



Reimbursement Resource Guide



WOUND CARE

Table of Contents - Reimbursement Resource Guide

Medicare Administrative Contractor (MAC) Jurisdictions/LCDs	3
2026 BioTissue Wound Care Coding Sheets - Neox®	4-7
Examples of Wound Care Documentation.....	8
Medicare Documentation Requirements.....	8
Sample CMS-1500 Claim form	10
Pinnacle Service Request Form.....	11
Published Clinical Evidence	12-13
Sample Letter of Medical Necessity Template	14-15
Sample Appeal Letter Template.....	16-17
Where to go for Reimbursement Assistance? The Pinnacle Health Group contact information	18

Disclaimer: The guidance contained in this document, dated January 1, 2026, is provided for informational purposes only and represents no statement, promise, or guarantee by BioTissue® Holdings Inc or its operating subsidiaries including BioTissue® Ocular Inc. and BioTissue® Surgical Inc. (collectively "BioTissue") concerning reimbursement, payment and charges. Similarly, all CPT codes and HCPCS codes are supplied for informational purposes only and represent no statement, promise, or guarantee by BioTissue that these code selections will be appropriate for a given service or that reimbursement will be made to the provider. This Guide is not intended to increase or maximize reimbursement by a Payor. BioTissue strongly recommends that you consult your individual Payor Organization regarding its relative and current reimbursement policies. For complete indications, contraindications, warnings, precautions, and adverse reactions, please reference full Product Insert.

Procedure coding should be based upon medical necessity, procedures and supplies provided to the patient. Coding and reimbursement information is provided for educational purposes and does not assure coverage of the specific item or service in each case. BioTissue and The Pinnacle Health Group make no guarantee of coverage or reimbursement of fees. These payment rates are nationally unadjusted average amounts and do not account for differences in payment due to geographic variation. Contact your local Medicare Administrative Contractor (MAC) or CMS for specific information as payment rates listed are subject to change. To the extent that you submit cost information to Medicare, Medicaid, or any other reimbursement program to support claims for services or items, you are obligated to accurately report the actual price paid for such items, including any subsequent adjustments. CPT® five-digit numeric codes, descriptions, and numeric modifiers only are Copyright AMA.

Medicare Administrative Contractors (MACs)

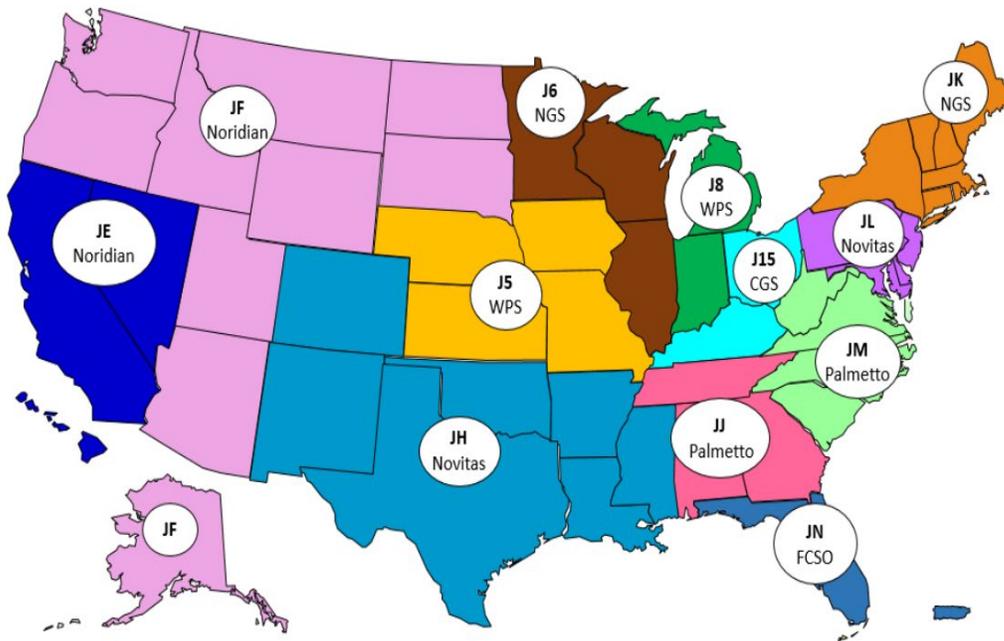
There are currently no National Coverage Determinations (NCDs). The following MACs have active policies: [Novitas JH](#), [Novitas JL](#), [CGS J15](#), and [FCSO JN](#). MACs have released Future Effective Local Coverage Determinations (LCDs) for skin substitute products to treat DFUs and VLUs, with an effective date of January 1, 2026.

To view the published LCDs, visit the CMS website at the following link: <https://www.cms.gov/medicare-coverage-database/search-results.aspx?keyword=skin+substitute&keywordType=starts&areald=all&docType=NCA,CAL,NCD,MEDCAC,TA,MCD,6,3,5,1,F,P&contractOption=all&smartSearch=N> This link takes you to current and future LCDs and their accompanying Articles.

Coding information can be found in the Articles that accompany the LCDs, with links available at the bottom of each LCD. Please make sure to review the relevant Medicare Local Coverage Determinations (LCDs), and their corresponding Articles, to stay informed of all specific requirements.

Medicare Administrative Contractor (MAC) Jurisdictions

(Click on the MAC list beneath the map to access links to each individual MAC website.)



Novitas JL: [DE, DC, MD, NJ, & PA](#)

Novitas JH: [AR, CO, LA, MS, NM, OK, TX, Indian Health, & Veteran Affairs](#)

CGS J15: [KY & OH](#)

First Coast FCSO JN: [FL](#)

Noridian JE: [CA, HI, & NV](#)

Noridian JF: [AK, AZ, ID, MT, ND, SD, OR, UT, WA, & WY](#)

Palmetto GBA JJ: [TN, AL, & GA](#)

Palmetto GBA JM: [W VA, VA, NC, & SC](#)

NGS J6: [IL, MN, & WI](#)

NGS JK - [ME, VT, NH, MA, RI CT, & NY](#) **WPS J5:** [NE, KS, IA, & MO](#)

WPS J8: [MI, & IN](#)

Noridian JE: [CA, HI, & NV](#)

Noridian JF: [AK, AZ, ID, MT, ND, SD, OR, UT, WA, & WY](#)

Palmetto GBA JJ: [TN, AL, & GA](#)

Palmetto GBA JM: [W VA, VA, NC, & SC](#) **NGS J6:** [IL, MN, & WI](#)

NGS JK - [ME, VT, NH, MA, RI CT, & NY](#)

WPS J5: [NE, KS, IA, & MO](#)

WPS J8: [MI, & IN](#)

2026 BioTissue® Wound Coding Sheets - Neox® Neox® 1K, Neox® RT, and Neox® 100

Neox 1K, Neox RT and Neox 100, are Human Amniotic Membrane Allografts derived from Human Birth Tissue. The biological integrity of the Amniotic Membrane is maintained through a proprietary CryoTek® Cryopreservation Process. These products are registered with the U.S. Food and Drug Administration (FDA) as Human Cells, Tissues, and Cellular and Tissue-Based Products (HCT/P) under Section 361 of the Public Health Service (PHS) Act.

The Neox product line is indicated for use as a wound covering to create a protective environment for wound healing to occur.

Product Line				
Neox 1K		Neox RT		Neox 100
 Cryopreserved ultra-thick human amniotic membrane allograft derived from umbilical cord		 Sterile hydrated, ultra-thick, human amniotic membrane allograft derived from umbilical cord		 Cryopreserved human amniotic membrane allograft
Allograft				
HCPCS	Descriptor	Non-Facility MPFS		
Q4148	Neox 1K, Neox RT, or Clarix 1K, per square centimeter	\$127 per square centimeter*		
Q4156	Neox 100 or Clarix 100, per square centimeter	\$127 per square centimeter*		
HCPCS	Descriptor	Inpatient	OPPS	ASC
Q4148	Neox 1K, Neox RT, or Clarix 1K, per square centimeter	N/A	Packaged	Packaged
Q4156	Neox 100 or Clarix 100, per square centimeter	N/A	Packaged	Packaged

Skin Substitute Application Procedure Codes

*Payment amount rounded.

Physician Fee Schedule - Facility and Non-Facility Settings (CY 2026)					
CPT Code	Code Description	Non-Facility		Facility	
		RVUs	MPFS	RVUs	MPFS
15271	Application of skin substitute graft to trunk, arms, legs, total wound surface area up to 100 sq cm; first 25 sq cm or less wound surface area	4.73	\$157.99	2.25	\$75.15
+15272	each additional 25 sq cm wound surface area, or part thereof (List separately in addition to code for primary procedure)	0.77	\$25.72	0.44	\$14.70
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	9.64	\$321.98	5.14	\$171.68
+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 (List separately in addition to code for primary procedure)	2.60	\$86.84	1.16	\$38.75
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 up to 100 sq cm; first 25 sq cm or less wound surface area	4.80	\$160.32	2.52	\$84.17
+15276	each additional 25 sq cm wound surface area, or part thereof (List separately in addition to code for primary procedure)	1.01	\$33.73	0.66	\$22.04
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 of infants and children	10.82	\$361.40	5.91	\$197.40
+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 (List separately in addition to code for primary procedure)	3.03	\$101.20	1.46	\$48.77

Skin Substitute Application Procedure Codes - OPPS & ASC

Facility Reimbursement - Hospital Outpatient Department and Ambulatory Surgical Center Settings (CY 2026)						
CPT Code	Code Description	APC	Status Indicator OPPS (SI)	Hospital Outpatient	Payment Indicator ASC	Ambulatory Surgical Center
15271	Application of skin substitute graft to trunk, arms, legs, total wound surface area up to 100 sq cm; first 25 sq cm or less wound surface area	5053	T	\$755.08	G2	\$404.93
+15272	each additional 25 sq cm wound surface area, or part thereof (List separately in addition to code for primary procedure)	N/A	N	Packaged	N1	\$0.00
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	5054	T	\$2,107.97	G2	\$1,128.57
+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 (List separately in addition to code for primary procedure)	N/A	N	Packaged	N1	\$0.00
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 up to 100 sq cm; first 25 sq cm or less wound surface area	5053	T	\$755.08	P3	\$94.66
+15276	each additional 25 sq cm wound surface area, or part thereof (List separately in addition to code for primary procedure)	N/A	N	Packaged	N1	\$0.00
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 of infants and children	5054	T	\$2,107.97	G2	\$1,128.57
+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 (List separately in addition to code for primary procedure)	N/A	N	Packaged	N1	\$0.00

OPPS Status Indicator - **T** = Significant Procedure, Multiple Reduction Applies
N = Items and Services Packaged into APC Rates

ASC Status Indicator - **N1** = Packaged service/item; no separate payment made
G2 = Non-office based surgical procedure added in CY 2008 or later; payment based on OPPS relative payment weight.

+ = Add-on code

Revenue Code

Revenue Code	Descriptor
636	Pharmacy Extension 025X-Drug Requiring Detailed Coding

Inpatient Facility Reimbursement

DRG	Descriptor	Payment
463	Wound Debridement and Skin Graft Except Hand for Musculoskeletal System and Connective Tissue Disorders with MCC	\$41,473.89
464	Wound Debridement and Skin Graft Except Hand for Musculoskeletal System and Connective Tissue Disorders with CC	\$22,664.92
465	Wound Debridement and Skin Graft Except Hand for Musculoskeletal System and Connective Tissue Disorders without CC/MCC	\$13,270.63
573	Skin graft for Skin Ulcer or Cellulitis with MCC	\$47,672.97
574	Skin graft for Skin Ulcer or Cellulitis with CC	\$25,260.54
575	Skin graft for Skin Ulcer or Cellulitis without CC/MCC	\$11,887.32

References/Notes:

- The payment rates specified in this document are Centers for Medicare & Medicaid Services (CMS) national unadjusted averages. Actual payment rates will vary based on geographic adjustments and are updated quarterly. Commercial payment rates will vary per contract.
- By Report - For CPT codes that have not been assigned RVUs (e.g., miscellaneous codes), there is no national payment rate. Providers must provide detailed operative notes describing the service provided. If there is an existing service with an established CPT code that involves similar work, that CPT code may be provided as a suggested crosswalk for payment purposes.
- If required, please utilize appropriate modifiers with Neox 1K, Neox RT and Neox 100 products.
- JC - Skin substitute used as a graft.
- JW - Portion of skin substitute discarded (required for ALL MACS as of January 1, 2017).
- For drugs and biologicals not included in the ASP Medicare Part B Drug Pricing File, payment is based on WAC or invoice pricing.
- CY 2026 Hospital Outpatient Prospective Payment and Ambulatory Surgical Center Payment Systems; and Final CY 2026 Payment Rates (CMS-1834-FC); Addendum B and ASC Addenda.
- CY 2026 Payment Policies under the Physician Fee Schedule and Other Changes to Part B Payment and Coverage Policies; (CMS-1832-F); Addendum B. All MPFS Fee Schedules calculated using CF of \$33.4009 effective Jan. 1, 2026.
- DRG values were calculated using a base labor + non-labor rate of \$6,752.61 and Capital Standard Payment of \$524.15. The base payment rate assumes the hospital submitted quality data and is a user of EHR. The weighted rate used the 10% Cap Applied. A hospital's base payment rate will change if the hospital does not meet either or both of these measures. Calculations were based on data provided in FY 2026 IPPS Final Rule (Tables 1B, 1D, and Table 5). Current Procedural Terminology (CPT®) is a registered trademark of the American Medical Association.
- ICD-10-CM Expert for Physicians 2026, ©2025 Optum360, LLC. All rights reserved.

Disclaimer: The guidance contained in this document, dated January 1, 2026, is provided for informational purposes only and represents no statement, promise, or guarantee by BioTissue® Holdings Inc or its operating subsidiaries including BioTissue® Ocular Inc. and BioTissue® Surgical Inc. (collectively "BioTissue") concerning reimbursement, payment and charges. Similarly, all CPT codes and HCPCS codes are supplied for informational purposes only and represent no statement, promise, or guarantee by BioTissue that these code selections will be appropriate for a given service or that reimbursement will be made to the provider. This Guide is not intended to increase or maximize reimbursement by a Payor. BioTissue strongly recommends that you consult your individual Payor Organization regarding its relative and current reimbursement policies. For complete indications, contraindications, warnings, precautions, and adverse reactions, please reference full Product Insert.

Procedure coding should be based upon medical necessity, procedures and supplies provided to the patient. Coding and reimbursement information is provided for educational purposes and does not assure coverage of the specific item or service in each case. BioTissue and The Pinnacle Health Group make no guarantee of coverage or reimbursement of fees. These payment rates are nationally unadjusted average amounts and do not account for differences in payment due to geographic variation. Contact your local Medicare Administrative Contractor (MAC) or CMS for specific information as payment rates listed are subject to change. To the extent that you submit cost information to Medicare, Medicaid, or any other reimbursement program to support claims for services or items, you are obligated to accurately report the actual price paid for such items, including any subsequent adjustments. CPT® five-digit numeric codes, descriptions, and numeric modifiers only are Copyright AMA.

Available Sizes & Billing Quantities

Catalogue Number	Size - cm ²	Billing Quantity*
Neox® 1K (Q4148)		
NX-10-2010	2.0 x 1.0 cm	2
NX-10-1515	1.5 x 1.5 cm	3
NX-10-2020	2.0 x 2.0 cm	4
NX-10-3020	3.0 x 2.0 cm	6
NX-10-2525	2.5 x 2.5 cm	7
NX-10-3030	3.0 x 3.0 cm	9
NX-10-4030	4.0 x 3.0 cm	12
NX-10-6030	6.0 x 3.0 cm	18
NX-10-8030	8.0 x 3.0 cm	24
Neox® RT (Q4148)		
NX-UR-2010	2.0 x 1.0 cm	2
NX-UR-2020	2.0 x 2.0 cm	4
NX-UR-3020	3.0 x 2.0 cm	6
NX-UR-3030	3.0 x 3.0 cm	9
NX-UR-4030	4.0 x 3.0 cm	12
NX-UR-6030	6.0 x 3.0 cm	18
NX-UR-8030	8.0 x 3.0 cm	24
Neox® 100 (Q4156)		
NX-02-2020	2.0 x 2.0 cm	4
NX-02-3030	3.0 x 3.0 cm	9
NX-02-4040	4.0 x 4.0 cm	16
NX-02-7070	7.0 x 7.0 cm	49

*Rounded up to the nearest whole number.

HCPCS Q CODES

Neox wound allografts are reported with either of two HCPCS Q Codes. The code selection depends on the allograft selected.



Q4148 - Neox 1K, Neox RT, or Clarix 1K, per sq cm



Q4156 - Neox 100 or Clarix 100, per sq cm

Coverage for the use of amniotic membrane derived skin substitutes varies by payor, contract, and the patient's plan.

Disclaimer: The guidance contained in this document, dated January 2026, is provided for informational purposes only and represents no statement, promise, or guarantee by BioTissue Holdings Inc. or its operating subsidiaries including BioTissue Ocular Inc. and BioTissue Surgical Inc. (collectively BioTissue) concerning reimbursement, payment, charges. Similarly, all CPT codes and HCPCS codes are supplied for informational purposes only and represent no statement, promise, or guarantee by BioTissue that these code selections will be appropriate for a given service or that reimbursement will be made to the provider. This Guide is not intended to increase or maximize reimbursement by a Payor. BioTissue strongly recommends that you consult your individual Payor Organization regarding its relative and current reimbursement policies. For complete indications, contraindications, warnings, precautions, and adverse reactions, please reference full package insert.

Examples of Wound Care Documentation:

Importance of documentation

Many payors are silent regarding coverage and have no published policies. When there is no policy in place, coverage and medical necessity are determined on a case-by-case basis at the time of claim submission. For this reason, it is important to document the medical necessity in the patient's record, especially conservative care treatments that have been tried and failed.

Providers remain responsible for correct performance, coding, billing, and documenting medical necessity.

Source: [JE Part B - Noridian \(noridianmedicare.com\)](http://JE Part B - Noridian (noridianmedicare.com))

Documentation may include:

- Practitioner, nurse, and ancillary progress notes
- Records of conservative measures trialed for treatment of service provided
- Wound care notes
- Wound measurements prior to treatment
- Treatment of any infection
- Prior skin substitute graft application notes
- Beneficiary name and date of service on all documentation
- Documentation as required in LCD or NCD
- Any additional documentation to support the reasonable necessity of the service(s) performed
- Advance Beneficiary Notice (If applicable)
- Signature log or signature attestation for any missing or illegible signatures within the medical record (all personnel providing services)
- Signature attestation and credentials of all personnel providing services
- If an electronic health record is utilized, include your facility's process of how the electronic signature is created; include an example of how the electronic signature displays once signed by the physician

Medicare Documentation Requirements:

Source: [cms.gov](https://www.cms.gov)

1. All documentation must be maintained in the patient's medical record and made available to the contractor upon request.
2. Every page of the record must be legible and include appropriate patient identification information (e.g., complete name, dates of service[s]). The documentation must include the legible signature of the physician or non-physician practitioner responsible for and providing the care to the patient.
3. Medical record documentation must support the medical necessity of the services as stated in this policy.
4. The documentation must support that the service was performed and must be included in the patient's medical record. This information is normally found in the history and physical, office/progress notes, hospital notes, and/or procedure report.
5. The medical record must clearly show that the criteria listed under the Covered Indications and Limitations sections have been met, as well as the appropriate diagnosis and response to treatment.
6. The documentation must support the need for skin substitute application and the product used.
7. A description of the wound(s) must be documented at baseline (prior to beginning conservative treatment) relative to size, location, stage, duration, and presence of infection, in addition to type of treatment given and response.
 - This information must be updated in the medical record throughout treatment.
 - Wound description must also be documented pre and post treatment with the skin substitute graft being used.
 - If obvious signs of worsening, or lack of treatment response is noted, continuing treatment with the skin substitute would not be considered medically reasonable and necessary without documentation of a reasonable rationale for doing so.
8. Documentation of smoking history, and that the patient has received counseling on the effects of smoking on surgical outcomes and treatment for smoking cessation (if applicable) as well as outcome of counselling must be in the medical record.
9. The amount of utilized and wasted skin substitute must be clearly documented in the procedure note with the following minimum information:
 - Date, time, and location of ulcer treated;
 - Name of skin substitute and how product supplied;
 - Amount of product unit used;
 - Amount of product unit discarded;
 - Reason for the wastage;
 - Manufacturer's serial/lot/batch or other unit identification number of graft material. When manufacturer does not supply unit identification, record must document such.

Sample CMS-1500 Claim form

NOTE: Dates must be in 6- or 8-digit format. (MM/DD/YY or MM/DD/CCYY)

HEALTH INSURANCE CLAIM FORM
APPROVED BY NATIONAL UNIFORM CLAIM COMMITTEE (NUCC)

Four Line Insurance address:
1st Line – Name
2nd Line – First line of address
3rd Line – Second line of address, if necessary
4th Line – City, State (2 characters) and ZIP code

Do not use the upper right margin of claim form: This is reserved for contractor use. Obstructions in this area will hinder timely and accurate processing of claims.

Box 1: Select payor

Boxes 2-7: Patient / Guarantor info

Boxes 9- 9d: Patient's other insurance info (if applicable) is listed here. Leave 9b and 9c blank.

Box 10: Answer questions regarding injury, or accident. Completion of 10a-c is required.

Boxes 14 & 15: Insert dates if the visit is related to current illness or injury. Pregnancy is probably not applicable.

Box 17: If there is a referring provider, insert their name here. If no referring provider, doctor seeing patient that day goes here. **Box 17b:** NPI of MD listed in Box 17.

Box 19: List Amniotic Membrane product here.

Box 21: List Diagnosis codes here. See additional note below.

Box 24A, B, C, etc.: CPT/HCPCS codes, dates of service, diagnoses pointers, charges, units, etc. See additional note below.

Box 21D: IMPORTANT INFO Regarding diagnosis code sequence: If you include multiple diagnosis codes on a single claim, place them in order according to significance. (The first-listed (i.e., primary) code being the one that most strongly supports the medical necessity of your services.)

Box 24D: IMPORTANT INFO Regarding CPT code sequence: Sequencing CPT codes is crucial to appropriate claims submission and appropriate reimbursement. When reporting claims with multiple CPT codes, sequence the codes from highest to lowest relative value.

Box 24D, cont.: IMPORTANT INFO Regarding modifier sequence: The general order of sequencing modifiers is (1) pricing (2) payment (3) location. Location modifiers, in all coding situations, are coded "last".

Box 12 & 13: Patient signed in the office, so Signature on File (SOF) is inserted here

Box 16: If it's a work-related injury (workers comp) info goes here. If not, leave blank.

Box 22: If you are submitting a void/replacement paper CMS 1500 claim, complete Box 22.

When resubmitting a claim, enter the appropriate bill frequency code left justified in the left-hand side of the field.
7 = Replacement of prior claim
8 = Void/cancel of prior claim
Enter original claim reference number in right side of field.

Service Request Form for BioTissue® Product:

SERVICE: Prior Authorization (PA) Pre-Determination (PD) PA/PD Appeal Claim Denial / Appeal

PROVIDER INFORMATION

Name of Rendering Physician:

Physician NPI:

Physician TIN:

Medicare PTAN:

Place of Service: Physician Office Ambulatory Surgical Center Hospital Inpatient Hospital Outpatient
 Other (Specify)

Practice/Facility Name:

Address:

Facility NPI:

Facility TIN:

BioTissue Representative:

Anticipated Procedure Date:

Contact Person:

Contact Phone:

Contact Email Address:

Contact Fax:

PATIENT INFORMATION

Patient Name:

Address:

City:

State:

Zip code:

Gender:

DOB:

Home Phone:

Cell Phone:

Primary Ins:

Ins ID#

Group#

Ins. Phone:

Subscriber Name:

Subscriber DOB:

Secondary Ins:

Ins ID#

Group#

Ins. Phone:

Subscriber Name:

Subscriber DOB:

CLINICAL/PROCEDURE INFORMATION

	ICD-10 Diagnosis Code(s)	CPT/Procedure Code(s)	HCPCS/Product/Supply Code(s)
Primary			
Secondary			

Products to be utilized:

Neox® 1K (Q4148)

Neox® RT (Q4148)

Neox® 100 (Q4156)

Number of Grafts:

Size of Graft:

Milligrams to be used (if applicable):

Do you have a Business Associate Agreement on file? Yes No If no, patient consent is required and must be included

REQUIRED DOCUMENTATION

Please attach all supporting clinical documentation (e.g., plan of care, previous conservative care progress notes, and lab reports, etc.) To obtain a prior authorization or pre-determination.

PUBLISHED CLINICAL EVIDENCE

This information can be used with any Letter of Medical Necessity, Appeal, Prior Authorization request, etc.

Neox® is a Cryopreserved Human Amniotic Membrane Allograft derived from donated birth tissue following healthy live birth. Neox has been used successfully for many years and was developed to treat complex wounds and is the only amniotic tissue that has been widely studied in complex ulcers that extend to the bone, tendon, or joint capsule. Further, Neox is the only Amniotic Membrane product that has been reviewed and studied in complex ulcers with osteomyelitis. I have included three published articles for Neox and one article for a biologic product that is being developed from the same tissue platform.

Wound Care:

Davenport B, Tatro E, Phillips H, Yamin F, Palladino H. (2019). Amniotic and umbilical cord particulate in the management of keloid and hypertrophic scars. *Wound Central*.

Caputo W, Vaquero C, Monterosa A, Monterosa P, Johnson E, Beggs D, Fahoury GJ. A retrospective study of cryopreserved umbilical cord as an adjunctive therapy to promote the healing of chronic, complex foot ulcers with underlying osteomyelitis. *Wound Repair Regen*. 2016; Sep;24(5):885-893. doi: 10.1111/wrr.12456. <https://www.ncbi.nlm.nih.gov/pubmed/27312890>

31 patients presenting with 33 complex foot ulcers with a confirmed histopathological diagnosis of osteomyelitis treated by the same surgeon at a single wound care center by the following treatment regimen: sharp debridement, resection of infected bone, when necessary, open cortex, antibiotics, and application of cryopreserved Umbilical Cord (Neox 1K).

The average ulcer size was $15.6 \pm 17.7 \text{ cm}^2$ (0.4–73.95 cm^2). Overall, 26 out of the 33 wounds achieved complete closure (78.8 percent). Five patients were lost to follow-up and one patient expired during the course of treatment, not believed to be treatment related. Of the remaining 27 wounds in patients not lost to follow-up, 26 achieved complete healing with an average time to healing of 16-weeks and an average of 1.24 applications of cUC.

Raphael A. A single-centre, retrospective study of cryopreserved umbilical cord/amniotic membrane tissue for the treatment of diabetic foot ulcers. *Journal of Wound Care*. 2016; 25 Suppl 7: S10-7. <https://pubmed.ncbi.nlm.nih.gov/29027852/>

In this study 32 wounds in 29 patients were treated with Neox 1K for diabetic foot ulcers. The average initial wound area for all wounds was $10.6 \pm 2.15 \text{ cm}^2$.

Of the 32 wounds, 28 achieved complete epithelialization for an overall healing rate of 87.5 percent. Average time to wound closure was 13.8 ± 1.95 weeks with a median of 9-weeks. The average number of graft applications was 1.68 grafts.

Raphael, A, Gonzales, J. Use of cryopreserved umbilical cord with negative pressure wound therapy for complex diabetic ulcers with osteomyelitis. *Journal of Wound Care*. 2017; Oct 1;26(Sup10):S38-S44. doi: 10.12968/jowc.2017.26.Sup10.S38. <https://www.ncbi.nlm.nih.gov/pubmed/28976835>

In this study, investigators reported on 14 wounds in 13 patients, with an average initial wound area of $33.2 \pm 21.7 \text{ cm}^2$ and wound volume of $52 \pm 26.2 \text{ cm}^3$ received Neox 1K and NPWT.

All achieved complete re-epithelialization with an average time to closure of 24.0 ± 10.9 -weeks, using between two to five cUC applications. No adverse events were noted and none of the wounds required limb amputation during the follow-up of 24-months for each patient.

Chua LSM, O'Connell J, Kang S, et al. An Open Label Prospective Pilot Study to Evaluate the Efficacy of Cryopreserved Amniotic Tissue Grafts for Chronic Non-healing Ulcers. *Wounds*. 2014; 26(5):E30-E38. 885-93.

Couture M. A single-center, retrospective study of cryopreserved umbilical cord for wound healing in patients suffering from chronic wounds of the foot and ankle. *Wounds: A Compendium of Clinical Research and Practice*. 2016; 28: 217-25.

Fernandez D. Cryopreserved amniotic membrane and umbilical cord for a radiation-induced wound with exposed dura: a case report. *Journal of Wound Care*. 2019; 28: S4- s8.

Marston WA, Lantis 2nd JC, Wu SC, Nouvong A, Lee TD, McCoy ND, Slade HB, Tseng SC. An open-label trial of cryopreserved human umbilical cord in the treatment of complex diabetic foot ulcers complicated by osteomyelitis. *Wound Repair and Regeneration*. 2019 Nov;27(6):680-6.

Marston WA, Lantis JC, Wu SC, Nouvong A, Clements JR, Lee TD, McCoy ND, Slade HB, Tseng SC. One-year safety, healing and amputation rates of Wagner 3-4 diabetic foot ulcers treated with cryopreserved umbilical cord (TTAX01). *Wound Repair and Regeneration*. 2020 Jul;28(4):526-31. Open-label continuation of Marston et al. 2019.

Acevedo P. Successful treatment of painful chronic wounds with amniotic and umbilical cord tissue: A case series. *SAGE Open Medical Case Reports*. 2020 Apr;8:2050313X20910599.

Boyar V. Use of Cryopreserved Human Umbilical Cord and Amniotic Membrane Allograft and Portable Negative Pressure Therapy in Dehisced Giant Omphalocele Repair: A Case Study. *Journal of Wound Ostomy & Continence Nursing*. 2020 Nov 1;47(6):622-6.

Herne K, Fabric RK. Use of Cryopreserved Human Umbilical Cord for Wound Healing of the Nose after Mohs Micrographic Surgery. *Case Reports in Dermatological Medicine*. 2022 Mar 8;2022.

Knackstedt R, Bergfeld W, Sardiña LA, Eghtesad B, Siemionow M, Djohan R, Plasma cells and acute rejection of a near-total face transplant: an incidental finding or an evolving plasma-cell-mediated rejection?, *British Journal of Dermatology*, Volume 187, Issue 6, 1 December 2022, Pages 1048–1050, <https://doi.org/10.1111/bjd.21823>

Periodontics:

Ross B and Ross SB. Cryopreserved umbilical cord allograft for root coverage of gingival recession defects: A case series. *The International Journal of Periodontics & Restorative Dentistry*. 2019;39: 391-7.

Urology:

Elliott PA, Hsiang S, Narayanan R, Bierylo J, Chang SC, Twardowski P, Wilson TG. Cryopreserved placental tissue allograft accelerates time to continence following robot-assisted radical prostatectomy. *Journal of robotic surgery*. 2021 Jan 11:1-7.

Gottlieb J, Hanes DA, Bustos MA, et al. Impact of Cryopreserved Placental Allografts on Biochemical Recurrence in Prostate Cancer. *Cancers (Basel)*. 2024;16(17):2973. Published 2024 Aug 26. doi:10.3390/cancers16172973

Mendoza, Pierre J. "Robotic Partial Nephrectomy with Adjunctive Ultra-Thick Amniotic Membrane Allograft." (2025). Preprint

Spina Bifida:

Patel, S.K., et al. Effect of allograft patch closure on incidence of spinal inclusion cyst formation following open fetal myelomeningocele repair. *Journal of Neurosurgery: Pediatrics* 1 (aop). 2023: 1-8.

Backley S, Bergh E, Garnett J, et al. Fetal cardiovascular changes during open and fetoscopic in-utero spina bifida closure. *Ultrasound Obstet Gynecol*. Published online January 11, 2024.

Kwasnicki A, Stevenson CB, Forde B, Habli M, McKinney D, Goetz E, Lim FY, Peiro JL. Cryopreserved decellularized human umbilical cord matrix allograft as duraplasty for fetoscopic prenatal spina bifida repair. *J Neurosurg Pediatr*. 2024 Nov 8;35(2):149-157.

Mann LK, Pandiri S, Agarwal N, et al. Morphometric Analysis of Spina Bifida after Fetal Repair Shows New Subtypes with Associated Outcomes. Preprint. medRxiv. 2024;2024.05.29.24308088. Published 2024 May 29. doi:10.1101/2024.05.29.24308088

Sample Letter of Medical Necessity Template

For Neox[®] 1K, Neox[®] RT, and Neox[®] 100

Please include physician letterhead on appeal letters and letters of medical necessity

DATE

[Payor Contact]
[Title]
[Address]
[City, State, Zip]

Re: [Patient Name]
[Patient Member ID]

Dear [Payor Contact]:

On behalf of my patient, [INSERT PATIENT NAME], I am submitting this letter of medical necessity for [Neox[®] 1K, Neox RT[®], or Neox 100[®]] (HCPCS: Q4148, Q4156). This product is routinely used to treat complex ulcers of the lower extremity, but the product is listed as not covered under your insurance plan's medical coverage policy for Amniotic Membrane products.

Given the severity of my high-risk patient's complex ulcer, I am respectfully requesting **prior authorization** approval to use [Neox[®] 1K, Neox RT[®], or Neox 100[®]] for them, to allow me to aggressively treat them and help prevent hospitalization and more complex surgical treatment of the ulcer. In my medical judgement, [Neox[®] 1K, Neox RT[®], or Neox 100[®]] is the most appropriate next step treatment for this patient. Using [Neox[®] 1K, Neox RT[®], or Neox 100[®]] will allow me to treat my patient in clinic, instead of a more costly place of service. Additionally, since the graft is designed to stay on the wound for 4-weeks or more, I can follow-up with the patient via telehealth visits. Using other wound products would require the patient to return to clinic weekly, for graft replacement.

Below, I have included information regarding my patient, published clinical evidence supporting [Neox[®] 1K, Neox RT[®], or Neox 100[®]] for this patient, and my clinical rationale for selecting [Neox[®] 1K, Neox RT[®], or Neox 100[®]].

PATIENT HISTORY

[INSERT Patient History, including diagnoses and previous failed treatment modalities]

[INSERT Patient comorbidities that put the patient at particular risk for ulcer-related complications. [AS APPROPRIATE AND OBSERVED - INSERT Rationale for using [Neox[®] 1K, Neox RT[®], or Neox 100[®]] for this patient, ability to leave the [Neox[®] 1K, Neox RT[®], or Neox 100[®]] allograft on the ulcer for 4 or more weeks without replacement, ability to treat the complex ulcer with a single graft, etc.]

[AS APPROPRIATE AND OBSERVED - Discuss previous use of [Neox[®] 1K, Neox RT[®], or Neox 100[®]] in similar cases and discuss the outcomes. Explain why these outcomes are relevant to this patient.]

PUBLISHED CLINICAL EVIDENCE

This information can be used with any Letter of Medical Necessity, Appeal, Prior Authorization request, etc.

Neox is a Cryopreserved Human Amniotic Membrane Allograft derived from Umbilical Cord Tissue following healthy live birth. Neox 1K has been used successfully for many years and was developed to treat complex wounds and is the only amniotic tissue that has been widely studied in complex ulcers that extend to the bone, tendon, or joint capsule. Further, Neox 1K is the only Amniotic Membrane allograft that has been reviewed and studied in complex ulcers with osteomyelitis. I have included three published articles for Neox 1K and one article for a biologic product that is being developed from the same tissue platform.

1. Caputo, W, Vaquero, C, Monterosa, A, et al.. **A retrospective study of cryopreserved umbilical cord as an adjunctive therapy to promote the healing of chronic, complex foot ulcers with underlying osteomyelitis.** *Wound Repair Regen.* 2016; Sep;24(5):885-893. doi: 10.1111/wrr.12456.
<https://www.ncbi.nlm.nih.gov/pubmed/27312890>

31 patients presenting with 33 complex foot ulcers with a confirmed histopathological diagnosis of osteomyelitis treated by the same surgeon at a single wound care center by the following treatment regimen: sharp debridement, resection of infected bone, when necessary, open cortex, antibiotics, and application of cryopreserved Umbilical Cord (Neox 1K).

The average ulcer size was $15.6 \pm 17.7 \text{ cm}^2$ (0.4–73.95 cm^2). Overall, 26 out of the 33 wounds achieved complete closure (78.8 percent). Five patients were lost to follow-up and one patient expired during the course of treatment, not believed to be treatment related. Of the remaining 27 wounds in patients not lost to follow-up, 26 achieved complete healing with an average time to healing of 16-weeks and an average of 1.24 applications of cUC.

2. Raphael, A. **A single-centre, retrospective study of cryopreserved umbilical cord/amniotic membrane tissue for the treatment of diabetic foot ulcers.** <https://pubmed.ncbi.nlm.nih.gov/29027852/>

In this study 32 wounds in 29 patients were treated with Neox 1K for diabetic foot ulcers. The average initial wound area for all wounds was $10.6 \pm 2.15 \text{ cm}^2$.

Of the 32 wounds, 28 achieved complete epithelialization for an overall healing rate of 87.5 percent. Average time to wound closure was 13.8 ± 1.95 -weeks with a median of 9-weeks. The average number of graft applications was 1.68 grafts.

3. Raphael, A, Gonzales, J. **Use of cryopreserved umbilical cord with negative pressure wound therapy for complex diabetic ulcers with osteomyelitis.** *J Wound Care.* 2017; Oct 1;26(Sup10):S38-S44. doi: 10.12968/jowc.2017.26.Sup10.S38. <https://www.ncbi.nlm.nih.gov/pubmed/28976835>

In this study, investigators reported on 14 wounds in 13 patients, with an average initial wound area of $33.2 \pm 21.7 \text{ cm}^2$ and wound volume of $52 \pm 26.2 \text{ cm}^3$ received Neox 1K and NPWT.

All achieved complete re-epithelialization with an average time to closure of 24.0 ± 10.9 -weeks, using between two to five cUC applications. No adverse events were noted and none of the wounds required limb amputation during the follow-up of 24-months for each patient.

Given the current health crisis and concurrent need to address this serious medical condition I ask that you allow me to use [Neox® 1K, Neox RT®, or Neox 100®] for this patient so that I can avoid possible hospital admission of this patient.

Thank you for your time reviewing this information as well as your consideration.

Sincerely,

[Doctor Name]
[Title/Specialty]
[Email address]

Sample Appeal Letter Template

For Neox[®] 1K, Neox[®] RT, and Neox[®] 100

Please include physician letterhead on appeal letters and letters of medical necessity

DATE

[Payor Contact]

[Title]

[Address]

[City, State, Zip]

Re: [Patient Name]
[Patient Member ID]
[DOS]

Dear [Payor Contact]:

On behalf of my patient, [INSERT PATIENT NAME], I am submitting this appeal for coverage of [Neox[®] 1K, Neox RT[®], or Neox 100[®]] (HCPCS: Q4148, Q4156) that was denied by [INSERT PAYOR NAME]. This product is routinely used in the hospital to treat complex ulcers of the lower extremity. Given the severity of this high-risk patient's complex ulcer, I used [Neox[®] 1K, Neox RT[®], or Neox 100[®]] for this patient, to allow me to aggressively treat them and help prevent hospitalization and more complex surgical treatment of the ulcer. In my medical judgement, [Neox[®] 1K, Neox RT[®], or Neox 100[®]] was the most appropriate next step treatment for this patient. Using [Neox[®] 1K, Neox RT[®], or Neox 100[®]] allowed me to treat my patient in clinic, instead of a more costly place of service. Additionally, since the graft is designed to stay on the wound for 4-weeks or more, I can follow-up with the patient via telehealth visits. Using other wound products would have required the patient to return to clinic weekly, for graft replacement.

Please review the included information regarding my patient, published clinical evidence supporting [Neox[®] 1K, Neox RT[®], or Neox 100[®]] for this patient, and my clinical rationale for selecting [Neox[®] 1K, Neox RT[®], or Neox 100[®]].

PATIENT HISTORY

[INSERT Patient History, including diagnoses and previous failed treatment modalities]

[INSERT Patient comorbidities that put the patient at particular risk for ulcer-related complications.

[AS APPROPRIATE AND OBSERVED - INSERT Rationale for using Neox 1K for this patient, ability to leave the [Neox[®] 1K, Neox RT[®], or Neox 100[®]] allograft on the ulcer for 4 or more weeks without replacement, ability to treat the complex ulcer with a single graft, etc.]

[AS APPROPRIATE AND OBSERVED - Discuss previous use of [Neox[®] 1K, Neox RT[®], or Neox 100[®]] in similar cases and discuss the outcomes. Explain why these outcomes are relevant to this patient.]

PUBLISHED CLINICAL EVIDENCE

This information can be used with any Letter of Medical Necessity, Appeal, Prior Authorization request, etc.

Neox is a Cryopreserved Human Amniotic Membrane Allograft derived from Umbilical Cord Tissue following healthy live birth. The Neox product line is indicated for use as a wound covering to create a protective environment for wound healing to occur. Neox 1K has been used successfully for many years and was developed to treat complex wounds and is the only amniotic tissue that has been widely studied in complex ulcers that extend to the bone, tendon, or joint capsule. Further, Neox 1K is the only Amniotic Membrane Allograft that has been reviewed and studied in complex ulcers with osteomyelitis. I have included three published articles for Neox 1K and one article for a biologic product that is being developed from the same tissue platform.

1. Caputo, W, Vaquero, C, Monterosa, A, et al. **A retrospective study of cryopreserved umbilical cord as an adjunctive therapy to promote the healing of chronic, complex foot ulcers with underlying osteomyelitis.** *Wound Repair Regen.* 2016; Sep;24(5):885-893. doi: 10.1111/wrr.12456. <https://www.ncbi.nlm.nih.gov/pubmed/27312890>

31 patients presenting with 33 complex foot ulcers with a confirmed histopathological diagnosis of osteomyelitis treated by the same surgeon at a single wound care center by the following treatment regimen: sharp debridement, resection of infected bone, when necessary, open cortex, antibiotics, and application of cryopreserved umbilical cord (Neox 1K).

The average ulcer size was $15.6 \pm 17.7 \text{ cm}^2$ ($0.4\text{--}73.95 \text{ cm}^2$). Overall, 26 out of the 33 wounds achieved complete closure (78.8 percent). Five patients were lost to follow-up and one patient expired during the course of treatment, not believed to be treatment related. Of the remaining 27 wounds in patients not lost to follow-up, 26 achieved complete healing with an average time to healing of 16-weeks and an average of 1.24 applications of cUC.

2. Raphael, A. **A single-centre, retrospective study of cryopreserved umbilical cord/amniotic membrane tissue for the treatment of diabetic foot ulcers.** <https://pubmed.ncbi.nlm.nih.gov/29027852/>

In this study 32 wounds in 29 patients were treated with Neox 1K for diabetic foot ulcers. The average initial wound area for all wounds was $10.6 \pm 2.15 \text{ cm}^2$.

Of the 32 wounds, 28 achieved complete epithelialization for an overall healing rate of 87.5 percent. Average time to wound closure was 13.8 ± 1.95 -weeks with a median of nine weeks. The average number of graft applications was 1.68 grafts.

3. Raphael, A, Gonzales J. **Use of cryopreserved umbilical cord with negative pressure wound therapy for complex diabetic ulcers with osteomyelitis.** *J Wound Care.* 2017; Oct 1;26(Sup10):S38-S44. doi: 10.12968/jowc.2017.26.Sup10.S38. <https://www.ncbi.nlm.nih.gov/pubmed/28976835>

In this study, investigators reported on 14 wounds in 13 patients, with an average initial wound area of $33.2 \pm 21.7 \text{ cm}^2$ and wound volume of $52 \pm 26.2 \text{ cm}^3$ received Neox 1K and NPWT.

All achieved complete re-epithelialization with an average time to closure of 24.0 ± 10.9 -weeks, using between two to five cUC applications. No adverse events were noted and none of the wounds required limb amputation during the follow-up of 24-months for each patient.

After reviewing the enclosed information illustrating your members' need for Neox 1K, I ask that you promptly authorize payment for this claim. If you have any questions, please reach out to my office at the contact information below.

Thank you for your time reviewing this information as well as your consideration.

Sincerely,

[Doctor Name]
[Title/Specialty]
[Email address]

Need additional reimbursement assistance?

Contact The Pinnacle Health Group

BioTissue has enlisted **The Pinnacle Health Group** to assist with Reimbursement Support. Pinnacle provides help via a Hotline or can be accessed via email. Their team of credentialed professional coders can provide support to physicians and facilities and answer many reimbursement questions. They can provide:

- Coding guidance for BioTissue products
- Coverage criteria for specific payors
- Claim appeals and underpayment support
- Benefit verification and prior authorization requests
- Reimbursement and guidance documents
- Coding guide
- Letter of Medical Necessity
- Appeal Templates



Email: biotissuesurgical@thepinnaclehealthgroup.com
Phone: 866-369-9290
Fax: 877-499-2986
Hours: Monday to Friday: 8:30 AM - 6:00 PM EST