

## INTEGUMENTARY SYSTEM: SKIN & SUBCUTANEOUS

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### A. TERMINOLOGY

- **Abscess** Localized collection of pus that will result in tissue disintegration over time
- **Aspiration** ..... Use of needle and syringe to withdraw fluid
- **Benign** ..... Not progressive or recurrent; describes growth that does not spread
- **Biopsy** ..... Removal of small piece of living tissue for diagnostic purposes
- **-centesis** ..... *Suffix:* puncture of a cavity
- **Cryosurgery** ..... Destruction of lesion by application of intensely cold liquid nitrogen
- **Curettage** ..... Scraping of a cavity using a spoon-shaped instrument
- **Cyst** ..... Closed sac containing matter or fluid
- **Debridement** ..... Cleansing or removing dead tissue from a wound
- **Dermis** ..... Second layer of skin containing blood vessels, nerve endings, sweat glands, hair follicles
- **Destruction** ..... Killing of tissue by electrocautery, laser, chemical or other means
- **Drainage** ..... Free flow or withdrawal of fluids from a wound or cavity
- **-ectomy** ..... *Suffix:* removal of part or all of an organ of the body
- **Endoscopy** ..... Inspection of body organs or cavities by use of lighted scope placed through an existing opening or through a small incision
- **Epidermis** ..... Outer layer of skin
- **Excision** ..... Full-thickness removal of a lesion that may include simple closure
- **Excisional** ..... Removal of an entire lesion
- **Incision & drainage** ..... To cut into and withdraw fluid
- **Injection** ..... Forcing of fluid into vessel or cavity
- **Incisional** ..... Surgically cutting into
- **Lesion** ..... Abnormal or altered tissue (i.e., wound, cyst, abscess)
- **Ligation** ..... Binding or tying off
- **Malignant** ..... Used to describe cancerous growth that worsens over time
- **-otomy** ..... *Suffix:* incision into
- **Paring** ..... Removal of thin layers of skin by peeling or scraping
- **-plasty** ..... *Suffix:* technique involving surgical repair
- **Punch** ..... Use of small hollow instrument to puncture a lesion
- **-rrhaphy** ..... *Suffix:* suturing
- **Shaving** ..... Horizontal removal of dermal or epidermal lesions without full-thickness excision
- **Skin Graft** ..... Transplantation of tissue to repair a defect
- **Subcutaneous** ..... Tissue below dermis, primarily fat cells that insulate the body
- **Suture** ..... To unite parts by stitching them together
- **Tissue transfer** ..... Piece of skin partially attached to its original blood supply and grafted over an adjacent wound area

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### B. PATHOLOGY

- **Basal cell carcinoma** ..... Malignant slow-growing tumor of basal cell layer of epidermis usually occurring on upper half of face, near nose
- **Ecchymosis** ..... Bluish-black marks on skin caused by hemorrhages into skin from injury or spontaneous leaking of blood from vessels
- **Kaposi's sarcoma** ..... Malignant, vascular, neoplastic growth (associated with AIDS) characterized by cutaneous nodules usually ranging in color from deep pink to dark blue and purple
- **Keloid** ..... Hypertrophied thickened scar after trauma or surgical incision
- **Keratosis** ..... Thickened area of epidermis; actinic keratoses are red due to excessive exposure to light; seborrheic keratoses are yellow or brown
- **Leukoplakia** ..... White thickened patches on mucous membrane tissue of tongue or cheek
- **Malignant melanoma** .... Cancerous growth composed of melanocytes; attributed to intense exposure to sunlight and frequently appears on upper back, lower legs, head and neck
- **Nevus** ..... Pigmented lesion of the skin; includes telangiectasis (dilated blood vessels), vascular spiders, hemangiomas, and moles
- **Petechia** ..... Small pinpoint hemorrhage; smaller versions of ecchymoses
- **Pruritus** ..... Itching
- **Purpura** ..... Merging ecchymoses and petechiae over any part of the body
- **Urticaria** ..... Hives; acute allergic reaction in which red, round wheals develop on the skin
- **Scleroderma** ..... Chronic progressive disease of the skin with hardening and shrinking of connective tissue
- **Squamous cell carcinoma**... Malignant tumor of the squamous epithelial cells of the epidermis
- **Tinea** ..... Ringworm; infection of the skin caused by a fungus; tinea pedis (athlete's foot) affects skin between the toes; tinea capitis affects the scalp; tinea barbae affects the skin under a beard
- **Wart** ..... Epidermal growth caused by a virus; warts may be removed by use of acids, electrocautery, or cryosurgery

### C. PHARMACOLOGY

CATEGORY	TRADE/BRAND NAME	GENERIC NAME
Antifungals	Diflucan	fluconazole
	Lamisil	terbinafin
	Lotrimin, Mycelix, Gyne-Lotrimin	clotrimazole
	Lotrisone	betamethasone and clotrimazole
	Monistat, Desenex, Cruex	miconazole
	Mycostatin, Mycolog	nystatin
	Naftin	naftifine
	Nizoral	Ketoconazole

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Antihistamines	Atarax, Vistaril	hydroxyzine
	Benadryl	diphenhydramine
Anti-infectives	Polysporin, Neosporin	bacitracin, neomycin, polymyxin B
	Bactroban	mupirocin
	E-Mycin, Erythrocin	erythromycin
	Keflex	cephalexin
	Mycolog, Nilstat Mycostat	nystatin
Antivirals	Famvir	fanciclovir
	Valtrex	valacyclovir
	Retrovir	zidovudine
	Zovirax	acyclovir
Topical steroids	Aristocort, Kenalog	triamcinolone acetonide
	Cordran	flurandrenolide
	Lidex	fluocinonide
	Medrol	methylprednisolone
	Topicort	desoximetasone

### D. ICD-9-CM CONVENTIONS & PRINCIPLES

- **Excision of lesion**..... (86.3)

A simple local excision or destruction (i.e., cauterization, cryosurgery, fulguration, laser) of a lesion involves only the skin and is coded to 86.3.

A radical or wide excision of a skin lesion goes beyond the skin and involves underlying tissue (fascia, fat) and/or adjacent tissue and is coded to 86.4.

The surgeon's description should be followed carefully when assigning these codes. Notice that the exclusion notes indicate that skin lesions of several areas (eg, skin of breast, anus, lip, eyelid, nose, ears, female perineum, scrotum, and penis) are coded elsewhere.

Be sure to read the complete operative and pathology reports.
- **Excisional debridement**... (86.22)

is the cutting away or surgical removal of necrotic tissue or slough performed either by direct excision by a cutting instrument or by laser destruction. Depending on the extent of the area involved, it can be performed in the operating room, in the Emergency Department, at a Wound Healing Center, or at the patient's bedside; by a physician or other health care provider (ie, physician assistant, nurse, or physical therapist).

To appropriately assign a code for excisional debridement, documentation in the record must reflect actual excising or cutting away of tissue was carried out. (*"AHA Coding Clinic" 2Q 2004, page 5*)
- **Gangrene and cellulitis** ... (785.4)

Gangrenous cellulitis, when it develops as a result of an injury or an ulcer, is assigned to code 785.4, Gangrene and NOT cellulitis. The code for injury or ulcer is sequenced first with an additional code for gangrene.
- **Postoperative cellulitis**..... (998.59)

When a postoperative wound infection is identified as cellulitis, it is NOT assigned to code 958.3, Posttraumatic wound infection. The appropriate code to assign is 998.59, Postoperative infection with additional codes for site of cellulitis and responsible organism.
- **Skin cellulitis** ..... (682.x; 681.x)

Do not assume that a reference to redness at the edges of a wound or ulcer represents cellulitis. Clinically, cellulitis presents as onset of redness, inflammation, pain, or heat in the infected area and commonly results from a puncture wound, laceration, or ulcer. Both abscess and lymphangitis are

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included in the codes for cellulitis of the skin. Assign an additional code to report the responsible organism.

- **Ulcers with cellulitis** ..... Codes for chronic skin ulcers (707.0x-707.9) do not include any associated cellulitis. Therefore two codes are required to report cellulitis that has developed as a complication of a chronic skin ulcer. Sequencing depends on the circumstances that prompted admission.  
(707.0x – 707.9)  
(681.x – 682.x)
- **Wounds with cellulitis** ..... When cellulitis presents as a condition secondary to a superficial injury, ulcer, burn, or frostbite, one code for the injury and another code for the cellulitis must be assigned. The sequencing of these two codes depends on the circumstances that prompted admission. For example, when the wound itself was treated earlier or does not require treatment and the patient is now being admitted for the cellulitis, the cellulitis code may be sequenced first with a secondary code for complicated open wound.

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### E. CPT CODING PRINCIPLES

- **Excision of benign lesion** ..... Benign skin lesions: cicatricial, fibrous, inflammatory, congenital, cystic, benign lesions
  1. Codes include simple closure and local anesthesia.
  2. Report separately each benign lesion excised.
  3. Code selection is determined by measuring the greatest clinical diameter of the apparent lesion plus that margin required for complete excision (lesion diameter plus the most narrow margins required equals the excised diameter).
  4. Repair by intermediate (12031-12057) or complex (13100-13153) closure should be reported separately.
- **Excision of malignant lesion** ... Malignant skin lesions: basal cell carcinoma, squamous cell carcinoma, melanoma
  1. Codes include simple closure and local anesthesia.
  2. Report separately each malignant lesion excised.
  3. Excision is defined as full-thickness (through the dermis) removal of a lesion including margins
  4. Code selection is determined by measuring the greatest clinical diameter of the apparent lesion plus that margin required for complete excision (lesion diameter plus the most narrow margins required equals the excised diameter).
  5. Repair by intermediate (12031-12057) or complex (13100-13153) closure should be reported separately.
  6. Destruction of malignant lesions (17260-17286) destroys tissues, leaving none available for biopsy; therefore a pathology report will not be available
  7. When frozen section pathology shows the margins of excision were not adequate, an additional excision may be necessary for complete tumor removal. Use only one code to report the additional excision and re-excision based on the final widest excised diameter required for complete tumor removal at the same operative session.
  8. To report a re-excision procedure performed to widen margins at a subsequent operative session, see codes 11600-11646.
  9. If two lesions are removed with one excision, only one excision of lesion code would be reported. The excision of lesion code should accurately reflect the maximum excised diameter of the two lesions that were excised.
  10. When coding multiple lesions, code the most complex lesion procedure first (and the others with modifier –59 to indicate multiple procedure were performed).

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### ▪ Skin grafting:

#### ○ Adjacent tissue transfer [14000-14350]

Adjacent tissue transfer/rearrangement is the movement of segments of skin from one area to an adjacent area, while leaving at least one side of the flap (moved skin) intact. At least one side of the flap is left connected to retain blood supply to the graft as it is moved over to cover the defect area, leaving the base intact. The flap is then sutured in place.

- For code selection, the term defect includes both the primary and secondary defects. The primary defect results from the excision and the secondary defect results from the creation of the flap design. Measure both defects together to determine code selection.
- When excision of a malignant or benign lesion involves repair by adjacent tissue transfer [i.e., Z-plasty, V-Y plasty, rotation, advancement, or double pedicle flap], codes 14000 – 14350 should be reported. These codes include both the lesion excision and tissue transfer rearrangement. A separate code should not be reported for the lesion excision as it would be considered unbundling.
- Simple repair of the donor site is included in the tissue transfer code and is not coded separately. If the closure or grafting of the donor site is complex, this can be coded separately.
- These codes are categorized first by anatomic site and size of the recipient site (defect) in square centimeters.
- Adjacent tissue transfer codes can be located in the CPT index under the term “Skin.”

#### ○ Types of Adjacent Tissue Transfer Grafts

- **Advancement:** the sliding of a pedicle graft into its new position
- **Pedicle:** grafted tissue that remains connected to its vascular bed
- **Rotational:** curved/semicircular flap grafts; a base is left and the remaining portion of the flap is freed and rotated to cover the defect and then sutured into place
- **V-Y plasty:** A tissue transfer that begins with a V-shaped skin incision and with advancement and stretching of the skin and tissue. The defect is covered and forms a Y when sutured together.
- **W-plasty:** A tissue transfer performed to release tension along a straight scar. A W-shaped incision creates a series of triangular flaps of skin. The triangle flaps on both sides of the scar are removed, and the remaining skin triangles are moved together and sutured into place.
- **Z-plasty:** A tissue transfer performed to release tension in the skin caused by a laceration, contracted scar, or a wound along the flexion crease of joint. It is characterized by a Z-shaped incision that is above, through, and below the scar/defect.

#### ○ Skin Replacement Surgery and Skin Substitutes [15000-15431]

Free skin grafts are pieces of natural or manufactured skin that are placed over the recipient site in a one-stage procedure.

Free skin-grafting procedures include simple debridement of granulations or recent avulsion.

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- The **recipient** site is the area of defect that receives the graft. The **donor** site is the area from which the healthy skin has been taken for grafting.
- Free skin grafts are coded by recipient site, size of defect (in square centimeters), and type of graft.
- If the donor site requires repair by grafting, an additional graft code is used. Simple closure of the donor site is included in the graft code.
- When an excision of a lesion requires a free skin graft for repair of the defect, assign a separate code to identify the excision of the lesion [11400-11471 or 11600-11646].
- 15000 is to be used to identify the additional procedure of preparing the recipient for grafting. Preparation of the site includes removing or excising scar tissue or lesions.
- Free skin grafts can be located in the CPT index under the terms "Skin Grafts and Flaps" or "Grafts."
- **Key Definitions**
  - **Skin Replacement:** a tissue or graft that permanently replaces lost skin with healthy skin
  - **Skin Substitute:** a biomaterial, engineered tissue or combination of materials and cells or tissues that can be substituted for skin autograft or allograft in a clinical procedure
  - **Temporary Wound Cover:** not the final resurfacing material but providing coverage of the wound surface until the skin surface can be permanently replaced.
  - **Debridement:** the removal of loose, devitalized, necrotic and/or contaminated tissue, foreign bodies, and other debris on the wound, using mechanical or sharp techniques.
  - **Excision:** a surgical procedure to prepare a wound for immediate or later grafting.
- **Types of Free Skin Grafts**
  - **Epidermal graft:**
  - **Dermal graft:**
  - **Split-thickness graft:** this graft consists of the epidermis and part of the dermis; STSG
  - **Full-thickness graft:** this graft consist of the epidermis and all of the dermis; FTSG
  - **Tissue-cultured Skin Graft:** different from other skin graft codes in that it:
    - Is not harvested from donor sites
    - Is supplied from laboratories
    - Arrives in OR in sterile containers limiting the size of the grafts
    - Is coded according to incremental units:
      - 1<sup>st</sup> 25 sq cm or less
      - Additional 1 to 75 sq cm
      - Each additional 100 sq cm

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### ○ Definitions of Origins

- **Autograft:** tissue transplanted from one part of the body to another in the same single individual
- **Allograft (homograft):** tissue transplanted from one individual to another of the same species (genetically dissimilar individual of same species); also referred to as allogenic graft
- **Xenograft:** tissue transplanted from one species to an unlike species (baboon to human); also referred to xenogenic graft, heterograft, and heterotransplant
- **Isograft:** tissue transplanted from one twin individual to corresponding twin; (rare)

2006 CPT CHANGES – SKIN REPLACEMENT SURGERY & SKIN SUBSTITUTES		
CODE RANGE	TYPE OF GRAFT	DEFINITION & PRODUCT EXAMPLES
15150-15157	Tissue-cultured epidermal autograft	Cultured skin with only an epidermal layer (CEA, Epicel®, EpiDex®)
15170-15176	Acellular dermal replacement	A tissue-derived or manufacture device that provides immediate, temporary wound closure and which incorporates into the wound and promotes the generation of a neodermis that can support epidermal tissue (Integra®)
15300-15321	Allograft skin	Cadaveric human skin (from skin banks)
15330-15336	Acellular dermal allograft	Allogeneic dermis that requires immediate concurrent coverage with autologous tissue (Alloderm®)
15340-15341	Tissue-cultured allogeneic skin substitute	Cultured allogeneic skin with both a dermal and epidermal layer (Apligraf®)
15360-15366	Tissue-cultured allogeneic dermal substitute	Cultured allogeneic neonatal dermal fibroblasts (Transcyte®, Dermagraft®)
15400-15411	Xenogeneic dermis	Not human (EZ Derm™, Mediskin®)
15430-15431	Acellular xenogeneic implant	Decellularized porcine connective tissue comprised of small intestinal mucosa (Oasis®, Surgisis®)

## F. CPT CLINICAL CODING EXERCISES

### Clinical Coding Scenario #1

A 68-year-old male with type II diabetes presents with a 10 x 15 cm noninfected, full-thickness venous stasis ulcer of the left lower leg and ankle.

**Option A:** The wound is debrided and, after obtaining adequate hemostasis, 150 cm<sup>2</sup> of tissue-cultured allogeneic skin substitute is grafted to the excised surface and secured with interrupted sutures.

**Option B:** The wound is debrided and, after obtaining adequate hemostasis, 150 cm<sup>2</sup> of acellular xenogeneic implant is grafted to the excised surface and secured with interrupted sutures.

PROCEDURE	CPT CODES
<b>Option A:</b> Tissue cultured allogeneic skin substitute (150 cm <sup>2</sup> )	15340 15341 x5
<b>Option B:</b> Acellular xenogeneic implant (150 cm <sup>2</sup> )	15430 15431 x1

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### Clinical Coding Scenario #2

A 20-year-old male with a history of having been treated for extensive 3<sup>rd</sup> degree burns presents with contractures of the axilla and hand. Because the patient has limited skin graft donor sites with little remaining dermal tissue due to multiple previous harvests, Acellular dermal allograft is sutured into the skin defects created by the incisional release of the contractures. The Acellular dermal allograft is then covered with a thin split-thickness skin autograft in order to prevent scarring and recurrence of the contracture. The axillary defect measures 250 cm<sup>2</sup> and the hand defect measures 125 cm<sup>2</sup>.

PROCEDURE	CPT CODES
Acellular dermal allograft, hand (125 cm <sup>2</sup> )	15335 15336 x1
Acellular dermal allograft, axilla (250 cm <sup>2</sup> )	15330 15331 x2
Incisional release of scar contractures of hand and axilla (375 cm <sup>2</sup> )	15000 15001 x3

- **Flap Grafts**  
**[15570-15738]**

Flap grafts include island pedicle, direct, tube, free muscle, myocutaneous or fasciocutaneous flaps and delayed flap transfers. These grafts may have to be accomplished in stages.

- The graft code can be assigned more than once when surgery is done in stages. When the flap is being formed for delayed transfer, the site refers to the donor site. Codes from series 15600 – 15630 describe delayed transfer and identify the donor site, not the recipient site.
- The recipient site is used for coding when the graft is attached to its final site
- An additional code should be reported when repair of the donor site requires skin grafting or local flaps.

- **Types of Flap Grafts**

- **Delayed graft:** this graft consists of a portion of skin that is lifted and separated from tissue beneath and remains connected to blood vessels at one end of the graft. This keeps the skin viable while moving it from one area to another, while also getting the graft used to living on a small blood supply with hopes that living on a small blood supply will help the graft have a better chance of survival when it is inset into the recipient site.
- **Pedicle flap:** This flap consists of detached skin and subcutaneous tissues in which the attached end or base contains an adequate blood supply. It is partially transferred to the recipient site with the base still attached to the donor site. After the recipient has established a good bloody supply, the base or pedicle is cut off and the graft is completed.
- **Myocutaneous flap:** This flap involves the transfer of intact muscle, subcutaneous tissue and skin as a single unit rotated on a relatively narrow blood supply of the muscle.

- **Wound repair/closure** ..... Wound repair is classified by the type of repair necessary to repair the wound. CPT describes three types of wound repair using the following definitions:  
**[12001 – 13160]**

1. **Simple repair:** This is a superficial repair involving the epidermis, dermis, and subcutaneous tissue without the involvement of deeper structures, requiring only simple one-layer suturing. This procedure includes local anesthetic and chemical or electrocauterization of wounds not closed.

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2. **Intermediate repair:** This repair requires closure of one or more subcutaneous tissue and superficial (non-muscle) fascia, in addition to the skin closure. Wounds that are closed with only one layer and that are so heavily contaminated that they require extensive cleaning or removal of foreign material (e.g., gravel, glass) may be classified as intermediate repair. Generally, two types of suture material are used; one type is absorbable and is used for suturing the fascia or deeper muscle layers.
  3. **Complex repair:** These wound repairs go beyond a layered closure and require scar revision, debridement, extensive undermining, stents, or retention sutures. Wound described as angular, jagged, irregular, or stellate may require complex repair.
- To accurately code wound repairs, you must know:
1. Type of repair - simple, intermediate, complex.
  2. Site/body part involved - review operative report for mention of blood vessel, tendon, muscle, or nerve involvement
  3. Length of repair - in centimeters
- Wound repair codes include simple ligation of blood vessels and simple exploration of nerves, vessels, or tendons; so they should not be reported separately unless the extent of the laceration requires repair of the nerves, vessels, or tendons.
- When multiple wounds are repaired, the lengths of those in the same classification and from all anatomic sites that are grouped together into the same code descriptor are added together;
- Do not add lengths of repairs from different groupings of anatomic sites (e.g., face and extremities). Do not add together lengths of different classifications (e.g., intermediate and complex repairs).
- When more than one classification of wounds is repaired, the most complicated repair is listed first, followed by less complicated repairs.
- Debridement may be reported separately only when gross contamination requires prolonged cleaning, considerable amounts of devitalized or contaminated tissue are removed, or debridement is carried out separately without immediate primary closure.

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### G. ANATOMY & PHYSIOLOGY ILLUSTRATIONS

