

**Clinical Practice Guideline: Secondary Closure and Tissue Transfer to Surgical Wounds of the Lower Extremities**

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**Product: Specialty**

**GUIDELINES**

Secondary closure of surgical wound or dehiscence and adjacent tissue transfer or rearrangement (CPT® codes 13160, 14020, and 14040) are considered medically necessary when procedure is indicated for the lower leg or foot.

**CPT® Codes and Descriptions**

CPT® Code	CPT® Code Description
13160	Secondary closure of surgical wound or dehiscence, extensive or complicated
14020	Adjacent tissue transfer or rearrangement, scalp, arms and/or legs; defect 10 sq cm or less
14040	Adjacent tissue transfer or rearrangement, forehead, cheeks, chin, mouth, neck, axillae, genitalia, hands and/or feet, defect 10 sq cm or less

**BACKGROUND**

Foot infections in persons with diabetes are associated with potentially deleterious complications. Diabetic foot infections (DFIs) usually arise either in a skin ulceration that occurs as a consequence of peripheral (sensory and motor) neuropathy or in a wound caused by some form of trauma. Various microorganisms may colonize the wound, which may lead to tissue damage, followed by a host response accompanied by inflammation. These infections can then spread contiguously, including into deeper tissues, often reaching bone. If the infection progresses, many patients may require surgical resections or an amputation.

A pressure ulcer is an injury to the skin and/or underlying tissue over a bony prominence that occurs as a result of pressure in conjunction with or without shear or friction. Pressure ulcers can also result from poorly fitting casts or appliances. They can occur in soft tissue areas due to the pressure effects of a foreign object such as a medical device. Because muscle and subcutaneous tissue are more susceptible to pressure induced injury than dermis and epidermis, pressure ulcers are often worse than their initial presentation. Once a pressure ulcer has developed, immediate treatment is required. For stage I and II pressure ulcers, wound care is usually conservative (i.e., reduction of pressure, debridement of

1 necrotic tissue, control of infection). For stage III and IV lesions, surgical intervention (e.g.,  
2 flap reconstruction) may be required.

3  
4 Although direct closure is the simplest approach, pressure ulcers considered for surgical  
5 treatment are usually too large to be amenable to direct primary closure. Because these  
6 wounds are tense as a result of large soft-tissue defects, direct closure can lead to wound  
7 defects, excessive wound tension, and a paucity of soft tissue coverage. Tissue expanders  
8 have been used to provide more skin surface and to facilitate closure. Split-thickness skin  
9 grafts can be used to repair shallow defects and pressure ulcers, but their main disadvantage  
10 is that they provide only a skin barrier. When applied directly to granulating bone, skin  
11 grafts quickly erode, thus precluding healing. A local full-thickness skin flap was formerly  
12 the standard surgical treatment for pressure ulcers; currently, it is typically employed as an  
13 alternative to secondary repair. Local skin flaps have a random vascular supply, and the  
14 tissue repair is essentially a redistribution of inadequately perfused tissue rather than a  
15 planned revascularization that makes use specific blood vessels. According to the  
16 American College of Physicians guideline for the treatment of pressure ulcers, surgery is  
17 recommended as an option for advanced-stage pressure ulcers; however, evidence was  
18 insufficient to determine the superiority of one surgical technique over another for wound  
19 closure. Dehiscence, a commonly reported adverse event, was more common when bone  
20 was removed and in patients with ischial ulcers (Qaseem et al., 2015).

21  
22 Individuals with diabetes presenting with foot infection warrant optimal surgical  
23 management to affect limb salvage and prevent amputation; aggressive short-term and  
24 meticulous long-term care plans are required. The treatment of diabetic foot infections may  
25 require the use of surgical interventions including incision, wound investigation,  
26 debridement, wound irrigation and lavage, and definitive wound closure.

27  
28 Wound evaluation should include the size and extent of soft tissue involvement and the  
29 presence of any foreign bodies, abscesses, or sinus tracts. Surgical exploration should then  
30 follow the appropriate tissue planes and enable the surgeon to examine the compartments  
31 and open all adjacent areas to remove any possible remaining infection. The surgeon must  
32 decide if additional exploration or blunt dissection is needed based on his or her knowledge  
33 of compartmental anatomy and the communications between each of these compartments.  
34 Following wound investigation, and determination of any tissue planes and foot  
35 compartments that are violated, debridement of any and all non-viable tissue and bone  
36 should be completed regardless of size and quantity.

37  
38 Once clinical signs of infection have been eliminated in the infected diabetic foot wound,  
39 closure of the wound is usually conducted. There are three methods for wound closure:  
40 primary, delayed-primary, and secondary intention. In primary closure, the wound is closed  
41 at the time of the initial surgical intervention. In secondary closure, the wound is left open  
42 at the end of the surgical intervention to granulate and to contract. Delayed-primary closure

1 refers to when the wound is left open at the time of the initial surgical intervention then  
2 closed at a later date, usually once the wound is free from any sign of infection. Such an  
3 approach is usually carried out in conjunction with wet-to-dry dressings and/or negative  
4 pressure wound therapy (NPWT) to facilitate granulation prior to closure and is associated  
5 with fewer wound complications than primary closure (Fisher et al., 2010).

6 Additionally, the use of split-thickness skin grafts, local flaps, muscle flaps, pedicle flaps,  
7 and musculotendinous flaps are options for achieving proper wound closure. Decisions  
8 regarding closure are ultimately dependent on the volume of viable soft tissue remaining  
9 after surgery, the amount of drainage, and the presence of any residual infection.

10  
11 Wound dehiscence is one of the most common complications of surgical wounds, involving  
12 the breaking open of the surgical incision along the suture. Delayed and non-healing of  
13 incisions can occur despite careful pre-, intra-, and postoperative management of the  
14 patient. In treating this complication, it is important to re-assess the patient and carefully  
15 evaluate the wound to determine the reasons for wound dehiscence and address them, in  
16 addition to considering options for wound healing or wound closure. Infection resulting in  
17 wound dehiscence should be managed with appropriate measure which may consist of oral  
18 or intravenous antibiotics, or in severe infections, an irrigation and debridement may be  
19 required with removal of all necrotic tissue. Once the infection has been cleared the residual  
20 wound must be assessed to determine if closure by secondary intent is indicated or if other  
21 viable options for wound closure could be attempted (Schweinberger et al., 2009).

22  
23 If the injury is further aggravated or escalated beyond the scope of the outpatient setting  
24 with complications requiring pressure ulcer closure, skin grafting, wound debridement,  
25 amputation, or other significant treatment (i.e., neoplasm removal or creation of a  
26 noticeable defect requiring coverage), then the patient may be referred for inpatient care.

## 27 28 **PRACTITIONER SCOPE AND TRAINING**

29 Practitioners should practice only in the areas in which they are competent based on their  
30 education, training and experience. Levels of education, experience, and proficiency may  
31 vary among individual practitioners. It is ethically and legally incumbent on a practitioner  
32 to determine where they have the knowledge and skills necessary to perform such services  
33 and whether the services are within their scope of practice.

34  
35 It is best practice for the practitioner to appropriately render services to a member only if  
36 they are trained, equally skilled, and adequately competent to deliver a service compared  
37 to others trained to perform the same procedure. If the service would be most competently  
38 delivered by another health care practitioner who has more skill and training, it would be  
39 best practice to refer the member to the more expert practitioner.

1 Best practice can be defined as a clinical, scientific, or professional technique, method, or  
 2 process that is typically evidence-based and consensus driven and is recognized by a  
 3 majority of professionals in a particular field as more effective at delivering a particular  
 4 outcome than any other practice (Joint Commission International Accreditation Standards  
 5 for Hospitals, 2020).

6  
 7 Depending on the practitioner’s scope of practice, training, and experience, a member’s  
 8 condition and/or symptoms during examination or the course of treatment may indicate the  
 9 need for referral to another practitioner or even emergency care. In such cases it is prudent  
 10 for the practitioner to refer the member for appropriate co-management (e.g., to their  
 11 primary care physician) or if immediate emergency care is warranted, to contact 911 as  
 12 appropriate. See the *Managing Medical Emergencies (CPG 159 – S)* clinical practice  
 13 guideline for information.

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