Skin Substitutes for Wound Care

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Line of Business: Commercial Only ☐ QHP/Exchange Only ☐ Medicare Only ☐ Commercial & QHP/Exchange ☒ Commercial, QHP/Exchange, & Medicare ☐		

Purpose:

To provide skin substitutes guidelines for Population Health and Provider Alliances associates to reference when making benefit determinations.

Definition

- Metabolically Active Human Dermal/Epidermal Replacements (MAHD/ER) are bioengineered dermal tissues, which contain the characteristics of dermis, or both dermis and epidermis. MAHD/ER are manufactured under aseptic conditions using human fibroblast, or fibroblast and keratinocytic cells derived from newborn male foreskin tissue. These cells are tested and found free from human and animal viruses. Human dermal and/or epidermal replacements do not contain macrophages, lymphocytes, blood vessels or hair follicles. Several types of dermal and/or epidermal (substitute) tissues of human or non-human origin, with or without bioengineered processed elements, are available for a variety of conditions.[1]

Additional Information

Examples of Skin Substitutes and their indications include the following*:*

- **Apligraf® (Organogenesis, Inc.)**
  Apligraf® is supplied as a living, bi-layered skin substitute. Like human skin, Apligraf® consists of living cells and structural proteins. The lower dermal layer combines bovine type 1 collagen and human fibroblasts (dermal cells), which produce additional matrix proteins. The upper epidermal layer is formed by promoting human keratinocytes (epidermal cells) first to multiply and then to differentiate to replicate the architecture of the human epidermis. Unlike human skin, Apligraf® does not contain melanocytes, Langerhans' cells, macrophages, and lymphocytes, or other structures such as blood vessels, hair follicles or sweat glands. **Apligraf® is indicated for use along with standard compression therapy in venous ulcers of at least one (1) month in duration that have not adequately responded to conventional ulcer therapy**. **Apligraf® is also indicated for use with conventional diabetic foot ulcer care for the treatment of full-thickness neuropathic diabetic foot ulcers of greater than three (3) weeks duration which extend through the dermis but without tendon, muscle, capsule or bone exposure.** The persistence of Apligraf® cells on the wound and the safety of this device in venous ulcer Members beyond one (1) year and in diabetic foot ulcer Members beyond six months has not been evaluated.[2]Medicare coverage indication criteria for Apligraf® can be found @ http://www.cms.hhs.gov/mcd/viewlcd.asp?lcd_id=13832&lcd_version=12&show=all

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- **Dermagraft®**

  Dermagraft® is a single layered cryopreserved human fibroblast-derived dermal substitute composed of fibroblasts, extracellular matrix, and a bioabsorbable scaffold. During the manufacturing process, the human fibroblasts are seeded onto a bioabsorbable polyglactin mesh scaffold. The fibroblasts proliferate to fill the interstices of this scaffold and secrete human dermal collagen, matrix proteins, growth factors and cytokines to create a three-dimensional human dermal substitute containing metabolically active living cells. Dermagraft® does not contain macrophages, lymphocytes, blood vessels or hair follicles. It is supplied frozen containing one piece, approximately 2" x 3" for a single-use application. **Primary indication is for the treatment of full-thickness diabetic foot ulcers greater than six (6) weeks duration that extend through the dermis but without tendon, muscle, joint capsule, or bone exposure. Dermagraft® should be used in conjunction with standard wound care treatment in Members with adequate blood supply to the foot.**[3]

  Medicare coverage indication criteria for Dermagraft can be found @ http://www.cms.hhs.gov/mcd/viewlcd.asp?lcd_id=13832&lcd_version=12&show=all

- **Integra®**

  Integra® Bilayer Matrix Wound Dressing is a tissue-engineered matrix comprised of a porous matrix of cross-linked bovine tendon collagen and glycosaminoglycan and a semi-permeable polysiloxane (silicone) layer. The semi-permeable silicone membrane controls water vapor loss provides a flexible adherent covering for the wound surface and adds increased tear strength to the device. The collagen-glycosaminoglycan biodegradable matrix provides a scaffold for cellular invasion and capillary growth. Although Integra® indicates coverage for multiple wound management, Medicare will consider Integra® medically reasonable and necessary for post-excisional treatment of life-threatening full-thickness or deep partial- thickness thermal injuries where sufficient autograft is not available at the time of excision or not desirable due to the physiological condition of the Member.[4]

- **OASIS® Wound Matrix**

  The OASIS® Wound Matrix is a biologically derived extracellular matrix-based wound product that is compatible with human tissue. Unlike other collagen-based wound care materials, OASIS® is unique because it is a complex scaffold that provides an optimal environment for a favorable host tissue response, a response characterized by restoration of tissue structure and function. OASIS® is comprised of porcine-derived acellular small intestine submucosa (SIS) material. OASIS® is indicated for use in all partial and full thickness wounds, diabetic ulcers, venous ulcers, pressure ulcers, chronic vascular ulcers, trauma wounds, draining wounds and surgical wounds.[5]

  Medicare coverage indication criteria for Oasis can be found @ http://www.cms.hhs.gov/mcd/viewlcd.asp?lcd_id=13832&lcd_version=12&show=all

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- **OrCel® (Ortec International)**
  OrCel® is a bilayered cellular matrix in which normal human epidermal keratinocytes and dermal fibroblasts are cultured in two separate layers onto a Type I bovine collagen sponge. The bovine sponge serves as an absorbable biocompatible matrix that provides a favorable environment for host cell migration. Ortec has FDA approval for use of a non-frozen version of OrCel® in the treatment of Epidermolysis Bullosa and donor sites in burn Members.[6]

- **TransCyte®**
  TransCyte® is a human fibroblast-derived temporary skin substitute. The product consists of a polymer membrane and newborn human fibroblast cells cultured under aseptic conditions in vitro on a nylon mesh. TransCyte® is indicated for use as a temporary wound covering for surgically excised full-thickness and deep partial-thickness thermal burn wounds in patients who require such a covering prior to autograft placement. The product is also indicated for the treatment of mid-dermal to indeterminate depth burn wounds that typically require debridement and that may be expected to heal without autografting.[7]
  Medicare coverage indication criteria for TransCyte® can be found @
  http://www.cms.hhs.gov/mcd/viewlcd.asp?lcd_id=13832&lcd_version=12&show=all

- **Endoform®**
  Endoform® Dermal Template Wound Dressing is an extracellular matrix (ECM) dressing used to treat acute and chronic wounds. It contains a naturally derived ovine collagen ECM that is terminally sterilized and may be considered more culturally acceptable than other animal-derived sources. Contains 90% native, intact collagen and 10% extracellular matrix components. Regulates intercellular communication, serves as a scaffold to hold tissues together, and provides structural support to help tissue repair. Indicated for single use in the treatment of partial and full-thickness wounds; pressure ulcers; venous ulcers; diabetic ulcers; chronic vascular ulcers; tunneled/undermined wound; surgical wounds (donor sites/grafts, post-Mohs surgery, post-laser surgery, podiatric, wound dehiscence); trauma wounds (abrasions, lacerations, second-degree burns, and skin tears); draining wounds. Endoform dermal template retains the structure and function of the native ECM7 to supplement the patient's degraded matrix. It demonstrates improved broad-spectrum MMP activity reduction, especially against critical collagenases (MMP1 and MMP8). Endoform® dermal template dressings may be reapplied as infrequently as once per week, reducing inconvenience compared to other collagen dressings that may need reapplication more than twice as often.[8]

Additional Information

- The safety and effectiveness of Apligraf® have not been established for Members receiving more than five (5) device applications.
- The use of Dermagraft® is limited to no more than eight (8) applications per treatment site over a 12-week period.
- The use of OrCel® is limited to a single, one (1) time application per donor site. No more than eight (8) pieces of OrCel® should be utilized per donor site.
- The safety and effectiveness of re-treatment of a single wound using Apligraf®, Dermagraft®, or OrCel® has not been established and is not covered.[8]

References:

1. *1 & 8. Medicare Local Coverage Database,* LCD for Skin Substitutes (L13832) Local Carrier First Coast Service Options, Inc. Revision effective date on or after 1/1/2007.
2. *Novartis Pharmaceuticals Apligraf®* information. (Verified 10/07.)
3. Advanced BioHealing, Inc. 2007.
4. Integra Lifesciences Corporation 2006.
5. OASIS® is a registered trademark of Cook Biotech, Inc. 2004; Oasis® Wound Matrix is exclusively marketed and distributed by Healthpoint, Ltd. 2007.
6. Ortec International, Inc. 2006.
7. Advanced BioHealing, Inc 2007.
8. Hollister Wound Care - http://www.hollisterwoundcare.com/products/endoform.aspx

Disclaimer Information:

Coverage Issues Guidelines and Medical Technology Assessment Recommendations are developed to determine coverage for AvMed's benefits and are published to provide a better understanding of the basis upon which coverage decisions are made. AvMed makes coverage decisions using these guidelines, along with the Member's benefit document. The use of this guideline is neither a guarantee of payment nor a final prediction of how specific claim(s) will be adjudicated.

Coverage Issues Guidelines and Medical Technology Assessment Recommendations are developed for selected therapeutic or diagnostic services found to be safe, but proven effective in a limited, defined population of patients or clinical circumstances. They include concise clinical coverage criteria based on current literature review, consultation with practicing physicians in the AvMed service area who are medical experts in the particular field, FDA and other government agency policies, and standards adopted by national accreditation organizations.

Treating providers are solely responsible for the medical advice and treatment of Members. This guideline may be updated and therefore is subject to change.