Introduction
Skin tears occur in those with fragile skin, including neonates and more frequently in the elderly. Some skin tears are unavoidable but many are considered to be preventable. It is important that clinicians have a good understanding of the effects of ageing on the skin and take appropriate measures to reduce the risk of patients developing skin tears. For those with skin tears, good assessment skills and documentation are important for effective management. This article will focus on why skin tears occur, the classification tools available and offers a practical guide to the prevention and management of skin tears.

Authors: Stephen-Haynes J, Carville K. Full author details can be found on page 6.

What are skin tears?
Skin tears are traumatic injuries, first defined by Payne and Martin in 1993 and more recently by an international consensus group, which can result in partial or full separation of the outer layers of the skin. These tears may occur due to shearing and friction forces or a blunt trauma, causing the epidermis to separate from the dermis (partial thickness wound) or both the epidermis and the dermis to separate from the underlying structures (full thickness wound).

Skin tears are perceived by some to be minor injuries. However, they can be significant and complex wounds; complications such as infection or a compromised vascular status can increase morbidity or mortality risks.

Where do skin tears occur?
Skin tears can occur on any anatomical location. In the elderly they are often sustained on the extremities such as the upper and lower limb and on the dorsal aspect of the hands. Skin tears in neonates with immature skin tend to be associated with the use of adhesives or device trauma and often occur on the head, face and extremities.

Which patients are at risk?
Patients who are elderly or dependent on others have a higher risk of sustaining skin tears. Skin can become very fragile with age and even the simplest bump or knock can cause tissue damage. In addition, patients who are very young and have immature skin or those who are critically ill and/or have multiple risk factors are also more likely to develop skin tears.

What are the risk factors for skin tears?
Skin tears are associated with falls, blunt trauma, handling and equipment injuries. A number of risk factors have been reported, including:
- Age and gender
- History of previous skin tears
- Dry, fragile skin
- Medications that thin the skin such as steroids
- Echymoses (bruising / discoloration of the skin caused by leakage of blood into the subcutaneous tissue as a result of trauma to the underlying blood vessels)
- Impaired mobility or vision
- Poor nutrition and hydration
- Cognitive or sensory impairment
- Comorbidities that compromise vascularity and skin status, including chronic heart disease, renal failure, cerebral vascular accident
- Dependence on others for showering, dressing or transferring.

What is the prevalence of skin tears?
Although skin tears are perceived to be common among the frail elderly, these wounds often go unreported, especially in the community. Most prevalence and incidence studies have been conducted in the United States (USA) and Australia.

Studies confirm that skin tears are common with an estimated 1.5 million skin tears occurring in elderly residents of institutions in the USA annually; a three-year, annual, statewide survey of all public hospitals in Western Australia found skin tears to be the third largest group of wounds.
More recently, a review of 114 long-term care facilities in the USA found that 22% of patients (average age 83 years) had a skin tear, despite good wound care practices. In the UK, one primary care trust with a dedicated tissue viability nurse, reported a reduced incidence, with 49 out of a total of 2200 patients (average age 76 years) from 52 care homes developed a skin tear in a 12-week audit period.

Why do skin tears occur?
Intrinsic and extrinsic factors increase the risk of skin tears.

**Intrinsic factors**
As the skin ages, pathological skin changes occur, such as: thinning and flattening of the epidermis; loss of collagen and elastin; and atrophy and contraction of the dermis, causing wrinkles and folds to appear. Decreased sebaceous gland and sweat gland activity causes the skin to dry out, while arteriosclerotic changes in the small and large vessels causes thinning of vessel walls and a reduction in the blood supply to the extremities. This results in the skin becoming more fragile, furrowed and wrinkled and more prone to skin tears (see Table 1).

In neonates the dermis does not fully develop until after birth and at full term it is only 60% of adult thickness. In addition, the fibrils connecting the epidermal/dermal junction are reduced in number and are more widely spaced. This decreases skin elasticity and the skin is more likely to be damaged by shear forces.

**Extrinsic factors**
The need for assisted transfers, showering or other activities of daily living increases the risk of skin tears among dependent individuals.

<table>
<thead>
<tr>
<th>Table 1 Skin changes in the older person</th>
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<tbody>
<tr>
<td>Skin</td>
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<tr>
<td>Epidermis</td>
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<tr>
<td>Dermis</td>
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<tr>
<td>Hypodermis</td>
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</tbody>
</table>

Carers and patients can reduce these risks by keeping fingernails trimmed, not wearing jewellery, padding bed rails and wheelchairs, and taking care when transporting patients. In addition, a good skin care regimen is important to maintain skin integrity.

**How should skin tears be assessed?**
The initial assessment should include a comprehensive assessment of the patient and his/her wound. It is important to determine the patient’s age and medical history, any underlying comorbidities, general health status and potential for wound healing.

Assessment must establish the cause of injury: when, where and how it occurred. In addition, a full assessment of the wound is required to determine the following:

- **Anatomical location and duration of skin tear**
- **Dimensions (length, width depth)**
- **Wound bed characteristics and percentage of viable/non-viable tissue**
- **Type and amount of exudate**
- **Presence of bleeding or haematoma**
- **Degree of flap necrosis**
- **Integrity of surrounding skin**
- **Signs and symptoms of infection**
- **Associated pain.**

The skin tear should then be categorised and all information be carefully documented.
Skin tear classification systems

As is the case with pressure ulcer staging, there is no universally accepted classification system for the assessment of skin tears. Payne and Martin developed the first classification system in 1990 and this was updated in 1993.

The Payne and Martin system provides classifications by degree of severity. It has three categories and two sub-categories:

- **Category I: Skin tear without loss of tissue.** The epidermal flap either completely covers the dermis or covers the dermis to within 1mm of the wound margin
  - Ia: Linear type
  - Ib: Flap type
- **Category II: Skin tears with partial tissue loss**
  - IIa: Scant tissue loss (25% or less)
  - IIb: Moderate to large loss of tissue (more than 25% loss of the epidermal flap)
- **Category III: Skin tears with complete tissue loss.**

Problems associated with inter-rata reliability testing of the Payne and Martin classification system and its poor utility in Australia, led to a study that resulted in the Skin Tear Audit Research (STAR) Classification System. This system comprises three categories and two sub-categories of skin tears as outlined below. The STAR Classification System is commonly used in Australia, with evidence of implementation reported within the UK.

What principles should guide treatment?

There is a lack of robust research into the prevention and management of skin tears. Experiential evidence has been used predominantly to develop skin tear guidelines or best practice statements in the USA, Canada and the UK. Although these guidelines are considered to be important for guiding practice in the assessment and care planning process, there is a lack of uptake within clinical practice reported in the literature.

A recent international survey involving 1127 clinicians from 16 countries found that around 80% of respondents admitted to not using any tool or classification system, while around 90% favored a simplified method for assessment and documentation. This underpins the need for a systematic approach involving the multidisciplinary team to optimise the management and prevention of skin tears.

**Key principles for management include:**

- Assess and document the wound
- Classify using a recognised tool (eg Payne and Martin or the STAR Classification System)
- Manage using an appropriate dressing
- Prevent further trauma.

**How to manage skin tears**

The main aims of management are to preserve the skin flap and protect the surrounding tissue, reapproximate the edges of the wound without undue stretching, and reduce the risk of infection and further injury. The principles of moist wound healing are promoted in the following general guidelines:

**Control bleeding (haemostasis)**

- Apply pressure and elevate the limb if appropriate.

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**STAR Classification System**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>1a</td>
<td>A skin tear where the edges can be realigned to the normal anatomical position (without undue stretching) and the skin or flap colour is not pale, dusky or darkened.</td>
</tr>
<tr>
<td>1b</td>
<td>A skin tear where the edges can be realigned to the normal anatomical position (without undue stretching) and the skin or flap colour is pale, dusky or darkened.</td>
</tr>
<tr>
<td>2a</td>
<td>A skin tear where the edges cannot be realigned to the normal anatomical position and the skin or flap colour is not pale, dusky or darkened.</td>
</tr>
<tr>
<td>2b</td>
<td>A skin tear where the edges cannot be realigned to the normal anatomical position and the skin or flap colour is pale, dusky or darkened.</td>
</tr>
<tr>
<td>3</td>
<td>A skin tear where the skin flap is completely absent.</td>
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</tbody>
</table>
Clean the wound
- Use warm saline or water to irrigate the wound and remove any residual haematoma or debris
- Gently pat dry the surrounding skin to avoid further injury.

Approximate the skin flap
- If the skin flap is viable, gently ease the flap back into place using a dampened cotton tip or gloved finger, tweezers or a silicone strip and use the flap as a ‘dressing’ if viable
- If the flap is difficult to align, consider using a moistened non-woven swab. Apply for 5-10 minutes to rehydrate the flap
- Categorise the skin tear and perform a wound assessment. Document findings
- Apply a skin barrier product as appropriate to protect the surrounding skin.

Apply the dressing
- Select an appropriate dressing (see Dressing selection). If considering the use of adhesive wound closure strips, allow space between each strip to facilitate drainage and avoid tension over flexure sites (this could compromise vascularity)
- Tissue glues may be used to secure dressings or provide additional protection.
- If possible, leave the dressing in place for several days to avoid disturbing the flap
- If an opaque dressing is used, mark with an arrow to indicate the preferred direction of removal and record in the notes.

Review and reassess
- At each dressing change, gently lift and remove the dressing, working away from the attached skin flap, as indicated by the arrow drawn on the dressing. Consider using saline soaks or silicone-based adhesive removers to minimise trauma to the periwound skin
- When cleaning the wound take care not to disrupt the skin flap
- Monitor for changes in the wound and maintenance of skin integrity. Where the skin or flap is pale and dusky/darkened, it is important to reassess within 24-48 hours. Debridement is usually required on non-viable flaps
- Observe the wound for signs and symptoms of infection (especially in patients with diabetes), including increased pain and exudate, erythema, heat, oedema and malodour
- Implement preventative skin care interventions to avoid further skin tears (see How to prevent skin tears).

Box 2: Properties of the ideal dressing for skin tear application (based on33)
- Easy to apply
- Provides a protective anti-shear barrier
- Optimises the physiological healing environment (eg moisture and bacterial balance, temperature and pH maintenance)
- Is flexible and moulds to contours
- Provides secure, but not aggressive retention
- Affords extended wear time
- Does not cause trauma on removal
- Optimises quality of life and cosmesis
- Is cost-effective

Dressing selection
A wide variety of dressings are used in the treatment of skin tears. It is important to select a dressing based on the assessment outcomes and goals of care (see Box 2). Calcium alginate may assist with haemostasis. Soft silicone or silicone impregnated dressings facilitate flap security and non-traumatic removal. Foam or fibre dressings assist with exudate management. Antimicrobial dressings aid infection control. Adhesive dressings are best avoided when the periwound skin is fragile. Tubular or roller bandages can be used to secure dressings or provide additional protection.

Special considerations
Oedema
If the skin tear occurs over an area where there is oedema, exudate levels will be increased. It is important to consider the cause of oedema and manage appropriately. Failure to respond to first line treatment may indicate further interventions and referral to a specialist is required.

Pain
Skin tears can be painful as trauma can affect the superficial nerve endings in and around the wound. It is important, therefore, to assess the degree and nature of pain and offer analgesia if required3. Pain measurement tools, such as the visual

Box 3 Recommendations for managing wound-related pain (adapted from34,35)
- Involve and empower patients to optimise pain management
- Evaluate each patient’s need for pharmacological and non-pharmacological strategies to minimise wound-related pain
- Treat local factors such as inflammation, trauma, pressure and maceration that may cause wound-related pain and delay healing
- Choose dressings that minimise trauma and pain during application and removal. Consider wear time, moisture balance and healing potential
- Treat infections and be aware that an increase in pain may be indicative of infection
- Use warm cleansing solution to irrigate the wound, carefully remove dressings and any residue and if necessary use a silicone-based adhesive remover
- Consider ‘time out’ sessions and allow patients to remove their own dressing as appropriate
- Minimise the frequency of dressing changes when possible.
analogue scale (VAS) can be used to grade a patient’s pain. This can help to identify the most appropriate treatment strategy (Box 3).

Infection
Pain may also be an indication of localised infection. Infection may be managed using topical antimicrobials or systemic antibiotics to help prevent the onset of serious complications such as cellulitis or generalised sepsis.

When is referral indicated?
Referral is indicated when the skin tear is extensive or associated with a full thickness skin injury, significant bleeding or haematoma formation. Such skin tears may require surgical review and intervention to repair the injury. An interprofessional and collaborative approach to management is required to optimise healing outcomes for the individual.

How to prevent skin tears
Most skin tears occur during routine patient care activities. Any management plan should therefore include strategies to prevent skin tears from developing and/or prevent further trauma that can be adopted by healthcare professionals and assistants who care for vulnerable patients on a daily basis. In addition, patients and carers should be encouraged to be involved in their care and provided with the necessary education to prevent skin tears.

Key strategies include:

Create a safe environment
It is important to determine the patient’s sensory perception and visual impairment and to ensure a safe home or care environment.
- Ensure adequate lighting and position small furniture (night table, chairs) to avoid unnecessary bumps or knocks. Remove rugs and excessive furniture
- Upholster or pad sharp borders of furniture or bed surroundings with padding and soft material
- Use appropriate aids when transferring patients and adopt good manual handling techniques according to local protocols
- Never use a bed sheet to move the patient as this can contribute to damage by causing a dragging effect on the skin. Always use a lifting device or slide sheet
- Where possible reduce or eliminate pressure, shear and friction using pressure relieving devices and positioning techniques
- Encourage the patient to wear protective footwear and clothing to reduce the risk of injury.

Maintain skin integrity
Good skin care is vital in maintaining skin integrity. It is important to keep the skin well hydrated by maintaining nutritional intake and adequate fluid intake.

Patients with dry skin will benefit from the application of an appropriate pH-friendly moisturising cream twice a day. It is important to:
- Avoid the use of soap, which can dry the skin. Use pH friendly cleansing solutions
- Apply emollients to moisturise and rehydrate dry skin
- Control moisture from incontinence or other sources
- Place, fix and remove peripheral access devices carefully
- Use a barrier film or cream to protect vulnerable skin
- Where adhesive products are used, consider a silicone-based adhesive remover to minimise trauma to fragile skin
- Protect fragile skin by covering with tubular or roller bandages, long sleeved clothing or skin protection devices.

Summary
The prevention of skin tears is an important aspect of skin care practice in the care of the elderly and infants or dependent persons. While a skilled healthcare professional is required to assess and agree a plan of care for those with skin tears, more junior staff and healthcare assistants are ideally placed to provide fundamental first aid or assist in the prevention of skin tears. An awareness of the anatomy of the skin and the effects that ageing has on the skin can help clinicians in preventing and managing common wounds. The implementation of an evidence-based skin tear management protocol can help to manage patients effectively and prevent further trauma.

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Cost benefits of effective management

The costs associated with skin tears can be significant. Delays in healing due to infection or other complications can add to the health cost burden. Comprehensive assessment and effective management of skin tears can facilitate faster healing and reduce the risk of complications. Evidence-based clinical decisions and dressing selection are important in helping to reduce the total number of dressing changes and time taken to apply the dressing42. When patients are able to be managed within their existing care setting or at home, this can reduce the number of visits to accident and emergency departments or prevent hospitalisation12.

References

1. LeBlanc K, Baranoski S. Skin Tears: State of the Science: Consensus Statements for the Prevention, Prediction, Assessment, and Treatment of Skin Tears. Adv Skin Wound Care 2011;24(9):2-15

Author details

Stephen-Haynes J1, Carville K2.
1. Visiting Professor in Tissue Viability, Professional Development Unit, Birmingham City University, and Consultant Nurse in Tissue Viability, Worcester Health & Care Trust, UK
2. Associate Professor, Domiciliary Nursing Silver Chain Nursing Association and Curtin University, Australia.

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