Skin Ulcers, Pressure Injuries and Skin Grafts

Nancy Reading RN, BS, CPC, CPC P, CPC I

January 06, 2025

elevate
MEDICAL SOLUTIONS

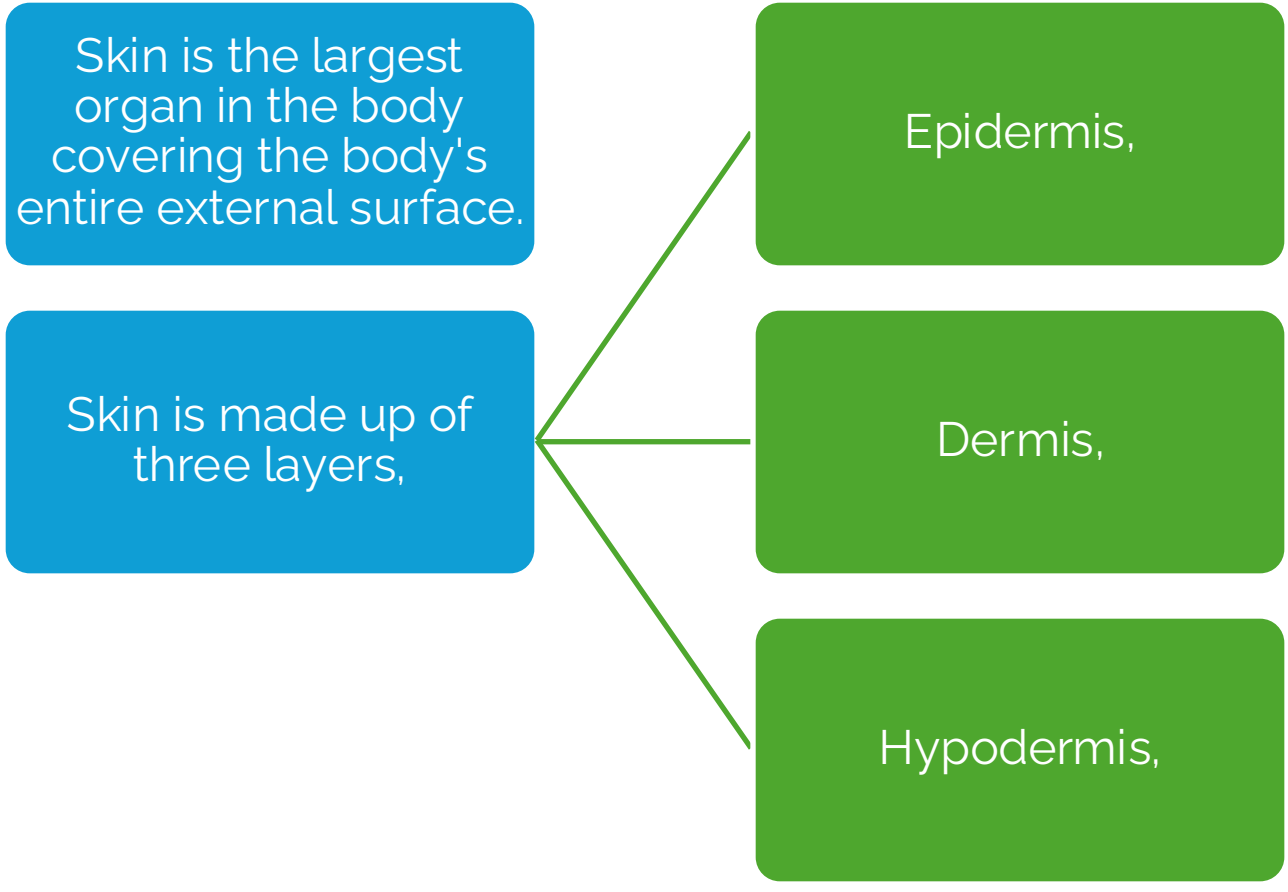
CORE VALUES

Elevate Medical Solutions has five core values: Integrity, Humility, Knowledgeable, Solutions Focused, and Team Player. Our focus from day one has been on our people. While everyone's walk of life is unique, we see a common theme in the professional journey of our people. Everyone on our team has a passion for what they do. They care about it, they get excited about it, and they love to watch their skills tackle the challenges their team is setting out to resolve.

OBJECTIVES

- Review Wounds Types and Measurements
- Review Skin Grafts, Types and Sizing
- Skin Substitutes and How to Capture Costs

Skin


Skin is the largest organ in the body covering the body's entire external surface.
Skin is made up of three layers,
Epidermis,
Dermis,
Hypodermis,

Skin

Functions as Barrier

To infection
UV light
Chemicals
Mechanical injury

Regulates temperature

Regulates the amount of water released into the environment

Epidermis

Layers of Epidermis

Stratum basale

Stratum spinosum,

Stratum granulosum,

Stratum lucidum, and

Stratum corneum

- **Cells of the Epidermis**
- Keratinocytes
- Melanocytes
- Langerhans' cells
- Merkel's cell

Dermis

- **Dermis**
- The dermis is connected to the epidermis at the level of the basement membrane
- The Dermis consists of two layers, of connective tissue,
  - the papillary and
  - reticular layers
- Houses the
- Eccrine Sweat glands,
- Sebaceous glands
- Hair,
- Hair follicles,
- Arrector pili muscles,
- Sensory neurons, and
- blood vessels.

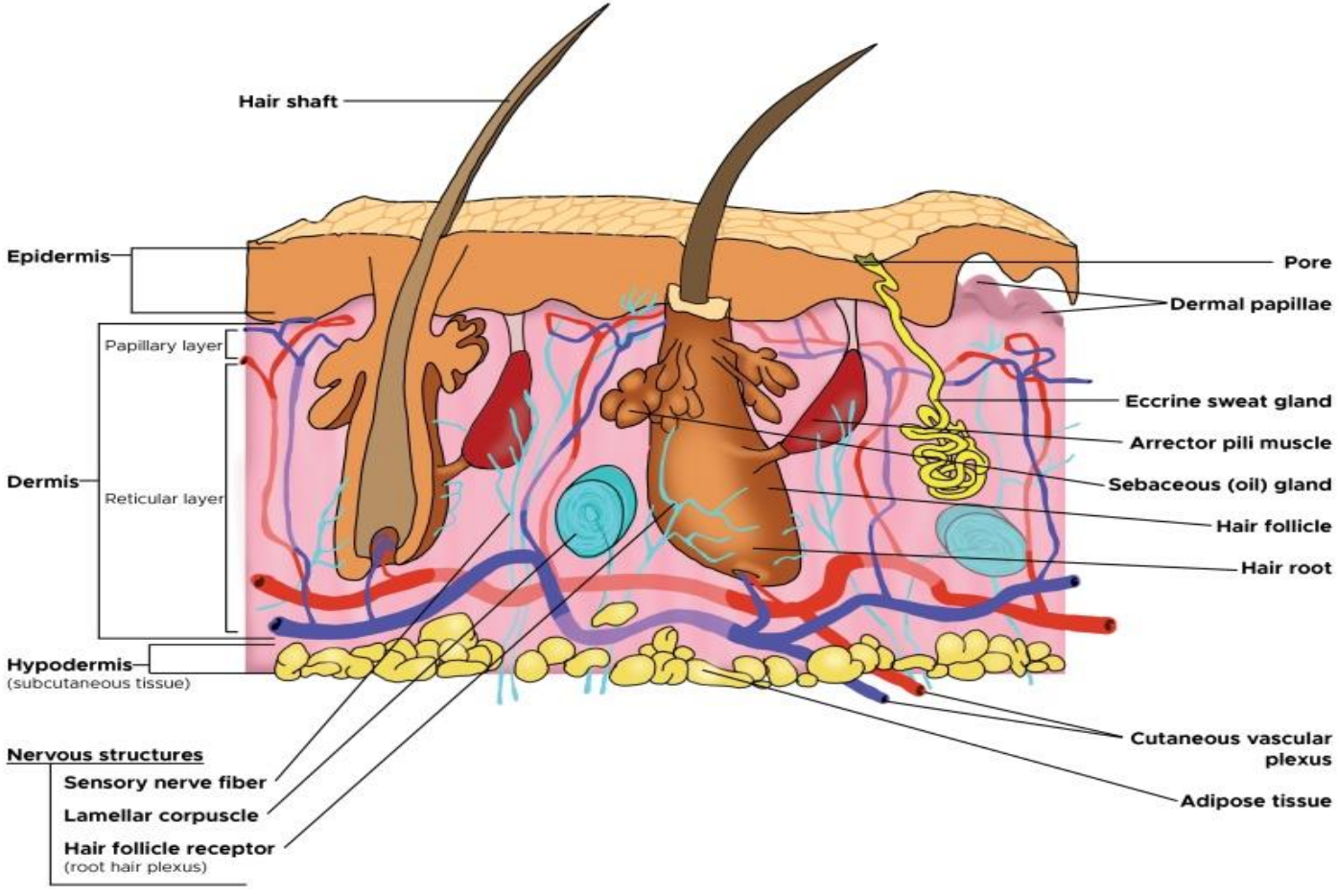
Hypodermis

The hypodermis is also called subcutaneous fascia.

It is the deepest layer of skin

Contains adipose lobules along with some skin appendages like the hair follicles, sensory neurons, and blood vessels.

Picture is Worth a 1000 Words



ULCERS OF THE SKIN

- Skin Ulcer Definition
  - An open wound, crater or sore on the skin or mucous membranes
    - Acute usually heal within 12 weeks
    - Chronic take longer than 12 Weeks.

https://www.verywellhealth.com/skin-ulcers-overview-4175813

Skin Integrity

- Skin integrity is compromised in patients for a variety of reasons.
  - Poor circulation
  - Poor mobility
  - Infection
  - Moisture
  - Pressure
  - Diabetes related neuropathy or atherosclerosis

Wounds of Mixed Etiologies

These wounds are due to a mixture of underlying problems.

It may be impossible to distinguish the underlying etiology

If documentation is not clear, query the provider.

Wounds of Vascular Etiologies

Venous ulcers develop on the skin due to venous stasis in the lower extremities.

High pressure in the venous system can cause swelling and this makes the skin delicate and prone to breakdown.

Arterial or ischemic ulcers of the skin are due to poor circulation to the tissues.

The lack of oxygen and nutrition to the skin causes cell death and necrosis leading to the formation of ulcers, that are often non-healing.

Moisture Associated Wounds

- AKA Diaper Rash
  - Due to incontinence of urine and feces
  - Perineum, between skin folds
  - Shallow wounds
  - Skin edges are irregular
  - Results in damage to epidermis with opportunity for bacteria to penetrate the underlying structures

Pressure Associated Wounds

These usually have distinct wound edges

Identify the source of pressure

These usually result from a local injury to skin and subcutaneous tissues sitting over a bony prominence or in combination with shearing forces.

National Pressure Ulcer Advisory Panel (NPUAP)

Staging systems describe the extent of tissue loss and the physical appearance of the injury caused by pressure and/or shear

Only pressure injuries should be staged with the NPUAP Pressure Injury Staging System.

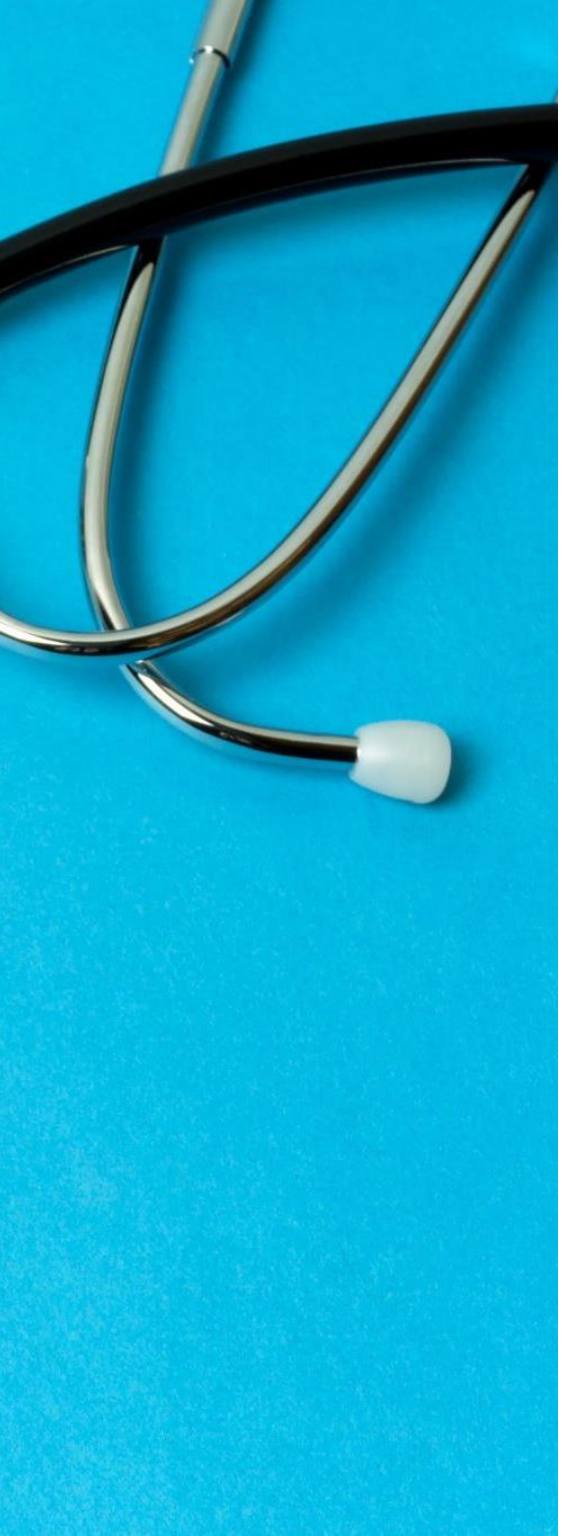
NPUAP staging system is based on the extent of tissue damage, an understanding of anatomy is essential when evaluating the type of tissue present in the wound.

Non-Pressure Ulcers

- Non–pressure-related ulcers and wounds are subject to staging or classification unique to each wound type:
  - Diabetic foot ulcers (Wagner Classification System),
  - Vascular ulcers also classified based on site, etiology
  - Skin tears (International Skin Tear Advisory Panel),
  - Adhesive or tape injuries (Medical Adhesive Related Skin Injury categories, MARSI),
  - Burn classification (total body surface area).

National Pressure Ulcer Advisory Panel (NPUAP)

- Re-evaluated pressure ulcers using a multi-disciplinary task forcer in 2016 including:
  - The Academy of Nutrition and Dietetics supports the new staging system.
  - The National Database for Nursing Quality Indicators (NDNQI) revised its database, data collection guidelines, CE training modules and quality measures to conform to this change.
  - The Journal of Wound Ostomy and Continence Nurses has committed to using the term “pressure injury” in future publications.



Pressure Ulcer Versus Injury

- “Pressure injury” is a more accurate label than “pressure ulcer” because some presentations of the phenomena are not open ulcers; yet all can be legitimately classified as tissue injuries.
- The NPUAP carefully considered the possibility that the word “injury” might be misinterpreted to imply causation by the health care provider

ICD 10 CM Index

- **Pressure**
  - area, skin - see Ulcer , pressure , by site
  - brachial plexus G54.0
  - brain G93.5
  - cerebral - see Pressure , brain
  - chest R07.89
  - cone, tentorial G93.5
  - hyposystolic - see also Hypotension
  - increased
  - injury - see Ulcer , pressure , by site
  - lumbosacral plexus G54.1
  - mediastinum J98.59
  - necrosis (chronic) - see Ulcer , pressure , by site
  - parental, inappropriate (excessive) Z62.6
  - sore (chronic) - see Ulcer , pressure , by site
  - spinal cord G95.20
  - ulcer (chronic) - see Ulcer , pressure , by site
  - venous, increased I87.8

NOTE: These position Statements will not be seen until ICD 11

Position Statement 1

- Pressure injury simply means the tissue is injured by pressure (and/or shear). It does not assign blame or in any way imply that the injury was “caused” by anything that health care providers “did” or “failed to do”.
- “Pressure injury” is a more accurate label than “pressure ulcer” because some presentations of the skin damage are not open ulcers; yet all can be legitimately classified as tissue injuries.

Position Statement 2

- Some pressure injuries are unavoidable despite provision of evidence-based care by the health care team.
- As a result, in any legal matter, “causation” should not be implied by use of the word “injury”.
- Evidence must be presented to support a theory of causation based on a careful analysis of the preventive care provided (or not provided) to the individual in accordance with acceptable standards of evidence-based pressure injury prevention

Position Statement 3

- The numerical staging system does NOT imply linear progression of pressure injuries from Stage 1 through Stage 4, nor does it imply healing from Stage 4 through Stage 1.

Position Statement 4

The NPUAP also recognized the clinical limitations of being able to visualize the types of tissues exposed by injury.

Pressure injuries can be staged numerically (i.e. Stage 1, 2, 3 or 4), if the type of tissue injured can be visualized or directly palpated.

Position Statement 4

The NPUAP Staging System classifies pressure injuries based on the type of tissue loss that can be visualized or directly palpated.

- If the type of tissue in the wound base can be evaluated, numerically classify as Stage 1 or 2 or 3 or 4, based on the deepest tissue type exposed.

2) If the wound base cannot be evaluated, classify as:

- Deep Tissue Pressure Injury (DTPI) when the skin is intact with deep red, purple or maroon discoloration or blood blister(s).

b) Unstageable when the base is obscured by slough or eschar.

3) If on a mucosal membrane, document, but do not stage.

Position Statement 5

The pressure injury may be more extensive than initially apparent.

The wound base and surrounding tissue should be assessed for variations in sensation, temperature, firmness, color and any expression of drainage from surrounding tissues when palpated.

Position Statement 6

Deep Tissue Pressure Injury (DTPI) may evolve into a full thickness wound despite optimal care.

Position Statement 7

- Any pressure injury should be treated in accordance with current evidence-based practices and monitored closely for changes that require re-evaluation of treatment strategies.

WHO Definition of Pressure Ulcers

Pressure ulcers are injuries to the skin or soft tissue.

They develop from pressure to particular parts of the body over an extended period. If not promptly managed, they can have fatal complications.

Pressure ulcers affect more than 1 in 10 adult patients admitted to hospitals (18) and, despite being highly preventable, they have a significant impact on the mental and physical health of individuals, and their quality of life.

Prior to Assigning a Stage

The wound bed must be cleaned and cleared of loose debris

The wound musty be evaluated for the etiology e.g. pressure, shear or combination.

ICD 10 CM Index

- pressure (pressure area) L89.9-
  - ankle L89.5-
  - back L89.1-
  - buttock L89.3-
  - coccyx L89.15-
  - contiguous site of back, buttock, hip L89.4-
  - elbow L89.0-
  - face L89.81-
  - head L89.81-
  - heel L89.6-
  - hip L89.2-
  - sacral region (tailbone) L89.15-
  - specified site NEC L89.89-
  - stage 1 (healing) (pre-ulcer skin changes limited to persistent focal edema)
    - ankle L89.5-
    - back L89.1-
    - buttock L89.3-
    - coccyx L89.15-
    - contiguous site of back, buttock, hip L89.4-
    - elbow L89.0-
    - face L89.81-
    - head L89.81-
    - heel L89.6-
    - hip L89.2-

ICD 10 CM Tabular

L89 Pressure ulcer

INCLUDES bed sore

decubitus ulcer

plaster ulcer

pressure area

pressure sore

Code first any associated gangrene (I96) (I96)

EXCLUDES 2 decubitus (trophic) ulcer of cervix (uteri) (N86) (N86)

diabetic ulcers (E08.621, E08.622, E09.621, E09.622, E10.621, E10.622, E11.621, E11.622, E13.621, E13.622) (E08.621, E08.622, E09.621, E09.622, E10.621, E10.622, E11.621, E11.622, E13.621, E13.622)

non-pressure chronic ulcer of skin (L97.-) (L97-L97.929)

skin infections (L00-L08) (L00-L08.9)

varicose ulcer (I83.0, I83.2) (I83.0-I83.029, I83.2-I83.229,)

Stage 1

First visible changes in the skin, often called a heralding sign.

Skin is intact with an area of erythema that does not blanch on palpation.

- This may look different on darkly pigmented skin
- Purple and maroon skin discoloration may be indicative of deep tissue pressure injury and should not be included in stage 1 pressure injuries

Stage 2

Partial Thickness skin loss with exposure of the underlying dermis

Wound bed is often moist, and red/pink.

Skin is viable without eschar or slough.

- Do not use this for a moisture associated skin damage (MASD)
- Do not use to describe traumatic wounds
- Need to confirm history of pressure or shear.

Healing is through epithelialization not by formation of granulation tissue.

Stage 3

- Full Thickness Skin Loss
  - Fatty layer is visible
  - Slough or eschar may be visible
  - Depth of tissue damage is location dependent.
  - Areas with large amounts of fatty tissue can develop deep wounds with undermining and tunneling.
  - Fascia, muscle, tendon, ligament, cartilage and bone are not included here.

Stage 4

Full thickness skin and tissue loss with exposed fascia, muscle, tendon, ligament, cartilage or bone.

Epibole (rolled wound edges), undermining, and/or tunneling can occur.

Slough and Eschar can occur

When osteomyelitis occurs it is considered a complication

Unstageable

This is used when the extent and depth of the injury can't be determined due to the wound being full of slough and eschar.

Once the slough and eschar are removed then the wound bed can be assessed and staged.

Wound versus Ulcer

- Wound
  - External force
  - Traumatic event
  - Acute onset
  - Require frequent assessment and dressing changes
- Ulcer
  - Caused by non-traumatic source such as disease or pressure
  - Onset is gradual
  - Dressing changes may be linked to wound vacs, and debridement's

Skin Ulcers

- skin (atrophic) (chronic) (neurogenic) (non-healing) (perforating) (pyogenic) (trophic) (tropical) L98.499
  - with gangrene - see Gangrene
  - amebic A06.7
  - back - see Ulcer, back
  - buttock - see Ulcer, buttock
  - decubitus - see Ulcer, pressure
  - lower limb - see Ulcer, lower limb
  - mycobacterial A31.1
  - specified site NEC L98.499
    - with
      - bone involvement without evidence of necrosis L98.496
      - bone necrosis L98.494
      - exposed fat layer L98.492
      - muscle involvement without evidence of necrosis L98.495
      - muscle necrosis L98.493
      - skin breakdown only L98.491
      - specified severity NEC L98.498
  - tuberculous (primary) A18.4
  - varicose - see Ulcer, varicose
- sloughing - see Ulcer, skin

Wounds Code to Site

- **Wound, open** T14.8-
  - abdomen, abdominal
  - alveolar (process) - see Wound , open , oral cavity
  - ankle S91.00-
  - antecubital space - see Wound , open , elbow
  - anterior chamber, eye - see Wound , open , ocular
  - anus S31.839
  - arm (upper) S41.10-
  - auditory canal (external) (meatus) - see Wound , open , ear
  - auricle, ear - see Wound , open , ear
  - axilla - see Wound , open , arm
  - back - see also Wound , open , thorax , back
  - bite - see Bite
  - blood vessel - see Injury , blood vessel
  - breast S21.00-
  - buttock S31.809
  - calf - see Wound , open , leg
  - canaliculus lacrimalis - see Wound , open , eyelid
  - canthus, eye - see Wound , open , eyelid
  - cervical esophagus S11.20
  - cheek (external) S01.40-
  - chest wall - see Wound , open , thorax
  - chin - see Wound , open , head , specified site NEC

CODING ULCERS OF THE SKIN

- Most chronic ulcers of the skin are classified in categories
- L89, Pressure ulcer, and
- L97, Non-pressure chronic ulcer of lower limb, not elsewhere classified, with code I96 assigned first when gangrene is present.
- A code from L97 may be used as a principal or first-listed code if no underlying condition is documented as the cause of the non-pressure chronic ulcer of lower limb.
- If one of the following underlying conditions is documented with a lower-extremity ulcer, a causal condition should be assumed and the underlying condition should be coded first:

INCLUDES

Vascular Ulcers

- I83 Varicose veins of the lower extremities with ulcer
- I70.23X Atherosclerosis of native arteries of right leg with ulceration
- I70.24X Atherosclerosis of native arteries of left leg with ulceration
- I70.25 Atherosclerosis of native arteries of other extremities with ulceration
- I70.26 Atherosclerosis of native arteries of extremities with gangrene
  - **Includes** any condition classifiable to I70.21-, I70.22-, I70.23-, I70.24-, and I70.25- (I70.21-I70.219, I70.22-I70.229, I70.23-I70.239, I70.24-I70.249, I70.25)
  - chronic limb-threatening ischemia of native arteries of extremities with gangrene
  - critical limb ischemia of native arteries of extremities with gangrene

Use additional code to identify the severity of any ulcer (L97.-, L98.49-), if applicable (L97-L97.929, L98.49-L98.499,)

Documentation

- Clinical documentation must clarify
  - pressure versus non pressure ulcers of the skin
  - etiology when known.
- Ulcer diagnoses, stage and site must be documented in an encounter note by the provider
  - Documentation by a wound nurse is insufficient for coding and billing purposes

Documentation

- Staging (1- 4) of progression of the ulcer is required for pressure or decubitus ulcers.
- Assign as many codes from category L89 as needed to identify all the pressure ulcers the patient has, if applicable.
- Assignment of the code for unstageable pressure ulcer (L89.--0) should be based on the clinical documentation.
  - These codes are used for pressure ulcers whose stage cannot be clinically determined (e.g., the ulcer is covered by eschar or has been treated with a skin or muscle graft).

Documentation

- If during an encounter, the stage of an unstageable pressure ulcer is revealed after debridement, assign only the code for the stage revealed following debridement.
- Documentation should capture site, size and depth of the ulcer.
- Pressure ulcers described as healing should be assigned the appropriate pressure ulcer stage code based on the documentation in the medical record.
- If the documentation does not provide information about the stage of the healing pressure ulcer, assign the appropriate code for unspecified stage.

Admitted with pressure ulcer evolving into another stage

- If a patient is admitted to an inpatient hospital with a pressure ulcer at one stage and it progresses to a higher stage**, two separate codes should be assigned:**
  - one code for the site and stage of the ulcer on admission and
  - a second code for the same ulcer site and the highest stage reported during the stay.

ICD-10-CM FY25 Guidelines October 1, 2024.pdf

Key Coding Concepts

- A completely healed ulcer at the time of admission is not coded.
  - Documentation should clearly distinguish when an ulcer is healed versus in the healing process.
- Identify when an ulcer being treated is **chronic and non-healing.**
- Documentation of ulcers during an inpatient hospital stay include:
  - Documentation must indicate whether pressure ulcers were **present on admission**

Capture Etiology

- Document, and code all associated underlying conditions such as:
  - Gangrene
  - Atherosclerosis of the lower extremities
  - Chronic venous hypertension
  - Diabetes
  - Postphlebitic syndrome
  - Varicosity

Lesion Excision - Size Matters

INCLUDES

- Biopsy on same lesion
- Cicatricial lesion excision
- Full thickness removal including margins
- Lesion measurement before excision at largest diameter plus margin
- Local anesthesia
- Simple, nonlayered closure

CPT Directions

EXCLUDES

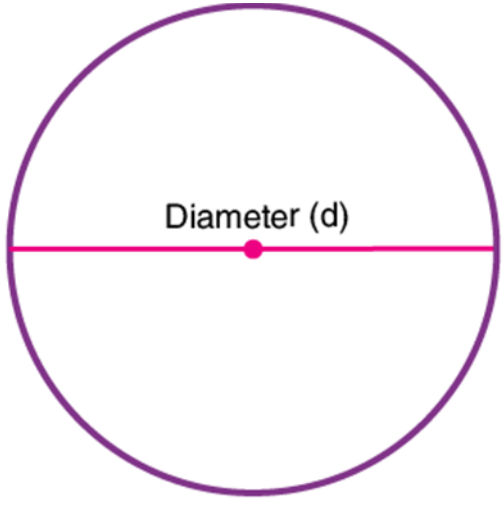
*Adjacent tissue transfer: report only adjacent tissue transfer (**14000**-**14302**)*
*Biopsy eyelid ([**67810**])*
Destruction:
- *Benign lesions, any method (**17110**-**17111**)*
- *Cutaneous vascular proliferative lesions (**17106**-**17108**)*
- *Destruction of eyelid lesion (**67850**)*
- *Malignant lesions (**17260**-**17286**)*
- *Premalignant lesions (**17000**, **17003**-**17004**)*

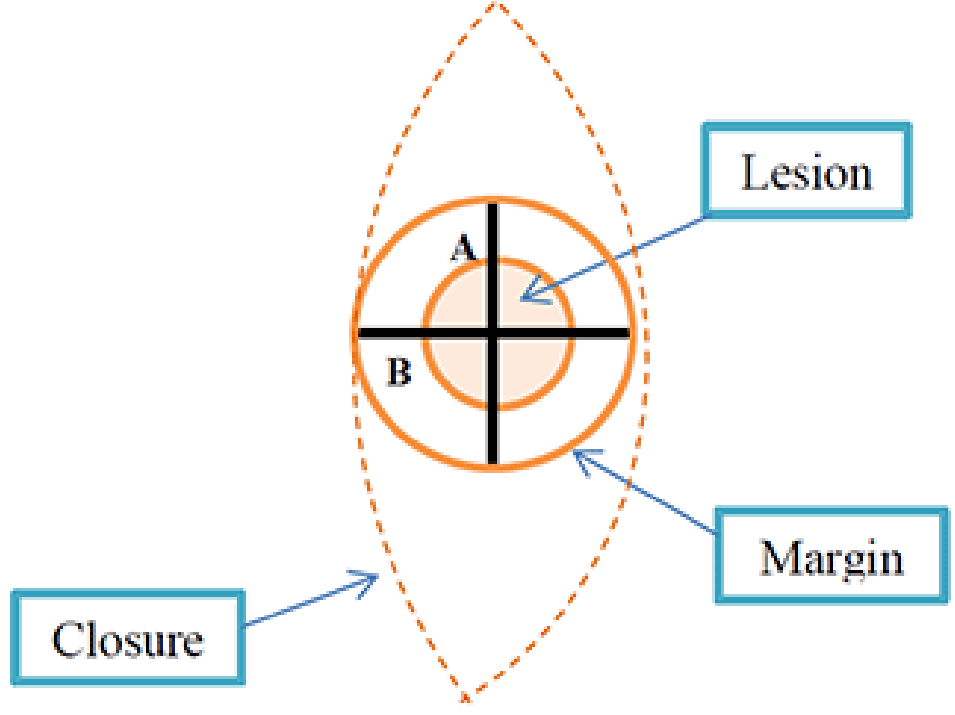
*Escharotomy (**16035**-**16036**)*
*Excision and reconstruction eyelid (**67961**-**67975**)*
*Excision chalazion (**67800**-**67808**)*
*Eyelid procedures involving more than skin (**67800** and subsequent codes)*
*Laser fenestration for scars (**0479T**-**0480T**)*
*Shave removal (**11300**-**11313**)*

Code also:
- Complex closure (**13100**-**13153**)
- Each separate lesion
- Intermediate closure (**12031**-**12057**)
- Modifier **22** when excision complicated or unusual
- Reconstruction (**15002**-**15261**, **15570**-**15770**)

Measuring a skin Lesion/Ulcer

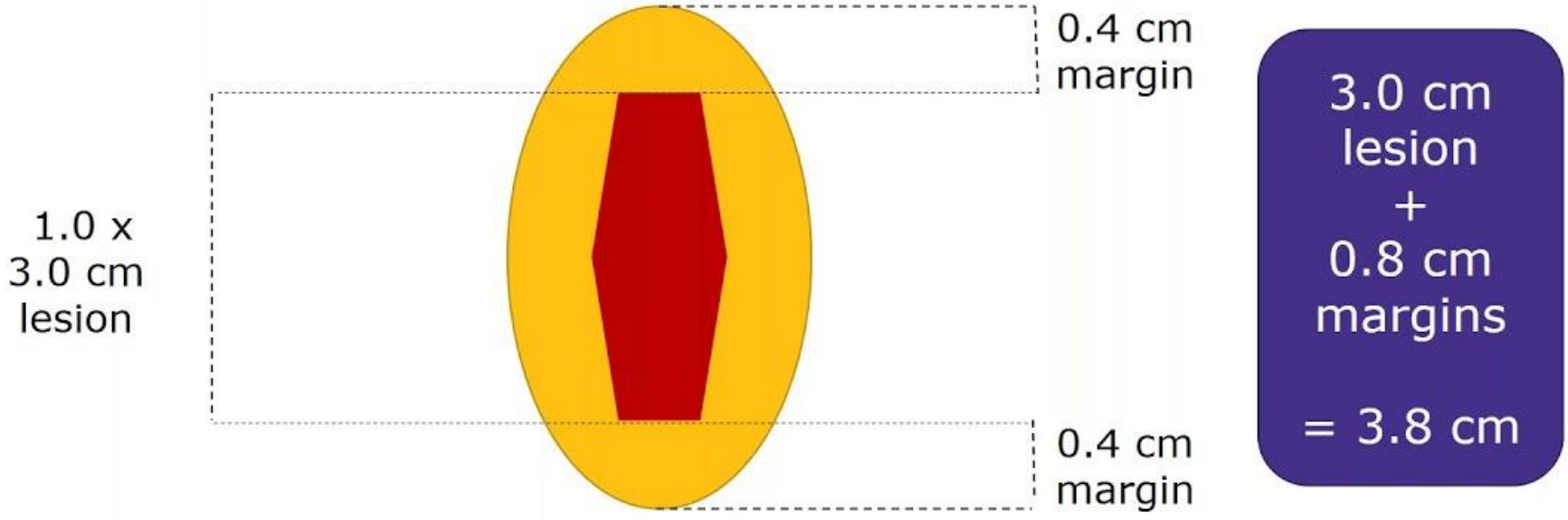
- Before Local
- Before Excision
- Largest Diameter plus narrowest margins





Measuring the Lesion

Excised Diameter Examples



Excision Versus Debridement

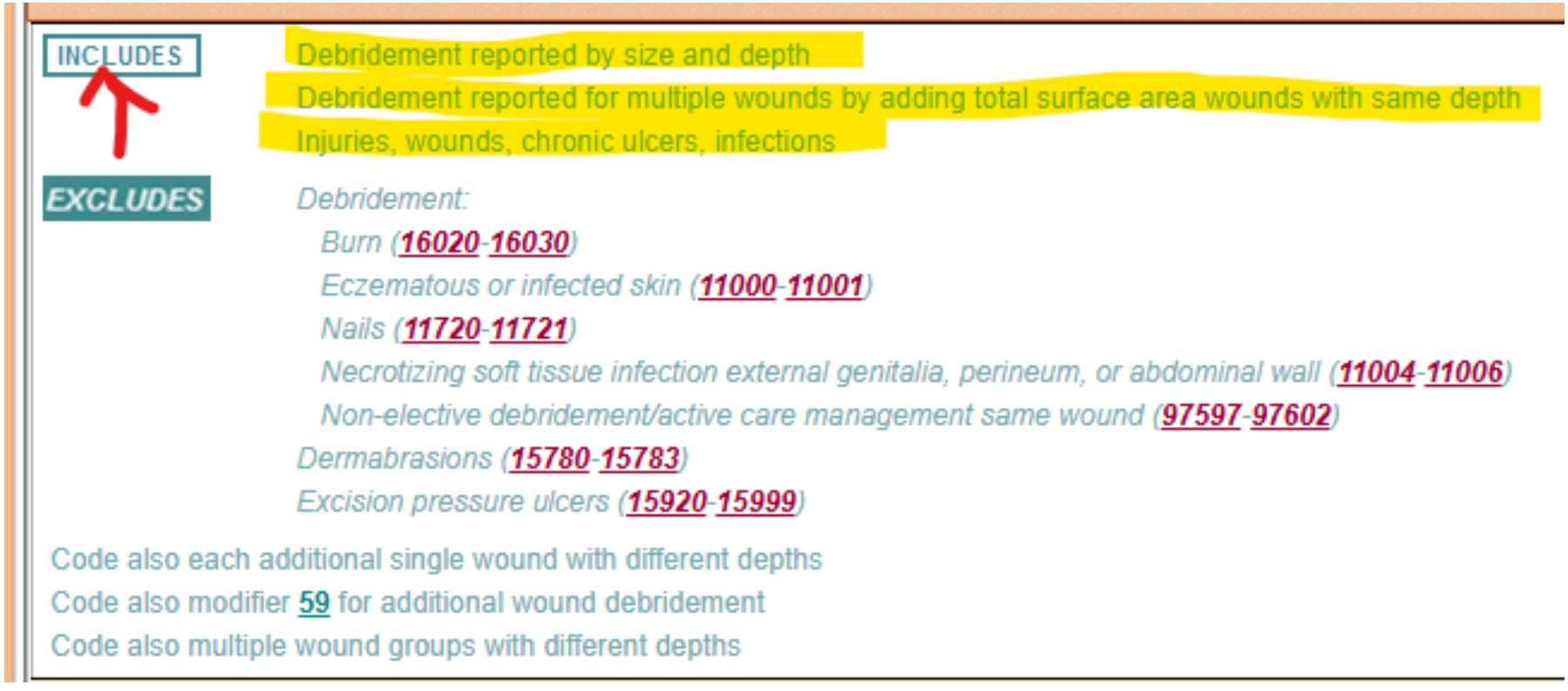
A closed area of skin where an incision is made, and a portion of skin/tissues is/are removed is an excision

An open wound where an excision of tissues back or down to the wound bed is clean of debris and/or until healthy tissue is reached is an excisional debridement.

Removal of dead and devitalized skin without excision is non-excisional debridement.

Excisional Debridement

- 11042- 11047



AHA Coding Clinic

- Add 'excisional' as appropriate
- Unfortunately for all medical facilities, the RACs have discovered an AHA Coding Clinic guideline (third quarter 1991, volume 8, number 3, pp. 18–19) that they are using to their advantage. This guideline states that:
- **"unless the attending physician documents in the medical record that an excisional debridement was performed ... debridement of the skin should be coded to nonexcisional."**

https://acdis.org/articles/prevent-rac-denials-improve-excisional-debridement-documentation-0

Excisional Debridement

- The RAC big 5 requirements
  - A description of the procedure as “excisional”
  - A description of the instrument used to cut or excise the tissue (e.g., scissors, scalpel, curette)
  - A description of the tissue removed (e.g., necrotic, devitalized or non-viable)
  - The appearance and size of the wound (e.g., down to fresh bleeding tissue, 7 cm x 10 cm, etc.)
  - The depth of the debridement (e.g., to skin, fascia, subcutaneous tissue, muscle, or bone)

CMS LCD Article A56617

- The medical record should include the following information:
- An operative note or procedure note for the debridement service.
  - This note should describe the anatomical location treated,
  - the instruments used,
  - anesthesia used if required,
  - the type of tissue removed from the wound,
  - the depth and area of the wound and
  - the immediate post procedure care and follow-up instructions.

CMS LCD Article A56617

- Identification of the wound
  - location,
  - size,
  - depth and
  - stage either by description and/or a drawing or photograph.

CMS LCD Article A56617

- Describe the type(s) of tissues involved
- Severity of tissue destruction,
- Undermining or tunneling,
- Necrosis, Eschar
- Infection or evidence of reduced circulation.
  - If infection has developed, the patient's response to this infection should be described.

CMS LCD Article A56617

- List all comorbid conditions, and all health factors that may influence the patient's ability to heal tissue e.g.:
  - mental status,
  - mobility,
  - infection,
  - tissue oxygenation,
  - chronic pressure,
  - arterial insufficiency/small vessel ischemia,
  - venous stasis, edema,
  - type of dressing,
  - chronic illness such as diabetes mellitus, uremia, COPD, malnutrition, CHF, anemia, iron deficiency, and immune deficiency disorders.

CMS LCD Article A56617

- The initial treatment plan to include the expected frequency and duration of the skilled treatment and the potential to heal.
- Ongoing evidence of the effectiveness of that plan, including
  - diminishing area and depth of the ulceration,
  - resolution of surrounding erythema and /or wound exudates,
  - decreasing symptomatology,
  - and overall assessment of wound status (such as stable, improved, worsening, etc.).
- Appropriate changes in the ongoing treatment plan to reflect the clinical presentation must be present in the record.

Repair Codes

- Wound debridement (CPT® codes 11042–11047) are reported by depth of tissue that is removed and by surface area of the wound.
- In order to report CPT® codes 11042–11047, the debridement must extend below the dermis.
- When the same depth of tissue is removed from different anatomic sites, the area of tissue removed is summed.
- When different depths of tissue are removed from the same anatomic site, only the deepest level of debridement is reported.

97597

- Debridement (e.g., high pressure waterjet with/without suction, sharp selective debridement with scissors, scalpel and forceps), open wound, (e.g., fibrin, devitalized epidermis and/or dermis, exudate, debris, biofilm), including topical application(s), wound assessment, use of a whirlpool, when performed and instruction(s) for ongoing care, per session, total wound(s) surface area; first 20 sq cm or less

97598

- Debridement (e.g., high pressure waterjet with/without suction, sharp selective debridement with scissors, scalpel and forceps), open wound, (e.g., fibrin, devitalized epidermis and/or dermis, exudate, debris, biofilm), including topical application(s), wound assessment, use of a whirlpool, when performed and instruction(s) for ongoing care, per session, total wound(s) surface area; each additional 20 sq cm, or part thereof (List separately in addition to code for primary procedure)

97602

- Removal of devitalized tissue from wound(s), non-selective debridement, without anesthesia (e.g., wet-to-moist dressings, enzymatic, abrasion, larval therapy), including topical application(s), wound assessment, and instruction(s) for ongoing care, per session

Repair

- Size of repair site may be different than the excision
- Type of repair determines separate versus bundled coding for this service.
- Simple repair is always included.
- Distinguish between extensive undermining versus tissue advancement

Plastic Surgery Definitions

- True advancement flaps have a linear configuration and are moved by sliding toward the defect.
  - This involves stretching the skin of the flap.
  - The most basic advancement flap is the simple linear layered closure, which involves undermining and direct advancement of tissue side to side to close the defect primarily.

Plastic Surgery Definitions

- This closure does not create a secondary defect, and additional incisions are made only for the removal of standing cutaneous deformities.
- However, the term advancement flap usually refers to a flap created by incisions that allow a “sliding” movement of the tissue.
- Tissue transfer is achieved by moving the flap and its pedicle in a single vector. The greatest wound closure tension is perpendicular to the distal border of the flap.
- Advancement flaps may be categorized as unipedicle, bipedicle, V-Y, Y-V, and subcutaneous tissue pedicled island flap (Table 9-1)

NCCI Manual Chapter 3 2025

Repair and Tissue Transfer

1. The CPT Professional codebook classifies repairs (closure) (CPT codes 12001-13160) as simple, intermediate, or complex.
   - If closure cannot be completed by one of these procedures, adjacent tissue transfer, or rearrangement (CPT codes 14000-14350) may be used.
   - Adjacent tissue transfer or rearrangement procedures include excision (CPT codes 11400-11646) and repair (CPT codes 12001-13160).
   - Thus, CPT codes 11400-11646 and12001-13160 shall not be reported separately with CPT codes 14000-14350 for the same lesion or injury.
   - Additionally, debridement necessary to perform a tissue transfer procedure is included in the procedure.

NCCI Manual Chapter 3 2025

Repair and Tissue Transfer

2. It is inappropriate to report debridement (e.g., CPT codes 11000-11001, 11004-11006, 11042-11047, 97597, 97598, 97602) with adjacent tissue transfer (e.g., CPT codes 14000-14350) for the same lesion/injury.

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3. Extensively undermining of adjacent tissue to achieve closure of a wound or defect may constitute complex repair, not tissue transfer and rearrangement.

- Tissue transfer and rearrangement requires that adjacent tissue be incised and carried over to close a wound or defect.

4. Skin grafting in conjunction with a repair or adjacent tissue transfer is separately reportable if the grafting is not included in the code descriptor of the adjacent tissue transfer code.

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5. Adjacent tissue transfer codes shall not be reported with the closure of a traumatic wound if the laceration is coincidentally approximated using a tissue transfer type closure (e.g., Z-plasty, W-plasty).

- The closure should be reported with repair codes.

However, if the surgeon develops a specific tissue transfer to close a traumatic wound, a tissue transfer code may be reported.

Documentation for Closure

- Size and depth of wound after debridement or excision
- Type of closure
  - Primary closure versus secondary closure
- Plans for return to surgery?
- Type of Suture used
- Dressing applied

Benefits of Skin Substitutes

- Accelerates wound healing
- Incur fewer complications from infection and dehydration.
- More cosmetically attractive
- Provide more functionality and flexibility to wound sites.

Skin Substitutes

- Skin substitutes are used to aid in wound closure, control associated pain and replace the skin function to promote healing of the wound.
- A skin substitute can be either temporary or permanent:
  - Temporary substitutes are used as a short-term wound covering to protect the wound area from risks posed by the outside environment (such as bacterial contamination or external trauma),
  - They provide a clean healthy and moist environment to promote wound healing.
  - It is usually removed after three to four weeks.

Temporary skin substitutes Natural

- Natural substitutes, formed from live cells that require proper processing and preparation before usage, such as
  - Human allograft
  - Pig skin xenograft
  - Human amnion
  - Oasis wound matrix®

Temporary skin substitutes Synthetic

- Synthetic Skin Substitutes formed from synthesized materials that are made on demand with specific characteristics required in each case, such as:
  - Biobrane™: Made up of a thin layer of silicone with small pore-like holes (that allow exudate material to come out and topical antibiotics to go in), and an inner nylon triple layer with a thin water layer in between to provide a moist environment for wound healing.
  - TransCyte™: Is a double-layered skin substitute with an outer silicone layer (with no pores) and an inner layer lined with human neonatal foreskin fibroblast.

Permanent Skin Substitutes

- Permanent skin substitutes are used to replace the full thickness of skin layers and improve the quality of skin at the wound or burn sites permanently. These skin substitutes include:
- Epicel: Also known as cultured epithelial autograft (CEA), it only provides the epithelial (outermost) layer of skin. It is made from the patient’s own skin cells by taking a small skin biopsy and culturing it for two to three weeks to "grow" the necessary graft size

Permanent Skin Substitutes

- **Alloderm**: This permanent substitute consists of a treated dermis layer of human cadavers skin, which is mainly used as a dermal implant to replace soft tissue defects. It cannot be used on large areas.
- **Integra:** This synthetic permanent substitute is made of an inner dermal analog layer (similar to skin dermis) with material that joins the wound's existing cells, promotes cell growth and helps in the formation of new blood vessels.
  - It provides an outer epithelial layer that covers and protects the wound until the dermal analog layer is well incorporated.
  - This process takes about two to three weeks, and then the outer layer must be replaced with either CEA or a skin graft from the patient.

Comprehensive List of Commercial Skin Grafts

- Commercially Available Skin Substitute Products - Skin Substitutes for Treating Chronic Wounds - NCBI Bookshelf (nih.gov)

A Cool Sample

Table D-9 Cellular/Epidermal and Dermal replacement from human skin (2 products in this category)

Product	Manufacturer	Manufacturer's Product Description	Manufacturer Claims
SkinTE™	PolarityTE, Salt Lake City, UT	SkinTE is regenerative full thickness, functional skin. After a small full-thickness tissue sample from a patient is sent to PolarityTE, the construct will be created and returned for application on or in the same patient.	SkinTE is a first-of-its-kind entirely autologous product for skin repair, reconstruction, replacement, supplementation and regeneration. SkinTE has resulted in regenerative full-thickness healing of skin with all its layers (epidermis, dermis and hypodermis) and its appendages (hair follicles, glands, etc.). SkinTE is for the repair, reconstruction and replacement of full-thickness skin. SkinTE can be used by physicians and other medical providers to repair, reconstruct, replace or supplement a patient's damaged or missing skin tissue. It is currently being used by providers for the treatment of acute and chronic wounds.

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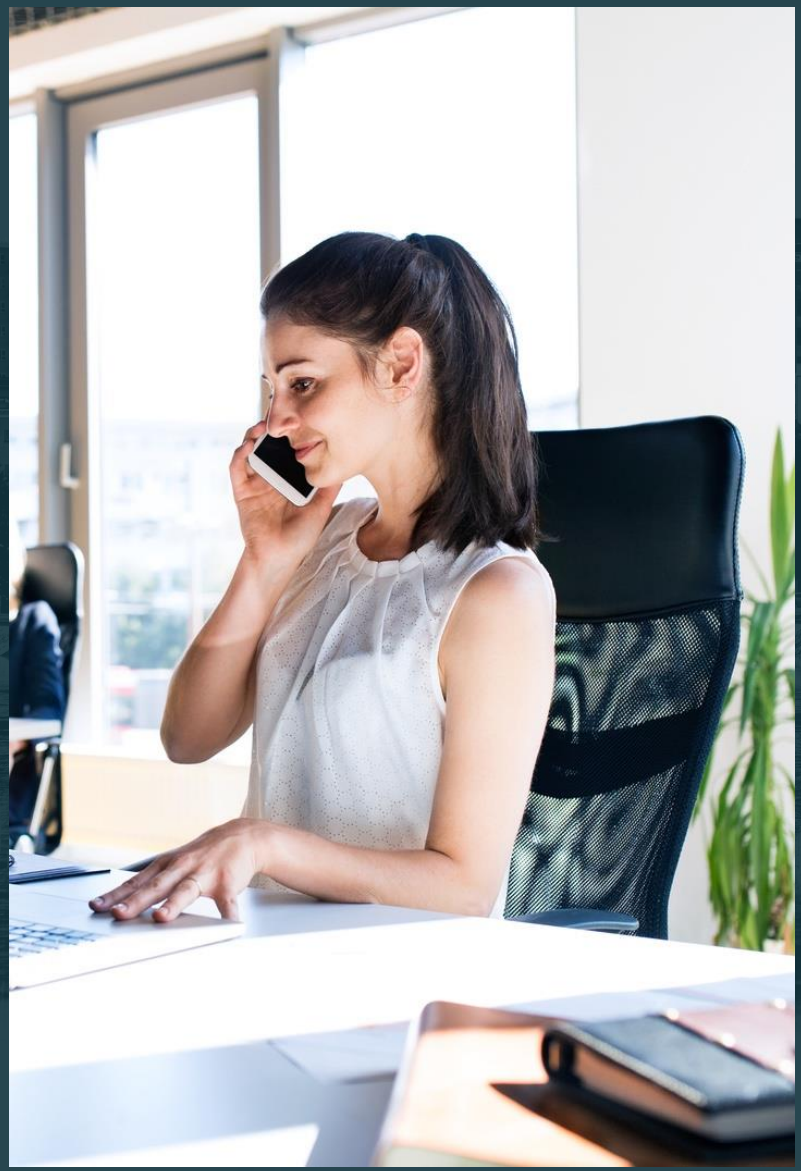

CONTACT US

123.456.7891

hello@elevatecoding.com

elevatecoding.com/contact-us

345 W. Washington Ave., Ste. #301
Madison, WI 53703

elevate

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www.elevatecoding.com