Policy: MP075
Section: Medical Benefit Policy
Subject: Tissue Engineered Skin Substitutes

I. Policy: Tissue Engineered Skin Substitutes

II. Purpose/Objective:
   To provide a policy of coverage regarding

III. Responsibility:
   A. Medical Directors
   B. Medical Management

IV. Required Definitions

   1. Attachment – a supporting document that is developed and maintained by the policy writer or department requiring/authoring the policy.
   2. Exhibit – a supporting document developed and maintained in a department other than the department requiring/authoring the policy.
   3. Devised – the date the policy was implemented.
   4. Revised – the date of every revision to the policy, including typographical and grammatical changes.
   5. Reviewed – the date documenting the annual review if the policy has no revisions necessary.

V. Additional Definitions
Medical Necessity or Medically Necessary means Covered Services rendered by a Health Care Provider that the Plan determines are:

   a. appropriate for the symptoms and diagnosis or treatment of the Member's condition, illness, disease or injury;
   b. provided for the diagnosis, and the direct care and treatment of the Member's condition, illness disease or injury;
   c. in accordance with current standards of good medical treatment practiced by the general medical community.
   d. not primarily for the convenience of the Member, or the Member's Health Care Provider; and
   e. the most appropriate source or level of service that can safely be provided to the Member. When applied to hospitalization, this further means that the Member requires acute care as an inpatient due to the nature of the services rendered or the Member's condition, and the Member cannot receive safe or adequate care as an outpatient.

Medicaid Business Segment
Medical Necessity shall mean a service or benefit that is compensable under the Medical Assistance Program and if it meets any one of the following standards:

   (i) The service or benefit will, or is reasonably expected to, prevent the onset of an illness, condition or disability.
   (ii) The service or benefit will, or is reasonably expected to, reduce or ameliorate the physical, mental or development effects of an illness, condition, injury or disability.
   (iii) The service or benefit will assist the Member to achieve or maintain maximum functional
capacity in performing daily activities, taking into account both the functional capacity of the Member and those functional capacities that are appropriate for members of the same age.

DESCRIPTION:
Tissue engineered skin substitutes have been developed to replace autografts, allografts and xenograft in the treatment of extensive burn injuries and hard-to-heal, chronic wounds associated with non-burn etiologies such as venous ulcers and diabetic foot ulcers. The goal of tissue engineered skin substitute therapy is to provide a temporary biologic dressing that encourages skin tissue regeneration and wound healing through its own natural contingent of growth factors and proteins. It delivers new cells to the wound, which are able to adjust to the microenvironment of the wound and stimulate healing.

INDICATIONS:
Tissue engineered skin substitutes may be considered medically necessary when used for the appropriate FDA approved indications. Specific criteria may also apply as listed below:

Apligraf® is a bilayered, living skin equivalent which is indicated for treatment of:
1. Venous insufficiency ulcers when all of the following criteria are met:
   • The ulcer is a non-infected partial or full thickness ulcer at least 1.0cm² in size due to clinically documented venous insufficiency;
   • The ulcer has been present for a minimum of 4 weeks, has been treated with conventional non-surgical therapy (including, but not limited to: debridement, off-loading, compression dressings, wet and/or dry dressings, cleansing and nutritional support) for at least 4 weeks and has failed to respond (e.g., no significant decrease in wound size, failure to show signs of granulation or progression toward closure).
2. Neuropathic diabetic foot ulcers when all of the following criteria are met:
   • Physician documentation of medical management for clinically documented type 1 or type 2 diabetes
   • The wound is a non-infected full thickness neuropathic diabetic foot ulcer and has been present for a minimum of 3 weeks and at least 1.0cm² in size due to clinically documented diabetic neuropathy
   • The ulcer is located on the plantar, medial or lateral surface of the foot and is free of infection, tunnels, tracts, cellulitis, eschar or obvious necrotic material
   • The ulcer extends through the dermis but does not involve the tendon, muscle, capsule or exposure to bone
   • Conservative treatment measures including a non-weight bearing regimen, debridement and acceptable methods of wound care have been tried for a minimum of 3 weeks and there has been failure to respond to conservative measures
   • The extremity is free of Charcot’s arthropathy
   • There is adequate arterial blood supply to support tissue growth

Dermagraft® is a cryopreserved dermal substitute derived from human fibroblasts and is indicated for the treatment of diabetic foot ulcers when all of the following criteria are met:
• Physician documentation of medical management for clinically documented type 1 or type 2 diabetes
• The wound is a non-infected full thickness diabetic foot ulcer and has been present for a minimum of 3 weeks and at least 1.0cm² in size
• The ulcer is located on the plantar, medial or lateral surface of the foot and is free of infection, tunnels, tracts, cellulitis, eschar or obvious necrotic material
• The ulcer extends through the dermis but does not involve the tendon, muscle, capsule or exposure to bone
• Conservative treatment measures including a non-weight bearing regimen, debridement and acceptable methods of wound care have been tried for a minimum of 3 weeks and there has been failure to respond to conservative measures
• The extremity is free of Charcot’s arthropathy
• There is adequate arterial blood supply to support tissue growth

Biobrane® (biosynthetic dressing) is a knitted nylon fabric bonded to an ultra-thin silicone rubber membrane coated with a protein (gelatin) and is indicated for the treatment of thermal injuries, superficial scald burn or flame injury of the hand when:
• The burn is superficial, partial-thickness with limited involvement of the dermis (less than or equal to 25% total body surface area); and
• The burn is clean, non-infected, and free of nonviable tissue and coagulation eschar.
**Orcel®** is an absorbable bilayered cellular matrix, made of bovine collagen, in which human dermal cells have been cultured and is considered medically necessary for the treatment of
- healing donor site wounds in burn victims, and
- for use in persons with dystrophic epidermolysis bullosa undergoing hand reconstruction surgery to close and heal wounds created by the surgery, including those at donor sites when used in accordance with the FDA’s Humanitarian Device Exemption.

**TransCyte®** consists of human dermal fibroblasts grown on nylon mesh, combined with a synthetic epidermal layer and is considered medically necessary for
- the temporary wound covering for surgically excised full-thickness and deep partial-thickness thermal burn wounds in persons who require such a covering before autograft placement.

**Integra® Dermal Regeneration Template, Matrix Wound Dressing, Bilayer Matrix Wound Dressing, and Meshed Bilayer Wound Matrix** an acellular, biodegradable copolymer matrix coated is considered medically necessary for post-excision treatment of full thickness of deep partial thickness burns when autografting is not feasible due to the lack of suitable healthy tissue or the member’s weak physiological state.

**Alloderm®** (acellular dermal matrix allograft) is considered medically necessary when used
- In association with a covered, medically necessary breast reconstruction procedure.
- Surgical repair of complex abdominal wall wounds (e.g., due to infection, fascial defect, etc.)
- ENT/Head & Neck reconstructive procedures

**Neoform®** (solvent-dehydrated, gamma-irradiated preserved human allograft) is considered medically necessary when used in association with a covered, medically necessary breast reconstruction procedure.

**AlloMax™** is considered medically necessary when used in association with a covered, medically necessary breast reconstruction procedure.

**Oasis® Wound Matrix** is considered medically necessary when used to treat the following:
1. Partial or full thickness venous insufficiency or diabetic ulcers of the lower extremity when the following criteria are met:
   - The ulcer has been present for a minimum of 4 weeks,
   - has been treated with conventional non-surgical therapy (including, but not limited to: debridement, off-loading, compression dressings, wet and/or dry dressings, cleansing and nutritional support) for at least 4 weeks and
   - has failed to respond (e.g., no significant decrease in wound size, failure to show signs of granulation or progression toward closure).
2. Pressure ulcers
3. Surgical or traumatic wounds
4. Draining wounds

**Epicel®** is considered medically necessary when used for the treatment of deep dermal or full thickness burns of 30% or more of the total body surface area in accordance with the FDA’s Humanitarian Device Exemption

**Graftjacket® Regenerative Tissue Matrix** is considered medically necessary when used for the treatment of diabetic foot ulcers when the following criteria are met:
- Physician documentation of medical management for clinically documented type 1 or type 2 diabetes
- The wound is a non-infected full thickness neuropathic diabetic foot ulcer and has been present for a minimum of 3 weeks and at least 1.0cm² in size due to clinically documented diabetic neuropathy
- The ulcer is located on the plantar, medial or lateral surface of the foot and is free of infection, tunnels, tracts, cellulitis, eschar or obvious necrotic material
- The ulcer extends through the dermis but does not involve the tendon, muscle, capsule or exposure to bone
- Conservative treatment measures including a non-weight bearing regimen, debridement and acceptable methods of wound care have been tried for a minimum of 3 weeks and there has been failure to respond to conservative measures
- The extremity is free of Charcot’s arthropathy
- There is adequate arterial blood supply to support tissue growth
Any tissue engineered skin substitute not specifically addressed in this document should be considered as requiring prior authorization.

**CONTRAINDICATIONS:**
- Clinically infected wounds
- Ulcers with sinus tracts
- Known allergies to bovine collagen
- Apligraf and Dermagraft are not approved for use in the treatment of acute surgical wounds, pressure sores or burns.

**LIMITATIONS:**
For the purpose of this policy, re-application is referring to an additional application of skin substitutes to the same ulcer within the same treatment period. **Re-treatment** is referencing *a new treatment period where the same ulcer is being treated again because the initial treatment has most likely failed.*

For Apligraf the following limitations apply and will be considered NON-COVERED as being not medically necessary:
- The efficacy of treatment with Apligraf beyond five applications at no less than weekly intervals has not been established.
- Reapplication when initial application has resulted in no measurable response
- Retreatment within 1 year following the last successful application
- Retreatment following unsuccessful treatment defined for the purposes of this policy as 5 failed Apligraf applications

For Dermagraft: The following limitation applies and will be considered NON-COVERED as being not medically necessary:
- Retreatment within 1 year following the last successful application
- Reapplication when initial application has resulted in no measurable response
- Retreatment of an ulcer following the unsuccessful treatment where it consisted of 8 failed Dermagraft® applications

Data regarding Permacol™ Biologic porcine mesh implant is limited to small case series, retrospective case reviews, and non-randomized comparison studies. There is minimal evidence in the peer-reviewed, medical literature of its effectiveness as an alternative to synthetic meshes, that it provides any advantage over other available surgical mesh, and information on the potential complications associated with its use is lacking. Requests for this product will be considered on a “per case” basis.

Due to limited studies, small study populations, variable outcomes and/ or poor study designs, there is insufficient evidence in the current published peer-reviewed medical literature to fully evaluate the clinical utility of any of the following products. Their use is limited to the FDA approved indication.

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<th>AlloDerm® RTM Ready to Use</th>
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<td>Integra® Dermal Regeneration</td>
<td>Repliform®</td>
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Other Associated Key Words:
Human Skin Equivalents

EXCLUSIONS:
The use of tissue engineered skin equivalents in any application outside of the current FDA approvals is considered experimental, investigational or unproven and is NOT COVERED.

Note: A complete description of the process by which a given technology or service is evaluated and determined to be experimental, investigational or unproven is outlined in MP 15 - Experimental Investigational or Unproven Services or Treatment.
CODING ASSOCIATED WITH:
The coding listed in this document may not represent the comprehensive range of codes that may be associated with this service.

HCPCS CODES:
J7340  Dermal and epidermal, tissue of human origin, with or without bioengineered or processed elements, with metabolically active elements, per square centimeter (Apligraf®, OrCel, TransCyte)
J7342  Dermal tissue, of human origin, with or without other bioengineered or processed elements, with metabolically active elements, per square centimeter (Dermagraft)
15150  Tissue cultured skin autograft, trunk, arms, legs; first 25 sq. cm or less
15151  Tissue cultured skin autograft, trunk, arms, legs; additional 1 sq. cm to 75 sq. cm
15152  Tissue cultured skin autograft, trunk, arms, legs; each additional 100 sq. cm, or each additional 1% of body area of infants and children, or part thereof
15155  Tissue cultured skin autograft, face, scalp, eyelids, mouth, neck, ears, orbits, genitalia, hands, feet, and/or multiple digits; first 25 sq. cm or less
15156  Tissue cultured skin autograft, face, scalp, eyelids, mouth, neck, ears, orbits, genitalia, hands, feet, and/or multiple digits; additional 1 sq. cm to 75 sq. cm
15157  Tissue cultured skin autograft, face, scalp, eyelids, mouth, neck, ears, orbits, genitalia, hands, feet, and/or multiple digits; each additional 100 sq. cm, or each additional 1% of body area of infants and children, or part thereof
15271  Application of skin substitute graft to trunk, arms, legs, total wound surface area up to 100 sq. cm; first 25 cm or less wound surface area
15272  each additional 25 sq. cm wound surface area, or part thereof
15273  Application of skin substitute graft to trunk, arms, legs, total wound surface area greater than or equal to 100 sq. cm; first 100 sq. cm wound surface area, or 1% of body area of infants and children
15274  each additional 100 sq. cm wound surface area, or part thereof, or each additional 1% of body area of infants and children, or part thereof
15275  Application of skin substitute graft to face, scalp, eyelids, mouth, neck, ears, orbits, genitalia, hands, feet, and/or multiple digits, total wound surface area greater than or equal to 100 sq. cm; first 100 sq. cm wound surface area, or 1% of body area infants and children
15276  each additional 25 sq. cm wound surface area, or part thereof
15277  Application of skin substitute graft to face, scalp, eyelids, mouth, neck, ears, orbits, genitalia, hands, feet, and/or multiple digits, total wound surface area greater than or equal to 100 sq. cm; first 100 sq. cm wound surface area, or 1% of body area infants and children
15278  each additional 100 sq. cm wound surface area, or part thereof, or each additional 1% of body area of infants and children, or part thereof
15777  Implantation of biologic implant (eg, acellular dermal matrix) for soft tissue reinforcement (eg, breast, trunk)
C9352  Microporous collagen implantable tube (NeuraGen Nerve Guide), per centimeter length
C9353  Microporous collagen implantable slit tube (NeuraWrap Nerve Protector), per centimeter length
C9354  Acellular pericardial tissue matrix of non-human origin (Veritas), per square centimeter
C9355  Collagen nerve cuff (NeuroMatrix), per 0.5 centimeter length
C9356  Tendon, porous matrix of cross-linked collagen and glycosaminoglycan matrix (TenoGlide Tendon Protector Sheet), per square centimeter
C9359  Porous purified collagen matrix bone void filler (integra mozaik osteoconductive scaffold putty, integra osteoconductive scaffold putty), per 0.5cc
C9360  Dermal substitute, native, non-denatured collagen, fetal bovine origin (SurgiMend Collagen Matrix), per 0.5 square centimeters
C9361  Dermal substitute, native, non-denatured collagen, neonatal bovine origin (SurgiMend Collagen Matrix), per 0.5 square centimeters
C9362  Porous collagen matrix nerve wrap (NeuroMend Collagen Nerve Wrap), per 0.5 centimeter length
C9363  Skin substitute, Integra Meshed Bilayer Wound Matrix, per square centimeter
C9364  Porcine implant, Permacol, per square centimeter
G0428  Collagen meniscus implant procedure for filling meniscal defects (e.g., CMI, collagen scaffold, Menaflex)
Q4100  Skin substitute, not otherwise classified [when specified as TransCyte]
Q4101  Apligraf, per square cm
Q4102  Skin substitute, Oasis wound matrix, per sq. cm
Q4103  Oasis Burn Matrix, per square centimeter
Q4104  Integra Bilayer Matrix Wound Dressing (BMWD), per square centimeter
Q4105  Integra Dermal Regeneration Template (DRT), per square centimeter
Q4106  Dermagraft, per square centimeter
Q4107  Graftjacket, per square centimeter
LINE OF BUSINESS:
Eligibility and contract specific benefits, limitations and/or exclusions will apply. Coverage statements found in the line of business specific benefit document will supersede this policy. For Medicare, applicable LCD’s and NCD’s will supersede this policy. For PA Medicaid Business segment, this policy applies as written.

REFERENCES:


Medical Device Approvals, Dermagraft®, www.fda.gov/cdrh

Medical Device Approvals, Apligraf® Graftskin, www.fda.gov/cdrh

Managed Care-Current Best Practices-Treatment Pathways, Recent Advances in Treating Chronic Diabetic Foot Ulcers, www.accu-chekmanagedcare.com


ECRI, HTAIS Custom Hotline Response, Skin Substitute (OASIS) for Wound Management. December 12,2005


Hansbrough JF, Mozingo DW, Kealey GP, Davis M, Gidner A, Gentzkow GD. Clinical Trial of a biosynthetic temporary skin replacement, Dermagraft-Transitional Covering, compared with cryopreserved human cadaver skin for temporary coverage of excised burn wounds. J Burn Care Rehabil. 1997 Jan-Feb;18(1 Pt 1):43-51


Novitas Solutions, Inc. Local Carrier Determination (LCD) for Wound Care and Cellular and/or Tissue-Based Products for Wounds (CTPs) (L27547). Accessed 2/14/14.


This policy will be revised as necessary and reviewed no less than annually.

Devised: 6/02

Revised: 6/03 (Coding), 6/04; 6/05 (Coding); 03/06 (additional criteria, coding); 04/07; 2/08 (criteria); 2/09 (criteria); 4/10 (criteria); 7/11 (contradiction, exclusions, coding); 4/12 (indications, coding, references), 2/14 (indication, reference, removed exclusion); 2/15 Add Product names – remove PA requirement); 1/17 (add products, remove exclusions); 2/18 (reformat document)

Reviewed: 4/13, 3/16