specific to the target area deliver relevant, engaging and effective manual handling training (McDermott et al., 2012). During the program, patient transfers were practised in the health service's simulation centre using hospital equipment, with other participants acting in the role of the patient.

The concept of risk assessment during manual handling interactions was new to the nursing team, as prior to the implementation of RAISE, participating health professionals

had received task-based manual handling training, which included education in ergonomics, back care, body mechanics, safe positioning and use of patient lifting machines. For example, the previous program taught participants how to hold their back in a safe position but not how to integrate this posture into a safe patient transfer or how to assess whether there was likely to be risk to themselves or the patient during the transfer. RAISE training taught participants to use risk assessment to select the safest course of action at each step of the transfer, such as choosing to manually assist the patient, call for the assistance of another staff member or use a lifting machine. The lack of risk assessment in the previous program is consistent with the state of manual handling training across Australia, with 92% of hospitals and residential aged-care services identifying that risk assessment was missing in part or in whole from their manual handling training (Brusco et al., 2023).

Due to the important role of the nursing team in mobility-related patient care and their high risk of injury from such tasks, the evaluation of RAISE focused on the nursing workforce. This study reports the nursing team's perceptions of the training program and experiences of implementation of the skills taught. Quantitative study results, including competency achieved, change in clinical practice at the bedside, patient falls and staff injury rates, have been reported elsewhere (Kugler et al., 2022).

To explore the nursing team's perception of participation in the RAISE program and subsequent experiences of implementation, qualitative focus group methods were used. These methods are best suited to evaluation of people's experiences through examination of narratives from recorded data (Gale et al., 2013; Liamputtong, 2020; Miles et al., 2014). Focus groups were selected because interaction between group members can increase the depth of enquiry by triggering responses and generating insights that may not arise during interviews (Liamputtong, 2020; Miles et al., 2014). The study's methodological framework was interpretive description using an inductive thematic analysis (Thompson Burdine et al., 2021; Thorne, 2016), as we sought to gain a greater understanding of the perceptions and experiences of the nursing team about training and implementing dynamic risk assessment that could be applied to clinical practice (Thompson Burdine et al., 2021; Thorne, 2016). The study was reported according to the Consolidated Criteria for Reporting Qualitative Research (COREQ) (Tong et al., 2007), and all criteria were met. The research was approved by the Cabrini Human Research Ethics Committee (Project: 08-21-08-17). Written informed consent was provided by all participants prior to data collection.

Focus group attendees were recruited as a subset of the 72 members of the nursing team who participated in RAISE training over a 3-month period, October–December 2017. Full-time, part-time or regular casual (at least one shift per fortnight) registered or enrolled nurses or qualified ward assistants who worked on the pilot wards were eligible for the RAISE training. Recruitment was through purposive sampling of the nurses with a range of professional roles and experience who had attended RAISE training. Potential

participants were sought via selection in person by the nurse unit managers of the pilot wards. Attendees participated in the focus groups during usual rostered hours and did not receive additional payment.

Focus groups were scheduled 4 months after the RAISE training period concluded (March–April 2018) to ensure participants had the opportunity to transfer skills taught in the RAISE program to the ward. As there were two wards, two focus groups were conducted. Each focus group was approximately 1 hour in duration. The focus groups were conducted in a pre-booked room on each ward to minimise outside interruptions and distractions and maximise privacy. An experienced female qualitative researcher (physiotherapist) (SS) facilitated the focus groups using a pre-determined set of prompts as a discussion guide. The prompts were developed by two members of the research team (HK, SS) and were pilot tested on other members of the research team (Liamputtong, 2020). Areas of exploration included day-to-day manual handling, understanding of risk assessment, experiences of moving patients, use of equipment and safety (Appendix 1). Field notes were recorded by an independent member of the research team and used in debriefing sessions conducted immediately after each focus group (SJ). The facilitator and notetaker for each of the group sessions were not known to any of the participants and not involved in the development or delivery of the training program. Each session was individually audio-recorded and transcribed verbatim for analysis, with each participant in the group assigned a code number to replace their names. Transcripts were compared to the audio recordings to ensure accuracy.

Analysis

The two transcripts were thematically analysed using constant comparative methods and reflective practice (Liamputtong, 2020; Miles et al., 2014). Initial codes were inductive, derived from the data without a pre-defined construct, allowing the codes to be identified in a flexible manner (Liamputtong, 2020; Miles et al., 2014). Two researchers (HK, SS) independently reviewed the transcripts multiple times to achieve familiarity with the data, gain overall impressions and identify the main codes, categories and emergent themes. One researcher used Microsoft Word (Microsoft Corporation) documents and tables (SS), and the other (HK) used Microsoft Excel (Microsoft Corporation) spreadsheets to document and file the codes. Each researcher independently identified the initial codes and categories, condensed these into themes and discussed their findings at each stage. Two researchers (NT, NB) then independently reviewed the transcripts and compared their themes to those derived from HK and SS. This resulted in minor adjustments to the themes.

Preliminary themes were then developed and discussed in documented face-to-face meetings, followed by confirmation emails between all members of the research team. This iterative process continued until consensus was reached for the final set of themes and subthemes. Representative participant quotations were selected and pooled to support

the themes. Key quotations have been integrated throughout the results section and are presented in Table 2. Resulting themes and attached quotations were emailed to all participants to invite comment on whether they felt the data accurately reflected their experiences. No additional feedback was returned.

Results

Ten participants (nine female) were invited to participate, with all accepting and participating in one of the two focus groups, with five participants per group. Participants in each group held a mix of nursing qualifications (Table 1).

Table 1

Focus Group Participant Demographics

Focus Group Participant (Numbers)	Focus Group 1	Focus Group 2	Total
Registered nurse	4	3	7
Enrolled nurse	1	1	2
Qualified ward assistant	0	1	1
Full time	1	2	3
Part time	4	3	7
Casual	0	0	0
Male	0	1	1
Female	5	4	9
18–40 years old	3	2	5
41–50 years old	1	1	2
51–60 years old	0	2	2
61+	1	0	1

By the end of the second focus group, no new themes were identified. Also, member checking yielded no responses, confirming data saturation had been achieved. Three key themes were identified: (1) empowerment, (2) role and (3) implementation.

Theme 1: Empowerment

Participants described feelings of empowerment through an increased confidence in their own ability to assess patient mobility levels, make judgements on how best to assist patients to move and improvise solutions to problems (Table 2).

> *I feel like we've got more empowerment now. … It's not just a physio domain; it's everyone's domain.* (Participant 5)

Subtheme: Confidence

Nurses reported an improved ability to think ahead and plan for patient transfers and an increased regard for their own safety within those patient interactions. They reported they had the confidence to assess new patients and would ask for assistance of another staff member when indicated rather than proceeding with a potentially hazardous transfer on their own.

> *It increases our confidence to handover specifics in a patient's needs in manual handling. … You tend to think ahead. We plan ahead, really, as to what you need first so that you make your job easier.* (Participant 7)

Subtheme: Patient independence

As a result of improved confidence and assessment skills, nurses reported they were able to facilitate patient independence with transfer tasks. Nurses felt patients had increased opportunities to mobilise and participate in their recovery, and these opportunities came earlier in the patient's admission, as nurses did not feel it always necessary to wait for a physiotherapy assessment.

> *It means that they [patients] are up and moving a lot quicker. … I had a patient; … we used the assessment on him and it helped us to assess that, yes, with two of us, we can with the [walking] frame. By the end of the shift, it was just him and one person, and it helped a lot more.* (Participant 10)

Participants reported they previously had not always considered what the patient was capable of doing themselves prior to assisting them to move. Following the training, nurses reported they began to partner with patients during their transfers by asking them how they felt and what they could do themselves. The result was that often the patient only required minimal or prompting assistance to complete the task.

Table 2

Representative Quotations

Theme ***Subtheme***	**Example Quotations**
Empowerment	
Confidence	*It makes me feel confident that you can help someone rather than waiting for a physio. … So it [has] given me that extra confidence and also helps make your patient feel confident in you.* (Participant 5)
Patient independence	*That was one thing that was reiterated because it's rehab and about them being independent safely. … We want them to participate, so it's like a dual thing.* (Participant 2) *You're going to make first assessment, so you're going to move the patients before even the physio. … So as nurses we do the assessment, and we try to move the patient quicker, and that's a big help for the patients too.* (Participant 9)

Theme *Subtheme*	Example Quotations
Patient independence (continued)	*I found that the patients that normally are able to put themselves into bed who can't quite get [to] their feet, that if we use a leg lifter, that they are able to do it themselves, and that creates something for them that they can do.* (Participant 10)
Role	
	Manual handling starts from the moment that we get on the ward because we're doing different activities. … We're getting their medications out, and blood pressures, and walking and sitting at the desk, so that's all part of it. (Participant 2)
	About 80 to 100% [manual handling] really. The start of the shift is getting the patient ready to have their breakfast, just getting them from bed to the chair. It requires manual handling right away. (Participant 7)
Implementation	
Organisational factors	*Sometimes you don't have enough help because other staff is [*sic*] busy and we need two people or three people even, so it's a bit of a challenge really.* (Participant 7)
	When they come to the bathroom, when the space is confined space, it's really hard because sometimes you've got the IV pole, we got the frame, and then you're walking behind them, and then they go to the door and they get stuck. (Participant 9)
Training factors	*You learn a lot on that day but then actually physically remembering it all is difficult.* (Participant 1)
	Even just some practical session again or something. Or if we had a patient that was requiring any of these particular techniques to get them in and out of bed, that maybe we go through it again, do a run through with a physio or something again just to make sure. (Participant 1)
	The physio took photos of the way we had to stand. … They had them on the wall, and then everybody knows exactly what we have to do. (Participant 4)
	We had a sling on, which helped, but I think … [if] we had someone that was a potential patient … someone who was in that situation that had a stroke or had a bit of confusion that we normally have here on the ward, [it] would help a lot more with the training. (Participant 10)

Theme 2: Role

Participants described many activities throughout their workdays they considered to involve manual handling (Table 2). They reported these activities were related not only to patient care but also to administrative and non-clinical responsibilities, such as filing and moving luggage and furniture. There were perceived peak times for manual handling, and this occurred more in the morning and daytime than in the overnight nursing shifts.

> *Every day in every shift, I think manual handling steps are involved in almost everything.* (Participant 3)

Participants reported the RAISE program enabled them to think of their own safety when doing the range of daily tasks. Nurses were able to bring the concept of "risk assessment" into both clinical and non-clinical aspects of their work. Most participants described the way in which different daily activities and postures affected their backs and bodies as well as the need to plan ahead to make the manual handling task easier. They were able to describe practical solutions to manual handling problems, such as putting

removable baskets into low drug drawers to reduce the need for prolonged bending when dispensing medications.

Theme 3: Implementation

The participants reported they had transferred skills taught in the RAISE program back to their practices on the ward, specifically mentioning rolling, standing up and using slide sheets. Factors affecting implementation fell into two categories: organisational factors and training factors (Table 2).

Subtheme: Organisational factors

Organisational factors, such as staffing levels, the hospital environment and provision of equipment, were barriers to implementation. Participants commented on the need to work as a team to deliver patient care. During busy periods, however, it was difficult for them to access the assistance they required to perform safe manual handling due to inadequate "time" to double-up for high-risk patient transfers. Confined space in patient rooms and congestion from multiple pieces of equipment made it difficult for nurses to conduct safe patient transfers and implement skills learnt in the program.

> *Just making sure that we have enough equipment, I think, available and de-clutterisation*. (Participant 2)

Participants commented they did not use specialised manual handling equipment, such as leg lifters, regularly, as they were not stored in a visible location. They suggested the increased visibility of manual handling equipment within the patient environment would increase their use.

Subtheme: Training factors

Participants suggested that posters at bedside detailing RAISE skills, shorter training sessions, training with real patients, refresher training and consistent access to training across departments would facilitate implementation.

Participants indicated the whole-day format of training, which included both the RAISE session in the afternoon and a separate work, health and safety session in the morning was too lengthy and made remembering the RAISE content challenging. They identified the need for short, targeted refresher training sessions as regularly as 6 monthly to assist staff to consolidate their skills. Health professionals from areas outside the pilot wards did not have access to the RAISE training and, therefore, did not possess the same skills as the nurses who had completed training. This challenge, coupled with the addition of new staff, resulted in inconsistent manual handling practices on the ward. Nurses found it challenging to continue transferring patients using RAISE techniques when untrained staff were involved.

> *It's a good program … as long as everybody, the people who are doing this transport and things like that, they are also … educated [the] same.* (Participant 9)

Participants reported infographics at the patients' bedside would aid the efficiency and effectiveness of nursing handover practices while also serving as reminders of RAISE skills. These were suggested to be especially important to junior or new staff members.

The opportunity for hands-on practice of skills on each other during training was seen as a beneficial way to learn. However, participants also identified this as a limitation when implementing RAISE skills on the ward due to different body sizes and functional abilities of the patients they encounter.

Discussion

This qualitative study provides insights into the perceptions of the nursing team who completed the Risk Assessment for moving Individuals SafEly (RAISE) continuing education training program and their experiences of the implementation of the skills on acute and rehabilitation wards. Participants indicated manual handling is central to the role of nurses, and these demands begin the moment they come onto the ward. RAISE training helped participants to feel empowered in their abilities to assess patients' mobility and safely assist them to move. Confidence in their manual handling skills resulted in nurses feeling empowered to facilitate their patients' independence. These qualitative perceptions of the nurses converge with objective findings of increased application of risk assessment skills found in Kugler et al. (2022). Barriers to implementation were similar to those identified in previous studies and included organisational factors, such as cluttered and confined hospital environments, challenging staffing levels and poor availability of equipment (Brown et al., 2007; Brusco et al., 2023; Koppelaar et al., 2009; Richardson et al., 2019). The training format and inconsistency of skills across hospital departments were also seen to be challenges to implementation.

Nurses perceived this one-off, relatively short training session improved their confidence levels and attitudes regarding moving patients 4 months post training. Participants indicated they used the risk assessment process in their daily practice and felt the training empowered them with the skills to assess the patients' mobility and make an informed decision about how best to move them safely. These positive perceptions mirror the previously reported high post-training satisfaction levels and help to explain the sustainability of RAISE skills in clinical practice at 6 months (Kugler et al., 2022). An increased confidence in clinical skills has been found to correlate with increased competency (Baxter & Edvardsson, 2018; Park, 2018), and we hypothesise that this may be a mechanism through which RAISE may lead to injury prevention. For example, if nurses are confident in their own judgement, they are more likely to feel empowered to conduct a risk assessment and ask for help of an additional staff member when required (Baxter & Edvardsson, 2018; Park, 2018). This is especially important during high activity times of day, when nurses feel particularly pressured to transfer patients quickly. This hypothesis could be investigated in long-term studies with a focus on injury outcomes.

Early mobilisation in the hospital setting is important in many situations (ACSQHC, 2023; Black et al., 2013; Freeman & Maley, 2013; Intercollegiate Stroke Working Party, 2016; Kapritsou et al., 2018). It is therefore clinically relevant that nurses felt empowered to conduct assessments of patients' abilities to transfer and to assist patients to be independent. Participants reported they would previously wait until the manual handling task was prescribed to them by another team member, such as a physiotherapist, and this could lead to delays in patients' opportunity to mobilise. A similar change in perceptions of the role of nurses was reported by King et al. (2016) following an ambulation skills training program. Our theme of empowerment that emerged was consistent with that of "shifting ownership" reported by King et al. (2016), whereby nurses incorporated the role of patient ambulation into their daily practice and no longer thought of ambulation as solely the role of the physiotherapist. These findings indicate that RAISE training is likely to have enabled patients to participate in their recovery earlier than they might otherwise be able to through the increased engagement of nurses in patient transfers and mobility.

Participants noted a barrier to implementation was the inconsistency of manual handling skills across health professionals who had and had not completed RAISE training. They suggested the training be made available to all clinical departments across the organisation and be conducted in shorter and more frequently available sessions. An organisation-wide implementation of the RAISE program has the potential to increase the confidence of nurses in their manual handling skills and improve early patient mobilisation. The results suggest that a RAISE implementation plan should address staffing levels during busy patient transfer periods, the removal of clutter from patient environments and the visually prominent provision of equipment and instructional cues for manual handling risk assessment.

While the sample size was relatively small, data saturation was achieved. The study was conducted in a private health service, so it needs to be considered if there would be the same sort of perceptions and experiences in publicly funded acute and rehabilitation wards. However, nurse qualifications and ratios are similar across both settings. Data on the length of time that the participants had been qualified was not collected in this study. Clinical experience may influence perceptions of training and the ease of implementation of new skills. It is therefore recommended that future studies consider this participant characteristic. Common clinical practice at the time of this study did not include patient participation in staff clinical education programs, however this could be considered in future iterations of the program. As occupational therapists, physiotherapists and allied health assistants also participated in the continuing education training program, future studies may include these health professionals in evaluations of the RAISE training program.

Conclusion

Participation in a one-off, Risk Assessment for moving Individuals SafEly (RAISE) training session improved nurse confidence and empowerment to employ a risk assessment model for mobility-related care that was sustained months after the initial training. Manual handling is part of the nursing role, but organisational barriers impede the ability of nurses to consistently apply a risk assessment model of manual handling in their daily practice. The development and implementation of a risk assessment manual handling training program should take into consideration the environment in which the skills are to be used, staffing levels and availability of manual handling equipment. It is recommended the delivery of training be short, frequent and consistent across the target health service.

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Appendix 1

Focus Group Question Guide

Area of Exploration	Example of Prompts
Introduction and general questions about day-to-day manual handling and perception of the program	*What aspects of your day-to-day job require manual handling?*
Understanding and attitudes towards risk assessment and TILE	*How do you feel about the risk assessment model now?*
Experiences of moving patients in and out of bed	*How did what you learnt in the program help you to do this?* *Was there anything you found difficult?*
Experiences of using of equipment such as slide sheets, hoists and leg lifters	*Was there anything that made them hard to use?* *How could this be helped?*
Experiences of conducting a step transfer or walking a patient	*If you have not yet tried using the techniques you learnt, why do you think you haven't?*

Area of Exploration	Example of Prompts
Perceptions of staff and patient safety and injury prevention	*Do you feel that the program makes moving a patient safer or more likely to fall? Or made it harder to look after your back and body?*
Opportunity to discuss skills not yet mentioned and give opinion on manual handling	*Suppose that you had 1 minute to talk to the head of work health and safety about manual handling, what would you say?*