

Medical Coverage Policy | Electrical Bone Growth Stimulation of the Appendicular Skeleton - Implantable and Semi-Implantable



EFFECTIVE DATE: 10/01/2017

POLICY LAST UPDATED: 08/03/2022

OVERVIEW

In the appendicular skeleton (the appendicular skeleton includes the bones of the shoulder girdle, upper extremities, pelvis, and lower extremities), electrical stimulation (with either implantable electrodes or noninvasive surface stimulators) has been investigated for the treatment of delayed union, nonunion, and fresh fractures. This policy addresses only implantable and semi-invasive devices.

MEDICAL CRITERIA

Not applicable

PRIOR AUTHORIZATION

Not applicable

POLICY STATEMENT

Medicare Advantage Plans

The implantable electric bone growth stimulator is covered as the Centers for Medicare and Medicaid Services (CMS) has determined that it is medically necessary.

Note: Medicare policy is developed separately from Blue Cross and Blue Shield of Rhode Island (BCBSRI) policy. Medicare policy incorporates consideration of governmental regulations from CMS, such as national coverage determinations or local coverage determinations. In addition to benefit differences, CMS may reach different conclusions regarding the scientific evidence than does BCBSRI. Medicare and BCBSRI policies may differ. However, Medicare Advantage Plans members must be offered, at least, the same services that Medicare offers.

Commercial Products

Implantable electrical bone growth stimulator is considered not medically necessary as the evidence is insufficient to determine the effects of the technology on health outcomes.

Medicare Advantage Plans and Commercial Products

The semi-invasive electrical bone growth stimulator is not covered as there are no devices with U.S. Food and Drug Administration (FDA) approval or clearance.

COVERAGE

Benefits may vary between groups and contracts. Please refer to the appropriate Evidence of Coverage, Subscriber Agreement for applicable not medically necessary benefits/coverage.

BACKGROUND

In the appendicular skeleton, electrical stimulation has been primarily used to treat tibial fractures, and thus this technique has often been thought of as a treatment of the long bones. According to orthopedic anatomy, the skeleton consists of long bones, short bones, flat bones, and irregular bones. Long bones act as levers to facilitate motion, while short bones function to dissipate concussive forces. Short bones include those composing the carpus and tarsus. Flat bones, such as the scapula or pelvis, provide a broad surface area for attachment of muscles. Despite their anatomic classification, all bones are composed of a combination of cortical and trabecular (also called cancellous) bone. Each bone, depending on its physiologic function, has a

different proportion of cancellous to trabecular bone. At a cellular level, however, both bone types are composed of lamellar bone and cannot be distinguished microscopically.

Electrical and electromagnetic fields can be generated and applied to bones through the following methods:

- Surgical implantation of a cathode at the fracture site with the production of direct current electrical stimulation. Invasive devices require surgical implantation of a current generator in an intramuscular or subcutaneous space, while an electrode is implanted within the fragments of bone graft at the fusion site. The implantable device typically remains functional for 6 to 9 months after implantation, and, although the current generator is removed in a second surgical procedure when stimulation is completed, the electrode may or may not be removed. Implantable electrodes provide constant stimulation at the nonunion or fracture site but carry increased risks associated with implantable leads.
- Semi-invasive (semi-implantable) stimulators use percutaneous electrodes and an external power supply obviating the need for a surgical procedure to remove the generator when treatment is finished. No semi-invasive electrical bone growth stimulator devices with FDA approval or clearance were identified.

For individuals who have fracture, pseudoarthroses, or who have had surgery of the appendicular skeleton who receive implantable and semi-invasive electrical bone growth stimulation, the evidence includes a small number of case series. Relevant outcomes are symptoms, change in disease status, and functional outcomes. The evidence is insufficient to determine the effects of the technology on health outcomes

Medicare Advantage Plans

CMS has a National Coverage Determination (NCD) which states that the invasive stimulator device is covered only for the following indications:

- Nonunion of long bone fractures;
- Effective July 1, 1996, as an adjunct to spinal fusion surgery for patients at high risk of pseudoarthrosis due to previously failed spinal fusion at the same site or for those undergoing multiple level fusion. A multiple level fusion involves 3 or more vertebrae (e.g., L3-L5, L4-S1, etc.).
- Effective September 15, 1980, nonunion of long bone fractures is considered to exist only after 6 or more months have elapsed without healing of the fracture.
- Effective April 1, 2000, nonunion of long bone fractures is considered to exist only when starting treatment with the electrical osteogenic stimulator. Serial radiographs must include a minimum of 2 sets of radiographs, each including multiple views of the fracture site, separated by a minimum of 90 days.

Based on this coverage determination, the invasive(implantable) stimulator will be covered.

CODING

The following codes are covered for Medicare Advantage Plans and not medically necessary for Commercial products:

20975 Electrical stimulation to aid bone healing; invasive (operative)

E0749 Osteogenesis stimulator, electrical, surgically implanted

Note - There is no code for the semi-invasive stimulator as there is not an FDA approved device.

RELATED POLICIES

Not applicable

PUBLISHED

Provider Update, October 2022

Provider Update August 2021
Provider Update August 2020
Provider Update November 2019
Provider Update September 2018

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