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Skin Tears: Prevention & Management

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"Skin tear injuries often go underreported and are often misdiagnosed."

The development of a skin tear or skin stripping event is one that causes significant distress and pain for the affected patient. It affects quality of life, loss of skin's normal barrier function leaving the person at high risk for pathogen exposure, and potentially increase an acute care episode length of stay. In recent years there has been an increase focus on skin tears and increase in research to identify knowledge gaps in healthcare, identify misconceptions amongst clinicians, and improve practice through use of best management practices.

Objectives

- Identify risk factors for the development of skin tears
- Discuss the International Skin Tear Advisory Panel (ISTAP) classification system for skin tears
- Formulate plan for the prevention and treatment of skin tears

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Our objectives in this lesson are to:

1. Identify risk factors for the development of skin tears
2. Discuss the International skin tear advisory panel (ISTAP) classification system for skin tears
3. Formulate a plan for the prevention and treatment of skin tears.

Introduction

- A skin tear occurs as a result of a traumatic separation of the epidermis and dermis as a result of mechanical forces from friction, shear, or blunt trauma.
- Can be partial-thickness or full-thickness
- Most commonly occurs in elderly & chronically ill populations.

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Skin tears or skin stripping can occur in most any patient population.; however it is the person with aged, fragile skin that is at highest risk. Considering the global aging of populations, it can then be predicted that the incidence of skin tears is likely to increase. These skin injuries are often under-recognized and misdiagnosed in practice, yet occur more frequently than pressure injuries. In order to correctly identify and manage this problem and optimize the care, it is essential to first educate care providers on risk factors, prevention, classification, and best management practices. There is much in the literature on terminology, and to add complication, current ICD-10 coding does not include a specific code for skin tears, so it generally falls under an unspecified open wound classification. Many in practice will document a skin tear as a cutaneous laceration or just a laceration; however, the nature or etiology of how a skin tear develops is far different from a laceration. In reality, a skin tear is a traumatic wound resulting from a variety of mechanical forces, usually friction or shear, but can also include falls, blunt trauma, poor handling of equipment (e.g. wheel chairs), or adhesives such as with dressings or tape.

What is the scope of the problem?

- There are limited studies in the literature that provide the full scope of incidence
- Estimates vary by level of care show a wide range of incidence
  - Long-term care – 2.23-92%
  - Community – 4.5-19.5%
  - Acute care – 6.2-11.1%
  - Palliative care – 3.3-14.3%
- Frequently underreported or misdiagnosed

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Skin tears occur in all populations, but particularly in vulnerable populations, whom we will talk about in a moment. A 1991 study suggested that more than 19.1 million institutionalized adults would develop a skin tear each year. The full extent is many times not fully known which is how these injuries go underreported and misdiagnosed. To increase awareness, the international skin tear advisory panel, or ISTAP, developed key consensus statements and a definition to lay the ground work to provide for education and further studies.

Definition of a skin tear

- Tear or laceration of skin caused by friction or shear, or by blunt force trauma
- Results in a separation of epidermis from the dermis, or in more severe cases, separation of epidermis & dermis from underlying tissue with resulting skin flap or skin pedicle
- Skin flap may or may not be viable
- Jagged, irregular
- Partial or full-thickness injury
- Scant to moderate amounts of drainage

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A skin tear can be defined as a tear or laceration of the skin layers as a result of friction or shear forces, or by minor blunt force trauma such as from a medical device. This injury results in a separation of the epidermis from the dermis, or separation of the epidermis & dermis from underlying connective tissue. The latter results in a skin flap or pedicle that may or may not be viable in nature. These injuries can produce partial or full-thickness wounds, often jagged or irregular in shape. They most often occur in the extremities but can occur most anywhere on the body. These wounds can also have anywhere from scant to moderate amounts of drainage, largely depending on location and depth of injury.

Vulnerable patient populations

- Elderly/ mature skin
- Premature infant epidermis is developed to only 60% of adult epidermis maturity
- Dermis underdeveloped
- Premature infant's skin
  - Dermal-epidermal junction not fully developed
  - Weak and shears easily.
- More susceptible to skin tears/stripping

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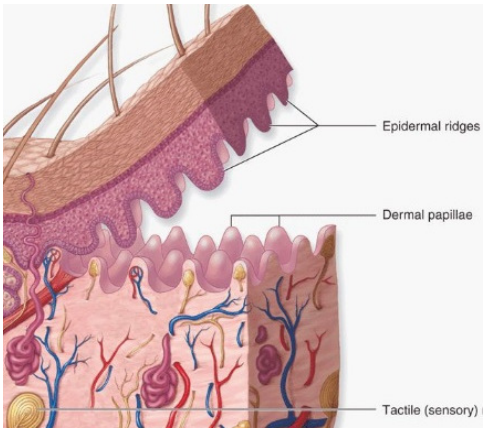
Although skin tears can in any patient population, the most vulnerable populations are the elderly and premature infants. The root cause for this is the same: In the premature infant, skin is translucent, the dermal-epidermal junction is weak and undeveloped, and the rete ridges are incompletely developed. As a result, it is more susceptible to mechanical forces. Additionally the epidermis is only 60% of the thickness adult skin, causing it to be at risk for wounding. In particular, the skin for these tiniest of patients are vulnerable to most adhesives. Neonates also have impaired thermoregulation, a body surface-weight ratio nearly five times greater than an adult and have immature immune systems (Thayer et al., 2022). These factors can combine to make this population more prone to infection, epidermal stripping, increased transcutaneous water loss leading to difficulty with thermoregulation, and toxicity from absorption of topical substances. Alcohol is known to cause tissue necrosis in preemies so should not be used.

Vulnerable patient populations

- Advanced age
  - Epidermal-dermal junction impaired
  - Rete ridges flatten, epidermis thins, and cohesion diminishes
  - Collagen and elastin decreases. Skin becomes wrinkled, thin and less compliant
  - Connective tissue surrounding capillaries diminishes, more fragility
  - Senile purpura
    - Bleeding beneath the skin, causing ecchymosis



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In the elderly, the inter-interlocking dermal papillae and epidermal rete ridges or pegs at the dermal-epidermal junction flatten, causing a decrease in the skin's resiliency and ability to withstand mechanical forces. This flattening also impairs the ability of the skin to retain moisture, leading to increased dryness of the skin, which also increases the possibility for skin tears. Collagen and elastin are diminished making the skin less supple; couple this with flattening of the dermal-epidermal junction and the skin is more prone to injury. In addition, the connective tissue surrounding capillaries go through similar tissue changes, making the vessels more fragile. This results in increased bleeding beneath the skin, called senile purpura, which further separates the dermis and epidermis. Other at risk populations include the critically and chronically ill individuals.

Risk factors

Assessing for risk & initiating prevention strategies can reduce incidence. Identify high risk populations.

Patient populations	Chronic illness	Other risk factors
Very young	Poor nutritional intake	Immobility
Very old (>75 years of age)	Long-term corticosteroids	Spasticity & stiffness
Gender (female)	Altered sensation	Dependence for ADLs
Race (Caucasian)	Altered cognition	History skin tears
Critically ill	Poly pharmacy	Use of adhesives
Chronically ill	Vascular insufficiency	Moisture (e.g. incontinence)
High fall risk	Neuropathy	Prosthetic devices

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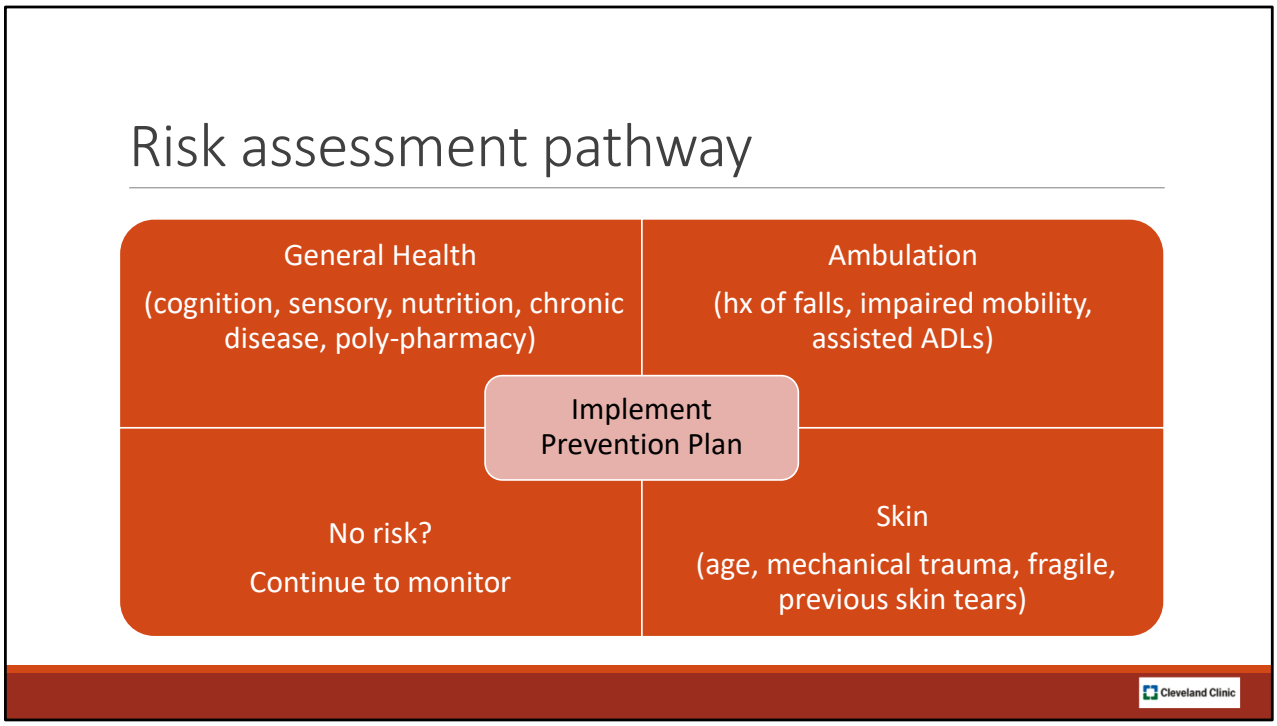
Nutrition and hydration are vital for skin health and ability to optimally repair injury. Compromised nutrition results in impaired healing of the skin. An important component in the plan to prevent skin tears is to assess an individual's nutritional status, and consult the dietitian if warranted.

Cognitive impairment , confusion, and sedation predisposes the patient to injury and trauma due to falls, blunt trauma from side rails, and wheelchair, transfers in and out of bed. Patients often have co-morbidities such as diabetes, cardiac disease, dementia, and the like. As a result, they are often on multiple medications, or polypharmacy. These medications, or combination of medications can result in confusion and sedation, causing the individual to be more prone to injury. Some medications can have a direct effect on the skin. Of note, long-term use of corticosteroids results in very thin skin that is prone to damage with minimal provocation.

An event occurs, such as a bumping against a wheelchair leg during a patient transfer, or tape is removed quickly and a skin tear occurs. Most commonly tears occur on the upper extremities, with the forearm the area with the most tears. Skin tears also occur on the lower extremities, the back, and buttocks.

Radiation therapy causes epidermal atrophy, vascular occlusion, and tissue fibrosis

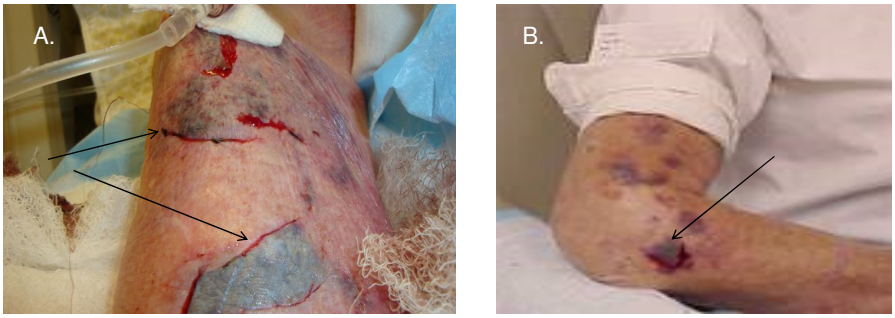
reducing the strength of the skin. Once these effects occur, they cannot be reversed. Skin in the radiation field requires special attention.



Like pressure injury risk, we can also assess for and identify those at risk for a skin tear. Bundled interventions can routinely be used with a specific aim toward patient safety and injury prevention. There is currently no validated risk assessment tool for skin tears; however, as nurses, we can still identify through at risk populations those who are most vulnerable and develop policies and procedures to support care. General health concerns such as chronic disease have associated skin changes rendering skin more susceptible to injury, and sensory deficits contribute to a higher fall risk which in itself has been linked to a higher incidence of skin tears. In the elderly populations skin tears are many times environmentally related which can include assistive devices causing blunt trauma, bumping into furniture corners, and clutter in the patient's living area (again, raising the fall risk). This information can then be used to eliminate or at least reduce skin tear risk.

ISTAP: International Skin Tear Advisory Panel

- Type 1 *(No Skin Loss)*
  - Linear or flap tear that can be repositioned to cover the wound bed



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Once a tear occurs, classification of the extent of the damage is important as this will drive the plan of care and assists in documentation of the wound. A validated classification system is the International Skin Tear Advisory Panel's ISTAP classification. This taxonomy system classifies a skin tear in one of three categories: Type I, II, and III. A type one skin tear is a linear or flap tear that can be repositioned to cover the wound bed. In slide A above, you can see senile purpura, the dark, ecchymotic areas of tissue as well as a skin tear that is approximate with no tissue loss. In B, one can see at the arrow a skin tear without tissue loss. It has occurred at an area of ecchymosis.

ISTAP: International Skin Tear Advisory Panel

- Type 2 *(Partial flap loss)*
  - Partial flap loss that cannot be repositioned to cover the wound bed with dermis exposed

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With a type II skin tear, there is partial flap loss. The flap of skin cannot be repositioned to cover the wound bed, leaving the dermis exposed. Nerve endings are present in the dermis, so pain usually accompanies this type of tear. You can see in this photograph that this Type II skin tear has occurred in an area of ecchymosis.

ISTAP: International Skin Tear Advisory Panel

- Type 3 *(Total flap loss)*
  - Exposing entire wound bed

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This photograph shows an individual with a Type III skin tear; the whole flap of traumatized skin is lost, exposing the entire wound bed. In addition to managing this wound, the treatment plan would address prevention of further trauma, nutrition and fluids, and optimizing safety and mobility. This type of wound is also at risk to become chronic in nature and heal through a more complex healing trajectory.

Prevention Measures

Strategies for Prevention	
Ensure safe environment; remove potential causes; adequate lighting	Pad furniture edges & equipment
Remove sources of blunt trauma, de-clutter area	Meticulous toenail and fingernail care
Hydrate skin 2x day w moisturizers; esp. after bathing	Care providers should also use meticulous nail care to avoid inadvertent patient injury
Soap free, no-rinse, pH balanced skin cleansers	Avoid adhesive products on frail skin, use of tape anchors or rolled gauze to secure dressings, silicone based dressings if needed
Use lift sheets for safe lifting & turning/ no dragging	Label dressings showing removal direction, pulling away from skin flap →
Long sleeves, long trousers/knee-high socks, protective garments	Educate on importance of gentle care, prevention

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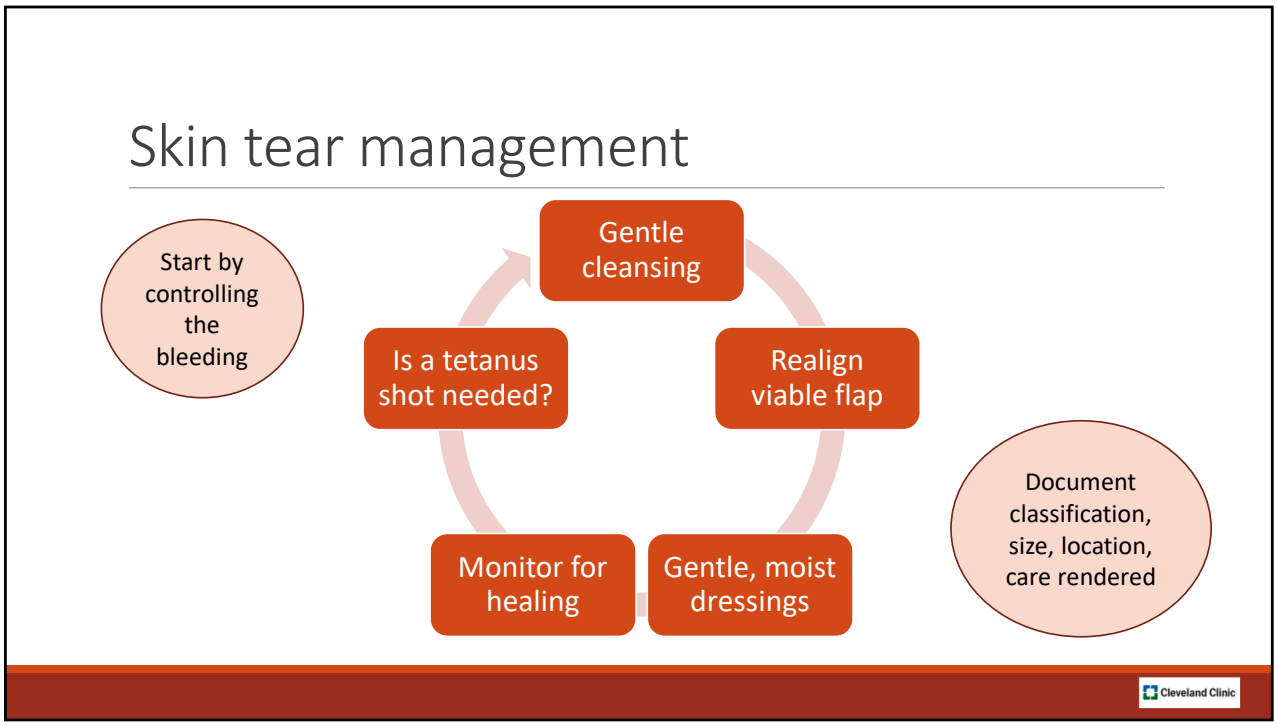
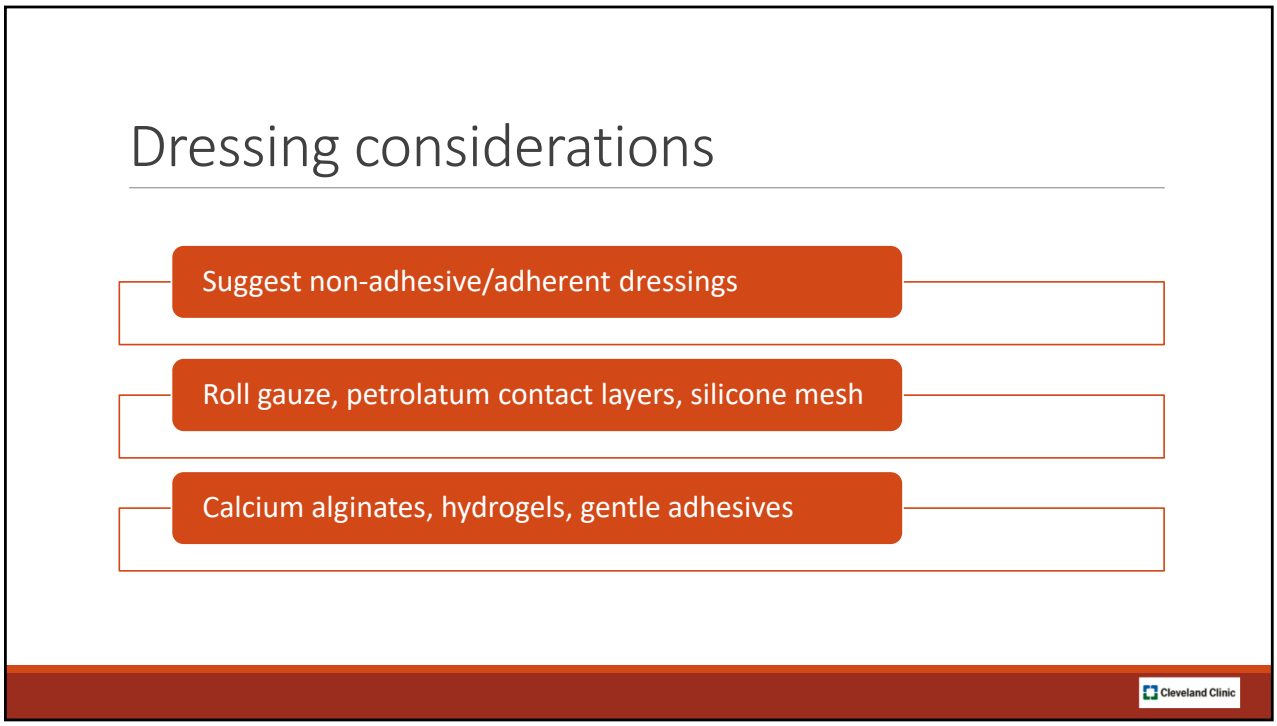
Skin tears can be effectively prevented through anticipating those at risk, and a robust prevention plan is in place to eliminate the potential for mechanical injury. Read the slide ..

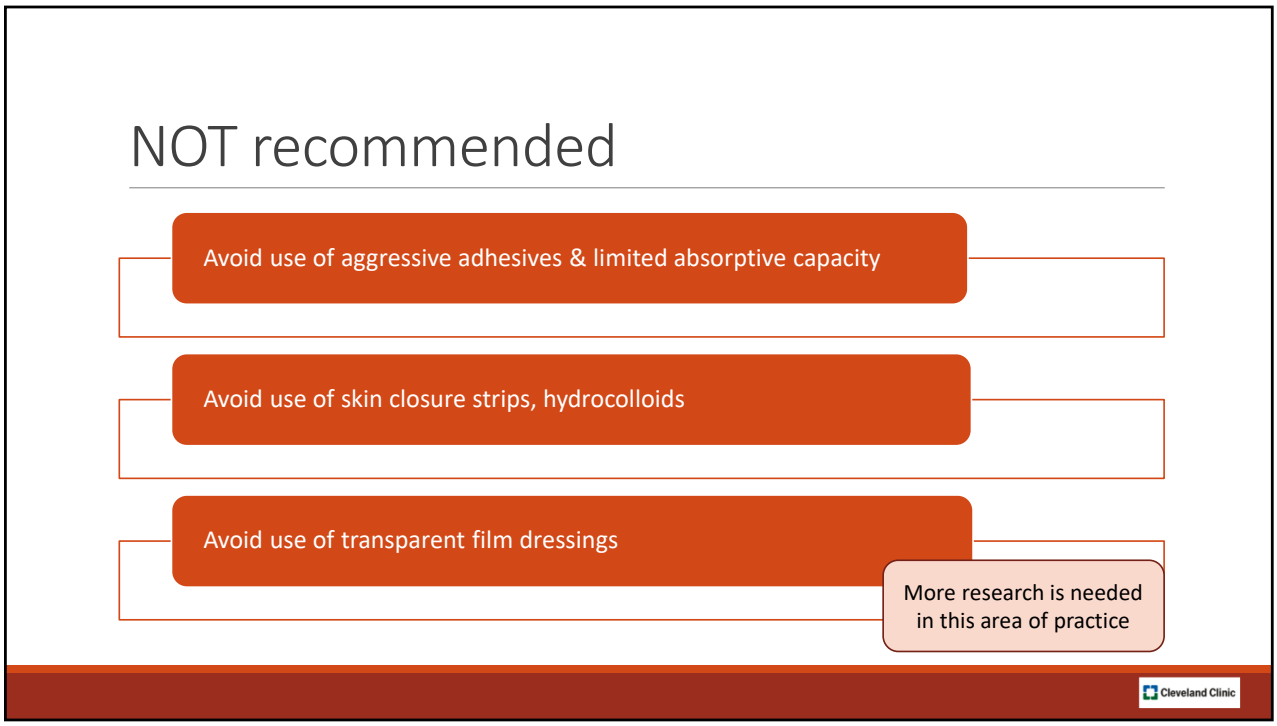


Since a skin tear represents a wound type, the same basic principles of topical care do apply. Do consider and address the etiological factors through identifying and managing risk factors, use gentle pH balanced wound cleansers, select a dressing that will manage the amount of exudate to maintain a moist healing environment as well as one that will not extend the skin tear damage, and manage chronic illness. Like all wounds, it is assessment that starts the process. Begin by stopping any bleeding and preventing worsening of the skin tear. Consider the extent of damage and whether a viable flap is present. Remember that in addition to a skin tear wound, the adjacent skin is also fragile. Once bleeding is under control, gently cleanse the wound of debris using normal saline or a pH balanced wound cleanser. This process also helps identify specific nursing concerns regarding needed care. If the remaining skin flap is viable, use sterile cotton-tipped applicators to carefully realign the flap over the wound bed. You can, if needed, moisten the flap to aid realignment. If the flap is necrotic or crusty, it is likely it will need to be carefully debrided from the wound bed. Select a topical treatment based on the amount of drainage, and the size and location of the wound, keeping in mind that it will be important to select a non-adhesive product or combination of products that will maintain a moist healing environment without causing more damage. Finally, be sure to document the assessment and management plan with follow up to monitor healing. This is also a good time to review the patient's medical record for tetanus shot history and consider a booster shot for this person. This is of particular importance if the source of the skin tear is unknown, or has

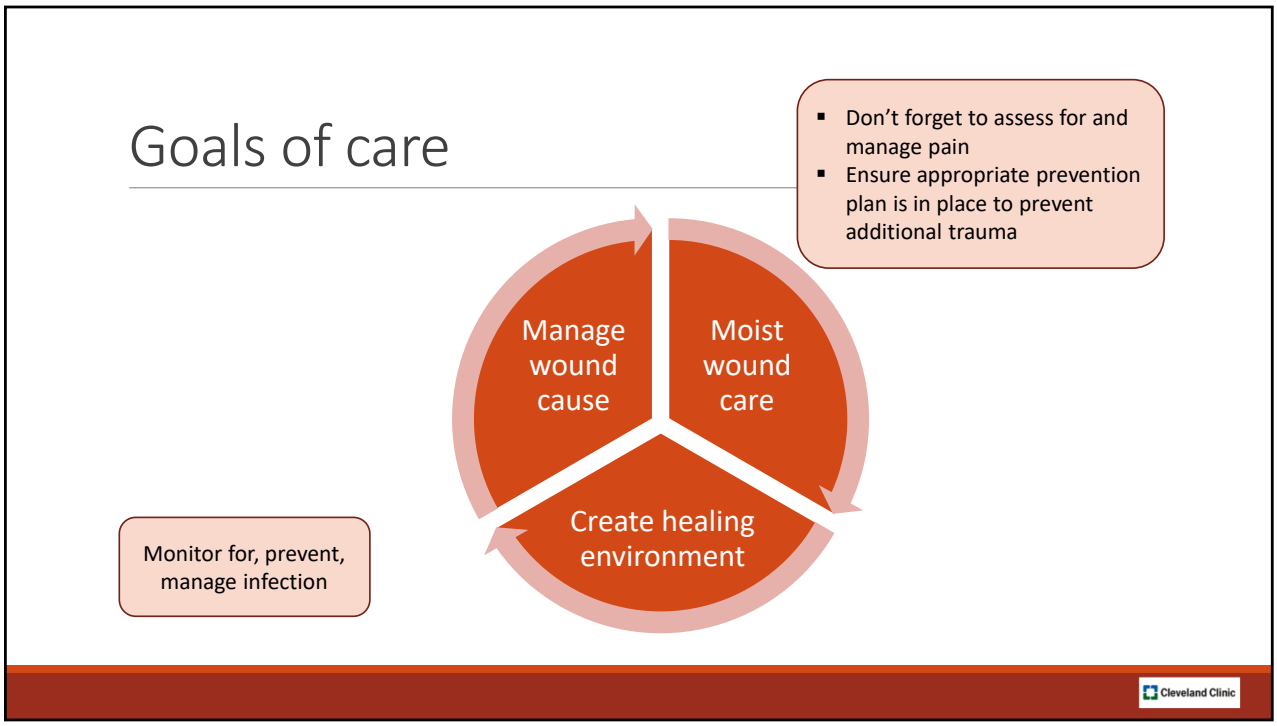
resulted from a contaminated source.



Specific dressing considerations should be limited to non-adhesive or low adhesive categories then with consideration to drainage amount. Like all wounds, it is important to retain a moist healing environment. Consider non-adhesive foam, non-adhesive contact layers such as those impregnated with petrolatum or a silicone base, hydrogels, and alginates then secure with a non-adhesive product such as rolled gauze or other wrap device to secure the dressing in place.



Dressings with aggressive adhesive properties are to be avoided as these product categories are likely to extend the skin tear. Research into the area of topical care for skin tears is in its infancy, so literature should be observed for updated information. Perhaps one of you will take a close interest in this topic and champion a research study or poster presentation from your own clinical practice then share your results at conferences or publish in our journals.



Ultimately, the goals of care very much mirror that of all wounds. It is important to identify and manage risk factors, identify the source of the skin tear to prevent recurrence or extending the wound size, consider pain management needs, select topical treatments that create an environment for healing, and educate all team members on the needs of this person.

Educating the team

Care providers	• Gentle handling • Proper positioning • Manage risk factors
Family/friends	• Remind of risk factors • Support plan of care • Engage in plan of care

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Other prevention measures include (but are not limited to) using lift sheets to turn and reposition thus avoiding dragging the patient, pad sharp corners and hard objects that can be in contact with the patient, and don't forget wheelchairs and other assistive devices. For those in home care, do consider creating clear pathways and removing throw rugs to minimize falls and blunt trauma. A variety of garments can also be used. Protective arm sleeves, shin guards, and long pants or trousers can be implemented on a routine basis to cover the extremities of those at higher risk, or with a history of skin tears in those areas. Care providers and visitors should be advised keep finger nails trimmed leaving smooth, unjagged edges to prevent mechanical trauma. Promoting skin care through use of pH balanced cleaners for bathing, use of skin creams and emollients rather than lotions help to restore and maintain some of the skin's resilience. Make this a priority and engage everyone; create a zero tolerance zone which raises awareness and empowerment to the right thing.

Summary

Risk
- Who are the at risk populations in your practice?
- Educate the team

Identify
- Manage risk factors for prevention
- Maintain safe patient environment

Manage
- Realign viable flap, gentle & moist wound care
- Prevent wound infection, avoid adhesive dressings

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Skin tears are a common, yet underreported and preventable skin injury. While many are of these top-down injuries are superficial, some are deeper, and this is by no means a trivial concern. The very same concerns that increase the risk for injury also increase the risk for other problems such as infection, pain, and other traumatic events. Like all wounds, skin integrity has been disrupted leading to an inflammatory response and affects the body's most fundamental protective barrier to pathogens. As wound specialist, it will be up to you to develop a culture of prevention and evidence-based care with prevention and team buy-in as the priority.

References

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This ends the lesson on skin tear management. Thank you for your attention.