

EVIDENCE UTILISATION

Skin tear prevention and management among patients in the acute aged care and rehabilitation units in the Australian Capital Territory: a best practice implementation project

Violeta Lopez RN MNA MPET PhD FRCNA,¹
Ann Marie Dunk RN BHthSc (Nurs) Wound Care Cert,^{2,3} Katrina Cubit RN BN (Hons) PhD,⁴
Jill Parke RN RM Grad Cert Project Management,³
David Larkin RN BN Grad Cert (Clinical Trials Management),³
Maria Trudinger RN Cert. Gerontology Cardio-Thoracic Cert⁵ and
Margaret Stuart RN Grad Cert Rehab Grad Cert Public Sector Management⁶

¹Australian National University, RCNMP Medical School, Canberra, ²Canberra Hospital, Surgical Department, Garran, ³ACT Health, Research Centre for Nursing and Midwifery Practice, Garran, ⁴Calvary Health Care ACT, Learning and Development Unit, Bruce, ⁵Canberra Hospital, Acute Aged Care of the Elderly, Garran, and ⁶Canberra Hospital, Acute Rehabilitation Unit, Garran, Australian Capital Territory, Australia

Abstract

Background A skin tear is a traumatic wound that results from the separation of the skin layers due to shearing forces, friction or blunt trauma that affects all people. Numerous preventative measures aim to reduce the skin tears and minimise conditions that predispose the epidermis to injury. With the increasing elderly population in acute aged care, implementation of an evidence-based guideline is critical as changes to ageing skin integrity make this population more susceptible to skin tear.

Aims/objectives The aim of this project was to ensure the practice of skin tear assessment, prevention and management among acute aged care causes and rehabilitation patients was performed according to best available evidence.

Methods This project utilised a pre- and post-implementation audit design using the Joanna Briggs Institute Practical Application of Clinical Evidence System and Getting Research into Practice programs. The project was conducted from June to November 2010 with the audits conducted in the acute aged care and rehabilitation units of two public hospitals in the Australian Capital Territory involving a sample size of 96 patients at pre-audit and 95 patient at post-audit admitted during the audit period. A convenience sample of 20 nurses also consented to be observed. The audits were conducted after obtaining ethics approval and consent from patients and nurses.

Results The results showed a significant change in compliance to the skin tear guidelines at post-implementation audit. Staff education in particular had a dramatic increase from 20% to 98% and the point prevalence rate of hospital-acquired skin tear decreased from 10% to 0.15%.

Discussion/conclusion This project emphasised the importance of education of all personnel involved in patient care and that a simple assessment of skin integrity is critical in preventing and managing skin tear especially among the susceptible elderly population

Key words: aged care, evidence-based practice, implementation, quality indicator, wound care.

Background

A skin tear is a traumatic wound that results from the separation of the skin layers due to shearing forces, friction or blunt trauma.^{1,2} It occurs when the epidermis and dermis separate secondary to friction or a shearing force.³ A skin tear

Correspondence: Professor Violeta Lopez, Australian National University, RCNMP Medical School, TCH Building 6, Level 3, Canberra, ACT, Australia. Email: violeta.lopez@act.gov.au

is classified as partial or full thickness, depending on the degree of tissue damage.² It is a problem that affects all people; however, they commonly occur in the elderly and are usually seen on the extremities with 80% occurring on hands and arms. Other common sites are the lower extremities, back and buttocks.^{1,3,4}

The prevalence of skin tear in the USA was reported to be approximately 1.5 million per annum.^{4,5} Skin tears in hospitalised patients were reported to be caused by wheelchairs (25%), minor trauma from bumping into objects (25%), transfers (12.8%) and falls (12.4%).⁴ Other research showed that nearly half of all skin tears occurred without apparent cause. Risk factors for skin tears included age-related changes to skin thickness, elasticity and skin hydration, long-term sun damage, injuries and infections, vascularity, nutrition, medications such as corticosteroids, mobility, dependence on carers for all care activities, vision impairment and risk of falls.^{1,6-8} Not only does ageing increase the fragility of the skin but is also associated with delayed wound healing.⁴

There are few data on the prevalence of skin tears, particularly for Australia. A pilot audit of 179 patients to determine the prevalence of skin tear conducted at St Vincent's Hospital in 2004 showed a prevalence rate of 4.46%.⁸ A statewide survey conducted in Western Australia showed that in 2007 there were 220 skin tears on 2777 (7.92% prevalence) patients consenting to skin inspection and in 2008 there were 326 skin tears on 3024 (10.78% prevalence) patients who consented to skin inspection.⁹ From the survey of prevalence of wound types conducted across one public hospital in ACT Health in March 2010, there were a total of 329 patients surveyed, 132 were identified as having a wound other than a pressure injury and of those 132 patients, there were 18 skin tears (5.47% prevalence) with six (34% of tears) being hospital-acquired. It is recognised that prevalence varies between wards and clinical specialties, possibly because of the varying dependence level between medical and surgical wards in hospitals.¹⁰ However, it is important to recognise that ages of patient span across the clinical specialties within the acute care system.

Skin tears are often seen as minor or inconsequential wounds as compared with more extensive chronic ulcers; however, skin tears are painful (both at the time of acquiring the wound and when treating the wound), can cause stress to patients and relatives, may lead to infection and can result in surgical intervention or may themselves become chronic wounds.^{1-3,10} Additionally, there is a monetary cost to the individual, the hospital and the community.⁶

While the level of evidence that supported the current Joanna Briggs Institute (JBI) Best Practice Guidelines for the prevention and management of skin tears is low, no current practice guidelines in preventing and managing skin tears are used within the Australian Capital Territory (ACT). The current practice in the ACT is to conduct pressure ulcer/injury risk assessment using the Waterlow Risk Assessment Tool for adults on admission and on a daily full skin assessment by nurses. The risk assessment is documented on the daily care plan and any incidence of pressure ulcer/injury is

reported in the RiskMan (an online incident-reporting system used in ACT hospitals). When skin tear was observed, the Payne-Martin Skin Tear Classification System¹¹ was used to categorise the tear based on the extent of epidermal lost as: Category I – skin tear without tissue loss (epidermis and dermis have been pulled apart); Category II – skin tear with partial tissue loss (25% or less of the epidermal flap is lost); and Category III – skin tears with complete tissue loss. With the increasing elderly population in acute aged care, implementation of an evidence-based guideline is critical as changes to ageing skin integrity make this population more susceptible to skin tear, which is highly preventable.¹²

Numerous preventative measures aim to reduce the cause of skin tears and minimise conditions that predispose the epidermis to injury. These include resources and environmental protection, such as padding bed rails, wheelchair arms and leg supports. Additionally, implementation of education, standardisation of evidence base protocols for assessment and management of skin tears are needed. A change in culture of reporting incidences of skin tears as adverse events within the healthcare system also needs to be supported and encouraged. A review of the literature showed that there is no consensus or consistency in the management of skin tears.^{6,7,9} However, it is recommended to, if the skin tear has a flap of skin that is intact, approximate the edges and apply hydrogel sheet, silicone-faced foam or biocellulose dressing and indicate which direction the dressing should be removed. Dressings should be removed in the opposite direction of the skin tear. If there is no skin flap, application of the hydrogel sheet, silicone-faced foam or biocellulose dressing after gentle cleansing and patting dry is all that is necessary. It is recommended that clinicians avoid the use of any adhesives or advanced products that maintain a regulated moisture balance and remain in place over several days.¹³

Conclusions and recommendations from the literature included prevention strategies, thorough assessment and prompt treatment. Further research into skin tear management is recommended, as well as uniform, validated prediction tools, and prevention and treatment guidelines.^{1,2,9,14}

Aims

The aim of this project was to ensure the practice of skin tear assessment, prevention and management among patients in acute aged care and rehabilitation units in the ACT was performed according to the best available evidence. The specific objectives were to:

- Explore the prevalence of skin tears among patients
- Evaluate the pre- and post-implementation of the practice guideline for preventing and managing skin tear

Methods

A pre- and post-implementation audit was conducted using the JBI Practical Application of Clinical Evidence System (PACES) and Getting Research into Practice (GRIP) programs. The tool used for the audit consisted of a simple survey to

examine the prevalence of skin tear, presence of skin tear on admission, sites of skin tear, skin types, category of skin tear, products/dressings used on skin tear, documentation/reporting of skin tear and the JBI skin tear criteria (Table 2). The project was approved by the institutions' ethics committees. Data were collected using a cross-sectional approach with convenience sample of inpatients in the 100-bed aged care and rehabilitations units of two ACT health public sectors. The patients admitted to these units were mainly diagnosed with various chronic diseases, neurological and musculoskeletal disorders, and cardiovascular diseases. A convenience sample of nurses working in these units also consented to participate in this project. The study was conducted from June to November 2010 consisting of three phases.

Phase 1: Baseline audit

A skin tear audit team was established, which included the Wound Care Clinical Nurse Consultants (CNCs), ward managers, project officer and research assistant. A one-day audit using the JBI skin tear criteria and survey tool was undertaken to explore the pre-implementation audit. During this period, to assess the prevalence rate of skin tears, the auditors conducted a full skin assessment of all consenting patients and the rate was calculated (number of patients with skin tear divided by the total number of patients surveyed multiple by 100). To assess the category of skin tear, Payne and Martin¹¹ classification system was used. From the available number of 100 participants in the study settings, 96 consented to participate. Before the audit, the team members were provided with a short education workshop in the use of the Skin Tear Audit Tool by the project leader. Two auditors were also asked to conduct two audits each on the same patients to establish interrater reliability, which resulted in an interrater reliability of 100%. A total of eight auditors were involved in this project. A convenience sample of 20 nurses was also observed regarding their lifting and transferring techniques of patients. Each nurse was observed on lifting and transferring a patient out of bed into a chair with the assistance of a wards man using a lifting device. Devices such as wheelchairs were also checked in regards to the use of padding for patients with skin tears on the day of the audit.

Phase 2: Implementation of the JBI Best Practice Guidelines

The Best Practice Guidelines covered areas of prevention, education, documentation and management based on systematic reviews.^{15,16} The implementation of the JBI Best Practice Guidelines was undertaken in four ways:

- 1 The pre-audit results were collated, reported and discussed with the members of the Pressure Injury Management Reference Group. Each member was asked to disseminate the results of the pre-audit to their ward staff.
- 2 The Best Practice Guidelines for the prevention and management of skin tear were disseminated through a number of repeated education workshops conducted by the two CNCs. The same powerpoint presentation of educational materials was used. Education of night duty

staff was conducted by the 'Skin Tear Champions' on each of the units or conducted by the ward managers in the morning before they go off night duty. These champions have completed the skin tear education workshop from the CNCs. All 37 nurses working in the four clinical units attended the education workshop and were asked to sign the attendance form.

- 3 Each clinical unit was also provided with the Skin Tear Prevention Management Algorithm (Fig. 1) to remind them of the skin tear classifications and management for each.
- 4 Appropriate skin tear dressing materials in the unit were also checked by the CNCs and supplied if needed.

Phase 3: Post-implementation audit

A replication of Phase 1 method of data collection was conducted 2 months after all the education was completed. This time allowed for a period to limit the carry-over effect of the education program. The post-audit was conducted in the same clinical units by the same staff who conducted the pre-audit using the same audit tool. During the post-audit, all 95 patients consented to participate. A convenience sample of 15 nurses was also observed regarding their lifting and transferring techniques of patients. Devices such as wheelchairs were also checked in regards to the use of padding for all patients who had skin tear on the day of the audit.

Data analysis

Data were analysed by entering the results in the JBI PACES to compare the compliance rates for each of the six criteria. Demographic data were analysed using descriptive statistics (frequencies and percentages).

Results

Pre-implementation results

On the day of the skin tear pre-audit (baseline cycle), all 96 inpatients in the acute aged care and rehabilitation wards of the two public hospitals in the ACT consented to participate. There were 36 male and 60 female patients with a mean age of 78.2 years (SD = 10.92). The prevalence of skin tear was 19 (19.8%) and of these 2 (10%) was hospital-acquired. The most common sites of skin tear were the arms and legs. For those with skin tears, there were more Category I and II skin tears based on the Payne-Martin Classification System. At the time of the audit, the skin type of patients was mostly dry and tissue paper with some evidence of bruising (Table 1). Of the 19 patients with skin tear, normal saline was used for cleaning the skin tear but various dressing materials were used for managing skin tear: Mepilex ($n = 15$), Primapore ($n = 2$), non-adhesive dressing ($n = 1$) and Bandaid ($n = 1$). As for the skin tear audit criteria, the results showed that the lowest compliance was in criterion 4 (nurses are educated regarding prevention of skin tear) at 20% and criterion 5 (nurses are educated regarding management of skin tear) at 20%. The highest compliance was in criterion 6 (staff utilise proper lifting and transfer techniques) at 85% (Table 2).



Figure 1 Categories of skin tears and management plans (provided by Mölnlycke Health Care).

Table 1 Survey results at baseline and follow-up cycles

	Baseline cycle (<i>n</i> = 96) <i>n</i> (%)	Follow-up cycle (<i>n</i> = 95) <i>n</i> (%)
Skin tear prevalence (hospital-acquired)	<i>n</i> = 19 2 (10.0)	<i>n</i> = 20 0 (0.0)
Sites of skin tear		
Arms	51 (52.6)	66 (70.0)
Legs	45 (47.4)	29 (30.0)
Category of skin tear	<i>n</i> = 19	<i>n</i> = 20
Category I	8 (42.0)	5 (25.0)
Category II	8 (42.0)	14 (70.0)
Category III	3 (16.0)	1 (5.0)
Skin types		
Dry	67 (69.8)	64 (67.0)
Tissue paper	31 (32.3)	26 (27.8)
Oedematous	17 (17.7)	12 (12.4)
Bruising	34 (35.4)	34 (36.1)
Healthy	30 (23.9)	23 (24.7)
Age	Mean = 78.20	Mean = 78.74

Post-implementation results

During the skin tear post-audit (follow-up cycle), all 95 patients consented to participate. There were 41 male and 57 female patients with a mean age of 78.74 years (SD = 0.89). The prevalence of skin tear was 20 (21%) and was present on admission. There was no hospital-acquired skin tear. The most common site of skin tear was the arm.

There were more Category II skin tears and the skin type of the patients was mostly dry and tissue paper with evidence of bruising (Table 1). Among all 20 patients with skin tear, normal saline was used for cleaning; Mepilex Border (*n* = 18) and Primapore (*n* = 2) were used for dressing. The post-audit results showed changes in practice in six skin tear criteria (Table 2). The highest post-audit results were in criterion 4 (education of staff regarding the prevention) at 88 (98%) and criterion 5 (education of staff regarding management of skin tear) at 88 (98%); a change in practice of 78% from the pre-audit results. The lowest post-audit results were in criterion 2 (use of emollient soap) at 67 (71%) and criterion 6 (staff use of proper lifting and transfer techniques) at 14 (91%); both with a change in practice of 6% compared with the pre-audit results. Criterion 1 (skin integrity assessment on admission) was conducted in 76 (80%) patients; a change in practice of 14% compared with the pre-audit result. Among 20 patients with skin tear, 13 (65%) were provided with padded bed rails, wheelchairs and leg support (criterion 3); a change in practice of 44% compared with the pre-audit result.

Discussion

The aim of this project was to ensure the practice of skin tear assessment, prevention and management among patients in acute aged care and rehabilitation units in the ACT was performed according to the best available evi-

Table 2 Pre-audit and post-audit results and per cent of change in practice

JBI criteria	Pre-audit <i>n</i> (%)	Post-audit <i>n</i> (%)	% of change
1. Skin integrity assessment is done on admission	<i>n</i> = 96 63 (66.0)	<i>n</i> = 95 76 (80.0)	14
2. Emollient soap is preferred to non-emollient soap in persons at risk of skin tears	<i>n</i> = 96 62 (65.0)	<i>n</i> = 95 67 (71.0)	6
3. Padding is provided to bed rails, wheelchair arms and leg supports	<i>n</i> = 19 4 (21.0)	<i>n</i> = 20 13 (65.0)	44
4. Staff are educated regarding prevention techniques for skin tears	<i>n</i> = 90 18 (20.0)	<i>n</i> = 90 88 (98.0)	78
5. Staff are educated regarding management techniques for skin tears	<i>n</i> = 90 18 (20.0)	<i>n</i> = 90 88 (98.0)	78
6. Staff utilise proper lifting and transfer techniques	<i>n</i> = 20 17 (85.0)	<i>n</i> = 20 14 (91.0)	6
Other practice guidelines	<i>n</i> = 18	<i>n</i> = 20	
7. Normal saline used for cleaning skin tear	18 (100.0)	20 (100.0)	0
8. Dressing materials used for skin tear	<i>n</i> = 19	<i>n</i> = 20	
Mepilex Border	15 (79.0)	18 (90.0)	11
Primapore	2 (10.0)	2 (10.0)	0
Non-adhesive dressing	1 (5.5)	–	–
Bandaïd	1 (5.5)	–	–

dence, much of which related to accurate documentation of the assessment of risk, prevention strategies, adequate care of the skin tear category and education of staff related to skin tear prevention and management. Because of the high risk for skin tears among our population mainly due to their age resulting in alterations of their skin physiology, it is critical that routine risk assessment is conducted by clinical staff in order to provide optimal prevention strategies. As friction and shearing could easily result in skin tear among the already fragile and tissue-type skin of the elderly, healthcare personnel should be mindful of prevention strategies such as use of emollient soap.^{4,12} Dry skin in particular is shown to have a lower friction coefficient thus ageing skin becomes dryer, less elastic and more easily damaged.¹⁷ Xiaoti *et al.* recommended using appropriate soap, bathing alternative days unless otherwise required more frequently and moisturising dry skin as routine nursing care for these patients.⁴

In the post-implementation audit, there was no prevalence of hospital-acquired skin tear. This could be explained by the skin risk assessment conducted by nurses on a daily basis as well as in implementing prevention strategies that were put in place by the clinical staff. The results, however, still showed that patients were being admitted with skin tear. This finding reiterates the need not only for healthcare personnel but also for patient and family education regarding skin tear prevention at home. Among the patients with skin tear, the most common sites were the arms and legs, which were also the same sites found in other reports.^{1,3,4} When a skin tear is present, the Payne and Martin Classification System¹¹ was used to categorise the extent of the injury and appropriate management strategies were implemented according to category such as the type of dressing material to be used. In our project, Mepilex Border

dressings were used as recommended by the Wound Care CNCs. In addition, padding of bed rails, wheelchair arms and leg supports (audit criterion 3) were used to prevent further injury for all patients with skin tears. However, we recommend that this criterion should also be implemented when there is any evidence that patients are assessed as 'at risk' for skin tear. We have also identified a number of barriers during this project and have implemented strategies that were effective to address these barriers. For example, as there are only two wound care nurse consultants currently employed across ACT Health to conduct education of nurses in regards to the practice guidelines for the prevention and management of skin tears, we were able to recruit and educate other nurses to act as 'Champions' to assist in the education especially during the evening and night shifts. The provision of dissemination and implementation strategies included several elements that could have improved practice and patient outcomes such as the use of education workshops, reminders in the form of algorithms and staff meetings, and contact with the project team members. It is therefore recommended that a follow-up audit cycle be conducted in 6 and 12 months in order to assess the sustainability of compliance to the skin tear evidence-based guidelines.

Given our healthcare policy for skin injury prevention and management, the results of this study are timely and the following recommendations are made:

- 1 Nursing staff and management should be aware of the importance of undertaking initial assessment of risk for skin tear and accurate documentation of findings.
- 2 Patients and carers should receive appropriate information on skin tear assessment and prevention.
- 3 Organisational support is essential if staff are to implement and sustain change in practice.

- 4 Skin tear audit project should be extended across a range of healthcare settings and in particular in all aged care facilities.

Conclusion

Although this project had a limited timeframe, we have shown some measureable improvement in some areas of practice and with patient outcome. However, it could not be achieved without the collaboration and support of key people in the clinical units and most importantly the dissemination of the results is crucial in motivating staff in sustaining the practice so as to enhance patient outcomes.

Acknowledgements

Special thanks to the ACT Health Pressure Injury Prevention and Management Reference Group for their ongoing support for this project and for assisting in the dissemination of the results. Special thanks also to the JBI facilitators for this project and for providing access to the JBI COnNect+. The project team would also like to acknowledge Mölnlycke Health Care for providing the wound dressings and in assisting in the developing and printing of the skin tear algorithm posters for distribution to the clinical units. The project team leader thanks the ACT Nurses and Midwives Board for funding the course fee for the JBI fellowship.

References

- Battersby L. Exploring best practice in the management of skin tears in older people. *Nurs Times* 2009; **105**: 22–6.
- LeBlanc K, Baranoski S. Clinical management extra. Prevention and management of skin tears. *Adv Skin Wound Care* 2009; **22**: 325–32.
- Ousey K. Identifying, managing and treating skin tears. *J Community Nurs* 2009; **23**: 18–22.
- Xiaoti X, Kwan L, Breena T, Singer A. The current management of skin tears. *Am J Emerg Med* 2009; **27**: 729–33.
- Benbow M. Skin tears. *J Community Nurs* 2009; **23**: 14–18.
- Morey P. Skin tears: a literature review. *Prim Intention Aust J Wound Manage* 2007; **15**: 122–9.
- McErlean B, Sandison S, Muir D, Hutchinson B, Humphreys W. Skin tear prevalence and management at one hospital. *Prim Intention Aust J Wound Manage* 2004; **12**: 83–8.
- Murray E. *Guidelines for the Management of Skin Tear. Nursing Monograph 2005*. Sydney: St Vincents & Mater Health, 2004.
- Santamaria N, Carville K, Prentice J. Woundswest: identifying the prevalence of wounds within Western Australia's public health system. *EWMA J* 2009; **9**: 13–18.
- Lopez V, Parke J, Larkin D, Dunk AM. *Pressure Injury Prevention Survey 2010: Final Report*. Canberra: ACT Health, 2010.
- Payne R, Martin M. Defining and classifying skin tears: need for a common language. *Ostomy Wound Mgt* 1993; **39**: 16–26.
- White W. Skin tears: a descriptive study of the opinions, clinical practice and knowledge base of RNs caring for the aged in high care residential facilities. *Prim Intention Aust J Wound Manage* 2001; **9**: 138–49.
- Fleck C. Preventing and treating skin tears. *Adv Skin Wound Care J Prev Heal* 2007; **20**: 315–21.
- Lloyd-Jones M. The prevention and management of skin tears. *Nurs Residential Care* 2009; **11**: 3.
- Bolhuis J. Evidence-based skin tear protocol. *Circle* 2008; **32**: 48–52.
- JBI. Topical skin care in aged care facilities. *Best Practice* 2007; **11**: 1–4.
- Payne R, Martin M. The epidemiology and management of skin tears in the older adult. *Ostomy Wound Manage* 1999; **26**: 26–37.