Clinical Practice Guideline: **Metatarsal or Tarsal Nonunion/Malunion Repair**

Date of Implementation: **September 17, 2015**

Product: **Specialty**

GUIDELINES

American Specialty Health – Specialty (ASH) considers procedures consisting of **CPT®** Codes 28320 and 28322 to be medically necessary for the repair of metatarsal or tarsal nonunion/malunion **upon meeting ALL of the following criteria**:

- Patient has a malunion or nonunion (ICD-10 codes for fracture with malunion or nonunion of tarsal and metatarsal: S92.201K – S92.256P, S92.301K – S92.356P)
- Patient reports pain, instability, or deformity at the site of a previous fracture
- Confirmation of malunion or nonunion (non-union can be defined as non-evidence of healing after a certain amount of time, e.g., 4-6 months) by x-rays, bone scan, or other imaging studies
- Differential diagnosis has been considered and ruled out

CPT® Codes and Descriptions

CPT® Code	CPT® Code Description
28320	Repair, nonunion or malunion; tarsal bones
28322	Repair, nonunion or malunion; metatarsal, with or without bone graft (includes obtaining graft)

DESCRIPTION/BACKGROUND

CPT® codes 28320 and 28322 describe procedures involving the fusion of bones for the treatment of nonunions or malunions. **CPT®** Code 28322 includes osteotomy with alignment and stabilization of the bones either with or without bone graft.

Incomplete healing of a fracture where the cortices of the bone fragments do not reconnect is called a nonunion. A fracture that heals with a deformity (e.g., angulation, rotation, incongruent joint surface) is considered a malunion.

To diagnose a nonunion, the specialist uses imaging studies that provide detailed pictures of the bone and surrounding soft tissues. Depending on which bone is involved, these tests may include x-rays, computed tomography (CT) scans, bone scans, and magnetic resonance imaging (MRI). Furthermore, the patient medical history may indicate a nonunion if the specialist finds one or more of the following: persistent pain at the fracture site, a persistent gap with no bone spanning the fracture site, no progress in bone healing

when repeated imaging studies are compared over several months, and/or inadequate healing in a time period that is usually enough for normal healing.

Common reasons for nonunion and malunion include an inadequate blood supply to the fractured bone (e.g., scaphoid, proximal fifth metatarsal), behaviors that interfere with bone healing (e.g., smoking), poor bone fixation (i.e., excessive movement at the fracture site), poor apposition of bone fragments (i.e., fragment ends too far from one another), and infection. Fractures sustained during high energy trauma, particularly open fractures and those associated with severe soft tissue injury, are at an increased risk for nonunion (Howe, 2021).

Nonunions commonly present with persistent pain, swelling, or instability beyond the time when healing should normally have occurred. Some symptomatic nonunions can be treated nonsurgically. However, due to the high demand of athletic and active patients, surgery is often recommended for specific injuries (Saxena et al., 2012). The most common nonsurgical treatment is a bone stimulator. This treatment must be used every day to be effective. Surgery is needed when nonsurgical methods fail or are not suitable for a specific injury. Surgical options may include bone graft and/or bone graft substitute, internal fixation, and/or external fixation.

Stress fractures of the fifth metatarsal result from chronic and repetitive microtrauma, predominantly in younger athletes. They occur much less often than traumatic fractures. Despite their infrequency, they require special attention because they frequently result in delayed union and nonunion compared with other proximal fifth metatarsal fractures and stress fractures of other metatarsals. Type III fractures of the fifth metatarsal are considered nonunions. Patient medical history reveals pain with recurrent symptoms, likely representing repetitive insults, and on plain films, the fracture line is widened with medullary canal replaced by sclerosis. Initial treatment recommendations for Type III injuries are curettage and bone grafting (Mayer et al., 2014).

Fractures of the proximal fifth metatarsal metaphysis (i.e., the Jones fracture) can be problematic in the elite athlete because of a high incidence of nonunion and re-fracture with nonoperative treatment. Although these fractures are not common, athletes can suffer refracture or nonunion of a Jones fracture despite operative stabilization due to hardware of insufficient strength, aggressive postoperative rehabilitation, or biologic insufficiency at the fracture site. Hunt et al. (2011) carried out a retrospective review of the results of revision intramedullary screw fixation with cancellous autologous bone grafting or bone-marrow aspirate combined with demineralized bone matrix after re-fracture or nonunion of Jones fractures in elite athletes (*N*=21). All patients underwent intramedullary screw fixation with autologous bone graft (12 patients), bone-marrow aspirate (BMA) and demineralized bone matrix (DBM) (8 patients), or no bone graft (1 patient). The results showed that all athletes were able to return to their previous level of athletic competition

at an average of 12.3 weeks. All fractures showed clinical and radiographic evidence of compete cortical healing. The authors concluded that revision fixation with a large, solid screw (5.5 mm or larger) and autologous bone grafting for symptomatic re-fractures and nonunions of the proximal fifth metatarsal is effective treatment for elite athletes.

PRACTITIONER SCOPE AND TRAINING

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

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

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

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

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