

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

Clinical benefit	<input checked="" type="checkbox"/> Minimize safety risk or concern. <input checked="" type="checkbox"/> Minimize harmful or ineffective interventions. <input type="checkbox"/> Assure appropriate level of care. <input type="checkbox"/> Assure appropriate duration of service for interventions. <input type="checkbox"/> Assure that recommended medical prerequisites have been met. <input type="checkbox"/> Assure appropriate site of treatment or service.
Effective Date:	9/1/2024

[POLICY RATIONALE](#)
[DISCLAIMER](#)
[POLICY HISTORY](#)

[PRODUCT VARIATIONS](#)
[DEFINITIONS](#)
[CODING INFORMATION](#)

[DESCRIPTION/BACKGROUND](#)
[BENEFIT VARIATIONS](#)
[REFERENCES](#)

I. POLICY

Recombinant platelet-derived growth factor (i.e., becaplermin) may be considered **medically necessary** when used as an adjunct to standard wound management for the following indications:

- Neuropathic diabetic ulcers extending into the subcutaneous tissue; **or**
- Pressure ulcers extending into the subcutaneous tissue.

Appropriate candidates for becaplermin gel for treatment of neuropathic ulcers should meet **all** of the following criteria:

1. Adequate tissue oxygenation, as measured by a transcutaneous partial pressure of oxygen of 30 mm Hg or greater on the foot dorsum or at the margin of the ulcer; **and**
2. Full-thickness ulcer (i.e., Stage III or IV), extending through dermis into subcutaneous tissues; **and**
3. Participation in a wound-management program, which includes sharp debridement, pressure relief (i.e., non-weight bearing), and infection control.

Appropriate candidates for becaplermin gel for the treatment of pressure ulcers should meet **all** of the following criteria:

1. Full-thickness ulcer (i.e., Stage III or IV), extending through dermis into subcutaneous tissues; **and**
2. Ulcer in an anatomic location that can be off-loaded for the duration of treatment; **and**
3. Albumin concentration >2.5 dL; **and**
4. Total lymphocyte count >1,000/ μ L; **and**
5. Normal values of vitamins A and C.

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

Other applications of becaplermin are considered **investigational**, including, but not limited to, ischemic ulcers, ulcers related to venous stasis, and ulcers not extending through the dermis into the subcutaneous tissue. There is insufficient evidence to support a general conclusion concerning the health outcomes or benefits associated with this procedure for these indications.

Use of autologous blood-derived preparations (i.e., platelet-rich plasma) is considered **investigational** for the treatment of acute or chronic wounds including surgical wounds and non-healing ulcers. There is insufficient evidence to support a general conclusion concerning the health outcomes or benefits associated with this procedure for these indications.

POLICY GUIDELINES

Becaplermin

Patients are typically treated once daily until complete healing, or for up to 20 weeks, whichever is less. Application of the gel may be performed by the patient in the home.

Becaplermin is available in 2-, 7.5-, and 15-g tubes and is applied in a thin continuous layer, about 1/16 of an inch thick (i.e., the thickness of a dime). The amount of the gel used will depend on the size of the ulcer, measured in square centimeters. However, an average-sized ulcer, measuring 3 cm², treated for an average length of time of 85 days, will require a little more than one 15-g tube. If the ulcer is treated for the maximum length of time of 140 days, 1.75 of the 15-g tubes would be required.

Cross-reference:

MP 4.039 Orthopedic Applications of Platelet-Rich Plasma

II. PRODUCT VARIATIONS

[TOP](#)

This policy is only applicable to certain programs and products administered by Capital Blue Cross please see additional information below, and subject to benefit variations as discussed in Section VI below.

FEP PPO - Refer to FEP Medical Policy Manual. The FEP Medical Policy manual can be found at: <https://www.fepblue.org/benefit-plans/medical-policies-and-utilization-management-guidelines/medical-policies>

III. DESCRIPTION/BACKGROUND

[TOP](#)

Wound Healing Treatment

A variety of growth factors have been found to play a role in wound healing, including platelet-derived growth factor (PDGF), epidermal growth factor, fibroblast growth factors, transforming

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

growth factors, and insulin-like growth factors. Autologous platelets are a rich source of PDGF, transforming growth factors (that function as a mitogen for fibroblasts, smooth muscle cells, and osteoblasts), and vascular endothelial growth factors. Recombinant PDGF also has been extensively investigated for clinical use in wound healing.

Autologous platelet concentrate suspended in plasma, also known as platelet-rich plasma (PRP), can be prepared from samples of centrifuged autologous blood. Exposure to a solution of thrombin and calcium chloride degranulates platelets, releasing various growth factors, and results in the polymerization of fibrin from fibrinogen, creating a platelet gel. The platelet gel can then be applied to wounds or may be used as an adjunct to surgery to promote hemostasis and accelerate healing. In the operating room setting, PRP has been investigated as an adjunct to a variety of periodontal, reconstructive, and orthopedic procedures. For example, bone morphogenetic proteins are a transforming growth factor, and thus PRP has been used in conjunction with bone-replacement grafting (using either autologous grafts or bovine-derived xenograft) in periodontal and maxillofacial surgeries.

PRP is distinguished from fibrin glues or sealants, which have been used for many years as a surgical adjunct to promote local hemostasis at incision sites. Fibrin glue is created from platelet-poor plasma and consists primarily of fibrinogen. Commercial fibrin glues are created from pooled homologous human donors; Tisseel® (Baxter International) and Hemaseel® (Haemacure Corp.) are examples of commercially available fibrin sealants. Autologous fibrin sealants can also be created from platelet-poor plasma. This evidence review does not address the use of fibrin sealants.

Wound Closure Outcomes

This review addresses the use of recombinant PDGF products and PRP for non-orthopedic indications, which include a number of wound closure-related indications. For this review, the primary endpoints of interest for the study of wound closure are as follows, consistent with guidance from the FDA for the industry in developing products for the treatment of chronic cutaneous ulcer and burn wounds:

1. Incidence of complete wound closure;
2. Time to complete wound closure (reflecting accelerated wound closure);
3. Incidence of complete wound closure following surgical wound closure;
4. Pain control.

Regulatory Status

Regranex®

In 1997, becaplermin gel (Regranex®; Smith & Nephew), a recombinant PDGF product, was approved by the FDA for the following labeled indication:

“Regranex Gel is indicated for the treatment of lower extremity diabetic neuropathic ulcers that extend into the subcutaneous tissue or beyond and have an adequate blood supply.

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

When used as an adjunct to, and not a substitute for, good ulcer care practices including initial sharp debridement, pressure relief, and infection control, REGRANEX Gel increases the complete healing of diabetic ulcers.

The efficacy of REGRANEX Gel for the treatment of diabetic neuropathic ulcers that do not extend through the dermis into subcutaneous tissue or ischemic diabetic ulcers ... has not been evaluated....”

In 2008, the manufacturer added the following black box warning to the labeling for Regranex®: “An increased rate of mortality secondary to malignancy was observed in patients treated with three or more tubes of Regranex Gel in a postmarketing retrospective cohort study. Regranex Gel should only be used when the benefits can be expected to outweigh the risks. Regranex Gel should be used with caution in patients with known malignancy.”

In 2018, the “Boxed Warning” and “Warnings and Precautions” were changed to remove “increased rate of cancer mortality” and “cancer mortality,” respectively.

Platelet-Rich Plasma

The FDA regulates human cells and tissues intended for implantation, transplantation, or infusion through the Center for Biologics Evaluation and Research, under Code of Federal Regulation, Title 21, parts 1270 and 1271. Blood products such as PRP are included in these regulations.

Under these regulations, certain products including blood products such as PRP are exempt and therefore, do not follow the traditional FDA regulatory pathway. To date, the FDA has not attempted to regulate activated PRP.

Numerous PRP preparation systems have been cleared for marketing by the FDA through the 510(k) process. These devices are intended to concentrate patient plasma at the point of care during bone grafting procedures. The use of different devices and procedures can lead to variable concentrations of active platelets and associated proteins, increasing variability between studies of clinical efficacy.

IV. Rationale

[Top](#)

SUMMARY OF EVIDENCE

Recombinant PDGFs

For individuals who have diabetic lower-extremity ulcers who receive recombinant PDGF, the evidence includes RCTs and systematic reviews. The relevant outcomes are symptoms, change in disease status, morbid events, quality of life (QOL), and treatment-related morbidity. Results have shown improved rates of healing with use of recombinant PDGF for diabetic neuropathic

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

ulcers and pressure ulcers. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have pressure ulcers who receive recombinant PDGF, the evidence includes RCTs and systematic reviews. The relevant outcomes are symptoms, change in disease status, morbid events, QOL, and treatment-related morbidity. Results have shown improved rates of healing with use of recombinant PDGF for pressure ulcers. The evidence is sufficient to determine that the technology results in a meaningful improvement in the net health outcome.

For individuals who have venous stasis leg ulcers or acute surgical or traumatic wounds who receive recombinant PDGF, the evidence includes small RCTs. The relevant outcomes are symptoms, change in disease status, morbid events, QOL, and treatment-related morbidity. The level of evidence does not permit conclusions whether recombinant PDGF is effective in treating other wound types, including chronic venous ulcers or acute traumatic wounds. The evidence is insufficient to determine the effects of the technology on health outcomes.

Platelet-Rich Plasma

For individuals who have chronic wounds who receive PRP, the evidence includes meta-analyses of a number of small, controlled trials. The relevant outcomes are symptoms, change in disease status, morbid events, QOL, and treatment-related morbidity. In individuals with lower extremity diabetic ulcers, PRP demonstrated an improvement over the control groups in complete wound closure and healing time, but moderate to high risk of bias and imprecision preclude drawing conclusions on other important outcomes such as recurrence, infection, amputation, and quality of life. In individuals with venous ulcers, PRP did not demonstrate an improvement over the control groups in complete wound closure, recurrence, wound infection, or quality of life, although imprecision likely precluded identifying differences on these outcomes. In individuals with pressure ulcers, although PRP reduced wound size, other important outcomes such as complete wound closure were not measured. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have acute surgical or traumatic wounds who receive PRP, the evidence includes a systematic review and a number of small, controlled trials. The relevant outcomes are symptoms, change in disease status, morbid events, QOL, and treatment-related morbidity. Current results of trials using PRP are mixed, and the studies are limited in both size and quality. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

V. DEFINITIONS

[TOP](#)

DIABETIC NEUROPATHIC ULCER is a lesion of the skin or mucous membranes marked by inflammation, necrosis, and sloughing of damaged tissue. A diabetic neuropathic ulcer is caused by damage to the autonomic motor and/or sensory nerves that result from metabolic or vascular derangement in patients with longstanding diabetes mellitus.

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

STAGE III ULCER is full thickness skin loss involving damage or necrosis of subcutaneous tissue that may extend down to, but not through, underlying fascia.

STAGE IV ULCER is full thickness skin loss with extensive destruction, tissue necrosis, or damage to muscle, bone, or supportive structures.

VI. BENEFIT VARIATIONS

[TOP](#)

The existence of this medical policy does not mean that this service is a covered benefit under the member's health benefit plan. Benefit determinations should be based in all cases on the applicable health benefit plan language. Medical policies do not constitute a description of benefits. A member's health benefit plan governs which services are covered, which are excluded, which are subject to benefit limits, and which require preauthorization. There are different benefit plan designs in each product administered by Capital Blue Cross. Members and providers should consult the member's health benefit plan for information or contact Capital Blue Cross for benefit information.

VII. DISCLAIMER

[TOP](#)

Capital Blue Cross' medical policies are developed to assist in administering a member's benefits, do not constitute medical advice and are subject to change. Treating providers are solely responsible for medical advice and treatment of members. Members should discuss any medical policy related to their coverage or condition with their provider and consult their benefit information to determine if the service is covered. If there is a discrepancy between this medical policy and a member's benefit information, the benefit information will govern. If a provider or a member has a question concerning the application of this medical policy to a specific member's plan of benefits, please contact Capital Blue Cross' Provider Services or Member Services. Capital Blue Cross considers the information contained in this medical policy to be proprietary and it may only be disseminated as permitted by law.

VIII. CODING INFORMATION

[TOP](#)

Note: This list of codes may not be all-inclusive, and codes are subject to change at any time. The identification of a code in this section does not denote coverage as coverage is determined by the terms of member benefit information. In addition, not all covered services are eligible for separate reimbursement.

Use of autologous blood-derived preparation (i.e., Platelet Rich Plasma) for treatment of surgical wounds and non-healing ulcers is considered investigational; therefore, not covered:

Procedure Codes							
G0460	G0465	P9020	0232T	0717T	86999		

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

Recombinant platelet-derived growth factor is covered when medically necessary:

Procedure Codes							
S0157	S9055						

ICD-10-CM Diagnosis Codes	Description
E10.621	Type 1 diabetes mellitus with foot ulcer
E10.622	Type 1 diabetes mellitus with other skin ulcer
E11.40	Type 2 diabetes mellitus with diabetic neuropathy, unspecified
E11.41	Type 2 diabetes mellitus with diabetic mononeuropathy
E11.42	Type 2 diabetes mellitus with diabetic polyneuropathy
E11.43	Type 2 diabetes mellitus with diabetic autonomic (poly)neuropathy
E11.49	Type 2 diabetes mellitus with other diabetic neurological complication
E11.621	Type 2 diabetes mellitus with foot ulcer
E11.622	Type 2 diabetes mellitus with other skin ulcer
E13.621	Other specified diabetes mellitus with foot ulcer
E13.622	Other specified diabetes mellitus with other skin ulcer
L89.000	Pressure ulcer of unspecified elbow, unstageable
L89.001	Pressure ulcer of unspecified elbow, stage 1
L89.002	Pressure ulcer of unspecified elbow, stage 2
L89.003	Pressure ulcer of unspecified elbow, stage 3
L89.004	Pressure ulcer of unspecified elbow, stage 4
L89.006	Pressure-induced deep tissue damage of unspecified elbow
L89.009	Pressure ulcer of unspecified elbow, unspecified stage
L89.010	Pressure ulcer of right elbow, unstageable
L89.011	Pressure ulcer of right elbow, stage 1
L89.012	Pressure ulcer of right elbow, stage 2
L89.013	Pressure ulcer of right elbow, stage 3
L89.014	Pressure ulcer of right elbow, stage 4
L89.016	Pressure-induced deep tissue damage of right elbow
L89.019	Pressure ulcer of right elbow, unspecified stage
L89.020	Pressure ulcer of left elbow, unstageable
L89.021	Pressure ulcer of left elbow, stage 1
L89.022	Pressure ulcer of left elbow, stage 2
L89.023	Pressure ulcer of left elbow, stage 3
L89.024	Pressure ulcer of left elbow, stage 4
L89.026	Pressure-induced deep tissue damage of left elbow
L89.029	Pressure ulcer of left elbow, unspecified stage
L89.100	Pressure ulcer of unspecified part of back, unstageable
L89.101	Pressure ulcer of unspecified part of back, stage 1
L89.102	Pressure ulcer of unspecified part of back, stage 2

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

L89.103	Pressure ulcer of unspecified part of back, stage 3
L89.104	Pressure ulcer of unspecified part of back, stage 4
L89.106	Pressure-induced deep tissue damage of unspecified part of back
L89.109	Pressure ulcer of unspecified part of back, unspecified stage
L89.110	Pressure ulcer of right upper back, unstageable
L89.111	Pressure ulcer of right upper back, stage 1
L89.112	Pressure ulcer of right upper back, stage 2
L89.113	Pressure ulcer of right upper back, stage 3
L89.114	Pressure ulcer of right upper back, stage 4
L89.116	Pressure-induced deep tissue damage of right upper back
L89.119	Pressure ulcer of right upper back, unspecified stage
L89.120	Pressure ulcer of left upper back, unstageable
L89.121	Pressure ulcer of left upper back, stage 1
L89.122	Pressure ulcer of left upper back, stage 2
L89.123	Pressure ulcer of left upper back, stage 3
L89.124	Pressure ulcer of left upper back, stage 4
L89.126	Pressure-induced deep tissue damage of left upper back
L89.129	Pressure ulcer of left upper back, unspecified stage
L89.130	Pressure ulcer of right lower back, unstageable
L89.131	Pressure ulcer of right lower back, stage 1
L89.132	Pressure ulcer of right lower back, stage 2
L89.133	Pressure ulcer of right lower back, stage 3
L89.134	Pressure ulcer of right lower back, stage 4
L89.136	Pressure-induced deep tissue damage of right lower back
L89.139	Pressure ulcer of right lower back, unspecified stage
L89.140	Pressure ulcer of left lower back, unstageable
L89.141	Pressure ulcer of left lower back, stage 1
L89.142	Pressure ulcer of left lower back, stage 2
L89.143	Pressure ulcer of left lower back, stage 3
L89.144	Pressure ulcer of left lower back, stage 4
L89.146	Pressure-induced deep tissue damage of left lower back
L89.149	Pressure ulcer of left lower back, unspecified stage
L89.150	Pressure ulcer of sacral region, unstageable
L89.151	Pressure ulcer of sacral region, stage 1
L89.152	Pressure ulcer of sacral region, stage 2
L89.153	Pressure ulcer of sacral region, stage 3
L89.154	Pressure ulcer of sacral region, stage 4
L89.156	Pressure-induced deep tissue damage of sacral region
L89.159	Pressure ulcer of sacral region, unspecified stage
L89.200	Pressure ulcer of unspecified hip, unstageable
L89.201	Pressure ulcer of unspecified hip, stage 1
L89.202	Pressure ulcer of unspecified hip, stage 2

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

L89.203	Pressure ulcer of unspecified hip, stage 3
L89.204	Pressure ulcer of unspecified hip, stage 4
L89.206	Pressure-induced deep tissue damage of unspecified hip
L89.209	Pressure ulcer of unspecified hip, unspecified stage
L89.210	Pressure ulcer of right hip, unstageable
L89.211	Pressure ulcer of right hip, stage 1
L89.212	Pressure ulcer of right hip, stage 2
L89.213	Pressure ulcer of right hip, stage 3
L89.214	Pressure ulcer of right hip, stage 4
L89.216	Pressure-induced deep tissue damage of right hip
L89.219	Pressure ulcer of right hip, unspecified stage
L89.220	Pressure ulcer of left hip, unstageable
L89.221	Pressure ulcer of left hip, stage 1
L89.222	Pressure ulcer of left hip, stage 2
L89.223	Pressure ulcer of left hip, stage 3
L89.224	Pressure ulcer of left hip, stage 4
L89.226	Pressure-induced deep tissue damage of left hip
L89.229	Pressure ulcer of left hip, unspecified stage
L89.300	Pressure ulcer of unspecified buttock, unstageable
L89.301	Pressure ulcer of unspecified buttock, stage 1
L89.302	Pressure ulcer of unspecified buttock, stage 2
L89.303	Pressure ulcer of unspecified buttock, stage 3
L89.304	Pressure ulcer of unspecified buttock, stage 4
L89.306	Pressure-induced deep tissue damage of unspecified buttock
L89.309	Pressure ulcer of unspecified buttock, unspecified stage
L89.310	Pressure ulcer of right buttock, unstageable
L89.311	Pressure ulcer of right buttock, stage 1
L89.312	Pressure ulcer of right buttock, stage 2
L89.313	Pressure ulcer of right buttock, stage 3
L89.314	Pressure ulcer of right buttock, stage 4
L89.316	Pressure-induced deep tissue damage of right buttock
L89.319	Pressure ulcer of right buttock, unspecified stage
L89.320	Pressure ulcer of left buttock, unstageable
L89.321	Pressure ulcer of left buttock, stage 1
L89.322	Pressure ulcer of left buttock, stage 2
L89.323	Pressure ulcer of left buttock, stage 3
L89.324	Pressure ulcer of left buttock, stage 4
L89.326	Pressure-induced deep tissue damage of left buttock
L89.329	Pressure ulcer of left buttock, unspecified stage
L89.40	Pressure ulcer of contiguous site of back, buttock and hip, unspecified stage
L89.41	Pressure ulcer of contiguous site of back, buttock and hip, stage 1
L89.42	Pressure ulcer of contiguous site of back, buttock and hip, stage 2

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

L89.43	Pressure ulcer of contiguous site of back, buttock and hip, stage 3
L89.44	Pressure ulcer of contiguous site of back, buttock and hip, stage 4
L89.45	Pressure ulcer of contiguous site of back, buttock and hip, unstageable
L89.46	Pressure-induced deep tissue damage of contiguous site of back, buttock, and hip
L89.500	Pressure ulcer of unspecified ankle, unstageable
L89.501	Pressure ulcer of unspecified ankle, stage 1
L89.502	Pressure ulcer of unspecified ankle, stage 2
L89.503	Pressure ulcer of unspecified ankle, stage 3
L89.504	Pressure ulcer of unspecified ankle, stage 4
L89.506	Pressure-induced deep tissue damage of unspecified ankle
L89.509	Pressure ulcer of unspecified ankle, unspecified stage
L89.510	Pressure ulcer of right ankle, unstageable
L89.511	Pressure ulcer of right ankle, stage 1
L89.512	Pressure ulcer of right ankle, stage 2
L89.513	Pressure ulcer of right ankle, stage 3
L89.514	Pressure ulcer of right ankle, stage 4
L89.520	Pressure ulcer of left ankle, unstageable
L89.521	Pressure ulcer of left ankle, stage 1
L89.522	Pressure ulcer of left ankle, stage 2
L89.523	Pressure ulcer of left ankle, stage 3
L89.524	Pressure ulcer of left ankle, stage 4
L89.526	Pressure-induced deep tissue damage of left ankle
L89.529	Pressure ulcer of left ankle, unspecified stage
L89.602	Pressure ulcer of unspecified heel, stage 2
L89.603	Pressure ulcer of unspecified heel, stage 3
L89.604	Pressure ulcer of unspecified heel, stage 4
L89.606	Pressure-induced deep tissue damage of unspecified heel
L89.609	Pressure ulcer of unspecified heel, unspecified stage
L89.610	Pressure ulcer of right heel, unstageable
L89.611	Pressure ulcer of right heel, stage 1
L89.613	Pressure ulcer of right heel, stage 3
L89.614	Pressure ulcer of right heel, stage 4
L89.619	Pressure ulcer of right heel, unspecified stage
L89.620	Pressure ulcer of left heel, unstageable
L89.621	Pressure ulcer of left heel, stage 1
L89.622	Pressure ulcer of left heel, stage 2
L89.623	Pressure ulcer of left heel, stage 3
L89.624	Pressure ulcer of left heel, stage 4
L89.626	Pressure-induced deep tissue damage of left heel
L89.629	Pressure ulcer of left heel, unspecified stage
L89.810	Pressure ulcer of head, unstageable

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

L89.812	Pressure ulcer of head, stage 2
L89.813	Pressure ulcer of head, stage 3
L89.814	Pressure ulcer of head, stage 4
L89.816	Pressure-induced deep tissue damage of head
L89.819	Pressure ulcer of head, unspecified stage
L89.890	Pressure ulcer of other site, unstageable
L89.891	Pressure ulcer of other site, stage 1
L89.892	Pressure ulcer of other site, stage 2
L89.893	Pressure ulcer of other site, stage 3
L89.894	Pressure ulcer of other site, stage 4
L89.896	Pressure-induced deep tissue damage of other site
L89.899	Pressure ulcer of other site, unspecified stage
L89.90	Pressure ulcer of unspecified site, unspecified stage
L89.91	Pressure ulcer of unspecified site, stage 1
L89.92	Pressure ulcer of unspecified site, stage 2
L89.93	Pressure ulcer of unspecified site, stage 3
L89.94	Pressure ulcer of unspecified site, stage 4
L89.95	Pressure ulcer of unspecified site, unstageable
L89.96	Pressure-induced deep tissue damage of unspecified site
L97.121	Non-pressure chronic ulcer of left thigh limited to breakdown of skin
L97.122	Non-pressure chronic ulcer of left thigh with fat layer exposed
L97.123	Non-pressure chronic ulcer of left thigh with necrosis of muscle
L97.124	Non-pressure chronic ulcer of left thigh with necrosis of bone
L97.125	Non-pressure chronic ulcer of left thigh with muscle involvement without evidence of necrosis
L97.126	Non-pressure chronic ulcer of left thigh with bone involvement without evidence of necrosis
L97.128	Non-pressure chronic ulcer of left thigh with other specified severity
L97.129	Non-pressure chronic ulcer of left thigh with unspecified severity
L97.201	Non-pressure chronic ulcer of unspecified calf limited to breakdown of skin
L97.202	Non-pressure chronic ulcer of unspecified calf with fat layer exposed
L97.203	Non-pressure chronic ulcer of unspecified calf with necrosis of muscle
L97.204	Non-pressure chronic ulcer of unspecified calf with necrosis of bone
L97.205	Non-pressure chronic ulcer of unspecified calf with muscle involvement without evidence of necrosis
L97.206	Non-pressure chronic ulcer of unspecified calf with bone involvement without evidence of necrosis
L97.208	Non-pressure chronic ulcer of unspecified calf with other specified severity
L97.209	Non-pressure chronic ulcer of unspecified calf with unspecified severity
L97.211	Non-pressure chronic ulcer of right calf limited to breakdown of skin
L97.212	Non-pressure chronic ulcer of right calf with fat layer exposed
L97.213	Non-pressure chronic ulcer of right calf with necrosis of muscle

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

L97.214	Non-pressure chronic ulcer of right calf with necrosis of bone
L97.215	Non-pressure chronic ulcer of right calf with muscle involvement without evidence of necrosis
L97.216	Non-pressure chronic ulcer of right calf with bone involvement without evidence of necrosis
L97.218	Non-pressure chronic ulcer of right calf with other specified severity
L97.219	Non-pressure chronic ulcer of right calf with unspecified severity
L97.221	Non-pressure chronic ulcer of left calf limited to breakdown of skin
L97.222	Non-pressure chronic ulcer of left calf with fat layer exposed
L97.223	Non-pressure chronic ulcer of left calf with necrosis of muscle
L97.224	Non-pressure chronic ulcer of left calf with necrosis of bone
L97.226	Non-pressure chronic ulcer of left calf with bone involvement without evidence of necrosis
L97.228	Non-pressure chronic ulcer of left calf with other specified severity
L97.229	Non-pressure chronic ulcer of left calf with unspecified severity
L97.301	Non-pressure chronic ulcer of unspecified ankle limited to breakdown of skin
L97.302	Non-pressure chronic ulcer of unspecified ankle with fat layer exposed
L97.303	Non-pressure chronic ulcer of unspecified ankle with necrosis of muscle
L97.304	Non-pressure chronic ulcer of unspecified ankle with necrosis of bone
L97.305	Non-pressure chronic ulcer of unspecified ankle with muscle involvement without evidence of necrosis
L97.306	Non-pressure chronic ulcer of unspecified ankle with bone involvement without evidence of necrosis
L97.309	Non-pressure chronic ulcer of unspecified ankle with unspecified severity
L97.311	Non-pressure chronic ulcer of right ankle limited to breakdown of skin
L97.312	Non-pressure chronic ulcer of right ankle with fat layer exposed
L97.313	Non-pressure chronic ulcer of right ankle with necrosis of muscle
L97.314	Non-pressure chronic ulcer of right ankle with necrosis of bone
L97.315	Non-pressure chronic ulcer of right ankle with muscle involvement without evidence of necrosis
L97.316	Non-pressure chronic ulcer of right ankle with bone involvement without evidence of necrosis
L97.318	Non-pressure chronic ulcer of right ankle with other specified severity
L97.319	Non-pressure chronic ulcer of right ankle with unspecified severity
L97.321	Non-pressure chronic ulcer of left ankle limited to breakdown of skin
L97.322	Non-pressure chronic ulcer of left ankle with fat layer exposed
L97.323	Non-pressure chronic ulcer of left ankle with necrosis of muscle
L97.324	Non-pressure chronic ulcer of left ankle with necrosis of bone
L97.325	Non-pressure chronic ulcer of left ankle with muscle involvement without evidence of necrosis
L97.326	Non-pressure chronic ulcer of left ankle with bone involvement without evidence of necrosis

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

L97.328	Non-pressure chronic ulcer of left ankle with other specified severity
L97.329	Non-pressure chronic ulcer of left ankle with unspecified severity
L97.401	Non-pressure chronic ulcer of unspecified heel and midfoot limited to breakdown of skin
L97.402	Non-pressure chronic ulcer of unspecified heel and midfoot with fat layer exposed
L97.403	Non-pressure chronic ulcer of unspecified heel and midfoot with necrosis of muscle
L97.404	Non-pressure chronic ulcer of unspecified heel and midfoot with necrosis of bone
L97.405	Non-pressure chronic ulcer of unspecified heel and midfoot with muscle involvement without evidence of necrosis
L97.406	Non-pressure chronic ulcer of unspecified heel and midfoot with bone involvement without evidence of necrosis
L97.408	Non-pressure chronic ulcer of unspecified heel and midfoot with other specified severity
L97.409	Non-pressure chronic ulcer of unspecified heel and midfoot with unspecified severity
L97.411	Non-pressure chronic ulcer of right heel and midfoot limited to breakdown of skin
L97.412	Non-pressure chronic ulcer of right heel and midfoot with fat layer exposed
L97.413	Non-pressure chronic ulcer of right heel and midfoot with necrosis of muscle
L97.414	Non-pressure chronic ulcer of right heel and midfoot with necrosis of bone
L97.415	Non-pressure chronic ulcer of right heel and midfoot with muscle involvement without evidence of necrosis
L97.416	Non-pressure chronic ulcer of right heel and midfoot with bone involvement without evidence of necrosis
L97.418	Non-pressure chronic ulcer of right heel and midfoot with other specified severity
L97.419	Non-pressure chronic ulcer of right heel and midfoot with unspecified severity
L97.421	Non-pressure chronic ulcer of left heel and midfoot limited to breakdown of skin
L97.422	Non-pressure chronic ulcer of left heel and midfoot with fat layer exposed
L97.423	Non-pressure chronic ulcer of left heel and midfoot with necrosis of muscle
L97.424	Non-pressure chronic ulcer of left heel and midfoot with necrosis of bone
L97.425	Non-pressure chronic ulcer of left heel and midfoot with muscle involvement without evidence of necrosis
L97.426	Non-pressure chronic ulcer of left heel and midfoot with bone involvement without evidence of necrosis
L97.428	Non-pressure chronic ulcer of left heel and midfoot with other specified severity
L97.429	Non-pressure chronic ulcer of left heel and midfoot with unspecified severity
L97.501	Non-pressure chronic ulcer of other part of unspecified foot limited to breakdown of skin

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

L97.502	Non-pressure chronic ulcer of other part of unspecified foot with fat layer exposed
L97.503	Non-pressure chronic ulcer of other part of unspecified foot with necrosis of muscle
L97.504	Non-pressure chronic ulcer of other part of unspecified foot with necrosis of bone
L97.505	Non-pressure chronic ulcer of other part of unspecified foot with muscle involvement without evidence of necrosis
L97.506	Non-pressure chronic ulcer of other part of unspecified foot with bone involvement without evidence of necrosis
L97.508	Non-pressure chronic ulcer of other part of unspecified foot with other specified severity
L97.509	Non-pressure chronic ulcer of other part of unspecified foot with unspecified severity
L97.511	Non-pressure chronic ulcer of other part of right foot limited to breakdown of skin
L97.512	Non-pressure chronic ulcer of other part of right foot with fat layer exposed
L97.513	Non-pressure chronic ulcer of other part of right foot with necrosis of muscle
L97.514	Non-pressure chronic ulcer of other part of right foot with necrosis of bone
L97.515	Non-pressure chronic ulcer of other part of right foot with muscle involvement without evidence of necrosis
L97.516	Non-pressure chronic ulcer of other part of right foot with bone involvement without evidence of necrosis
L97.518	Non-pressure chronic ulcer of other part of right foot with other specified severity
L97.519	Non-pressure chronic ulcer of other part of right foot with unspecified severity
L97.521	Non-pressure chronic ulcer of other part of left foot limited to breakdown of skin
L97.522	Non-pressure chronic ulcer of other part of left foot with fat layer exposed
L97.523	Non-pressure chronic ulcer of other part of left foot with necrosis of muscle
L97.524	Non-pressure chronic ulcer of other part of left foot with necrosis of bone
L97.525	Non-pressure chronic ulcer of other part of left foot with muscle involvement without evidence of necrosis
L97.526	Non-pressure chronic ulcer of other part of left foot with bone involvement without evidence of necrosis
L97.528	Non-pressure chronic ulcer of other part of left foot with other specified severity
L97.529	Non-pressure chronic ulcer of other part of left foot with unspecified severity
L97.801	Non-pressure chronic ulcer of other part of unspecified lower leg limited to breakdown of skin
L97.802	Non-pressure chronic ulcer of other part of unspecified lower leg with fat layer exposed
L97.803	Non-pressure chronic ulcer of other part of unspecified lower leg with necrosis of muscle

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

L97.804	Non-pressure chronic ulcer of other part of unspecified lower leg with necrosis of bone
L97.805	Non-pressure chronic ulcer of other part of unspecified lower leg with muscle involvement without evidence of necrosis
L97.806	Non-pressure chronic ulcer of other part of unspecified lower leg with bone involvement without evidence of necrosis
L97.808	Non-pressure chronic ulcer of other part of unspecified lower leg with other specified severity
L97.809	Non-pressure chronic ulcer of other part of unspecified lower leg with unspecified severity
L97.811	Non-pressure chronic ulcer of other part of right lower leg limited to breakdown of skin
L97.812	Non-pressure chronic ulcer of other part of right lower leg with fat layer exposed
L97.813	Non-pressure chronic ulcer of other part of right lower leg with necrosis of muscle
L97.814	Non-pressure chronic ulcer of other part of right lower leg with necrosis of bone
L97.815	Non-pressure chronic ulcer of other part of right lower leg with muscle involvement without evidence of necrosis
L97.816	Non-pressure chronic ulcer of other part of right lower leg with bone involvement without evidence of necrosis
L97.818	Non-pressure chronic ulcer of other part of right lower leg with other specified severity
L97.819	Non-pressure chronic ulcer of other part of right lower leg with unspecified severity
L97.821	Non-pressure chronic ulcer of other part of left lower leg limited to breakdown of skin
L97.822	Non-pressure chronic ulcer of other part of left lower leg with fat layer exposed
L97.823	Non-pressure chronic ulcer of other part of left lower leg with necrosis of muscle
L97.824	Non-pressure chronic ulcer of other part of left lower leg with necrosis of bone
L97.825	Non-pressure chronic ulcer of other part of left lower leg with muscle involvement without evidence of necrosis
L97.826	Non-pressure chronic ulcer of other part of left lower leg with bone involvement without evidence of necrosis
L97.828	Non-pressure chronic ulcer of other part of left lower leg with other specified severity
L97.829	Non-pressure chronic ulcer of other part of left lower leg with unspecified severity
L97.901	Non-pressure chronic ulcer of unspecified part of unspecified lower leg limited to breakdown of skin
L97.902	Non-pressure chronic ulcer of unspecified part of unspecified lower leg with fat layer exposed

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

L97.903	Non-pressure chronic ulcer of unspecified part of unspecified lower leg with necrosis of muscle
L97.904	Non-pressure chronic ulcer of unspecified part of unspecified lower leg with necrosis of bone
L97.905	Non-pressure chronic ulcer of unspecified part of unspecified lower leg with muscle involvement without evidence of necrosis
L97.906	Non-pressure chronic ulcer of unspecified part of unspecified lower leg with bone involvement without evidence of necrosis
L97.908	Non-pressure chronic ulcer of unspecified part of unspecified lower leg with other specified severity
L97.909	Non-pressure chronic ulcer of unspecified part of unspecified lower leg with unspecified severity
L97.911	Non-pressure chronic ulcer of unspecified part of right lower leg limited to breakdown of skin
L97.912	Non-pressure chronic ulcer of unspecified part of right lower leg with fat layer exposed
L97.913	Non-pressure chronic ulcer of unspecified part of right lower leg with necrosis of muscle
L97.914	Non-pressure chronic ulcer of unspecified part of right lower leg with necrosis of bone
L97.915	Non-pressure chronic ulcer of unspecified part of right lower leg with muscle involvement without evidence of necrosis
L97.916	Non-pressure chronic ulcer of unspecified part of right lower leg with bone involvement without evidence of necrosis
L97.918	Non-pressure chronic ulcer of unspecified part of right lower leg with other specified severity
L97.919	Non-pressure chronic ulcer of unspecified part of right lower leg with unspecified severity
L97.921	Non-pressure chronic ulcer of unspecified part of left lower leg limited to breakdown of skin
L97.922	Non-pressure chronic ulcer of unspecified part of left lower leg with fat layer exposed
L97.923	Non-pressure chronic ulcer of unspecified part of left lower leg with necrosis of muscle
L97.924	Non-pressure chronic ulcer of unspecified part of left lower leg with necrosis of bone
L97.925	Non-pressure chronic ulcer of unspecified part of left lower leg with muscle involvement without evidence of necrosis
L97.926	Non-pressure chronic ulcer of unspecified part of left lower leg with bone involvement without evidence of necrosis
L97.928	Non-pressure chronic ulcer of unspecified part of left lower leg with other specified severity

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

L97.929	Non-pressure chronic ulcer of unspecified part of left lower leg with unspecified severity
L98.491	Non-pressure chronic ulcer of skin of other sites limited to breakdown of skin
L98.492	Non-pressure chronic ulcer of skin of other sites with fat layer exposed
L98.493	Non-pressure chronic ulcer of skin of other sites with necrosis of muscle
L98.494	Non-pressure chronic ulcer of skin of other sites with necrosis of bone
L98.495	Non-pressure chronic ulcer of skin of other sites with muscle involvement without evidence of necrosis
L98.496	Non-pressure chronic ulcer of skin of other sites with bone involvement without evidence of necrosis
L98.498	Non-pressure chronic ulcer of skin of other sites with other specified severity
L98.499	Non-pressure chronic ulcer of skin of other sites with unspecified severity

IX. REFERENCES

[TOP](#)

1. U.S. Food and Drug Administration. *Guidance for Industry: Chronic Cutaneous Ulcer and Burn Wounds -- Developing Products for Treatment*. Rockville, MD: Food and Drug Administration; 2006 June.
2. U.S. Food and Drug Administration (FDA). *Tissue and Tissue Products*. 2016
3. Blue Cross and Blue Shield Association Technology Evaluation Center (TEC). *Becaplermin for wound healing*. TEC Assessments. 1999; Volume 14: Tab 5.
4. Crovetti G, Martinelli G, Issi M, et al. Platelet gel for healing cutaneous chronic wounds. *Transfus Apher Sci*. Apr 2004; 30(2): 145-51. PMID 15062754
5. Eppley BL, Woodell JE, Higgins J. Platelet quantification and growth factor analysis from platelet-rich plasma: implications for wound healing. *Plast Reconstr Surg*. Nov 2004; 114(6): 1502-8. PMID 15509939
6. Keyv SV, Jacobson MS. Comparison of methods for point of care preparation of autologous platelet gel. *J Extra Corpor Technol*. Mar 2004; 36(1): 28-35. PMID 15095838
7. Castillo TN, Pouliot MA, Kim HJ, et al. Comparison of growth factor and platelet concentration from commercial platelet-rich plasma separation systems. *Am J Sports Med*. Feb 2011; 39(2): 266-71. PMID 21051428
8. Mazzucco L, Balbo V, Cattana E, et al. Not every PRP-gel is born equal. Evaluation of growth factor availability for tissues through four PRP-gel preparations: Fibrinet, RegenPRP-Kit, Plateltex and one manual procedure. *Vox Sang*. Aug 2009; 97(2): 110-8. PMID 19392780
9. Blue Cross and Blue Shield Association Technology Evaluation Center (TEC). *Growth factors for wound healing*. TEC Evaluations. 1992; 7:352-377.
10. Zhao XH, Gu HF, Xu ZR, et al. Efficacy of topical recombinant human platelet-derived growth factor for treatment of diabetic lower-extremity ulcers: Systematic review and meta-analysis. *Metabolism*. Oct 2014; 63(10): 1304-13. PMID 25060693
11. Margolis DJ, Bartus C, Hoffstad O, et al. Effectiveness of recombinant human platelet-derived growth factor for the treatment of diabetic neuropathic foot ulcers. *Wound Repair Regen*. Nov-Dec 2005; 13(6): 531-6. PMID 16283867

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

12. Sridharan K, Sivaramakrishnan G. Growth factors for diabetic foot ulcers: mixed treatment comparison analysis of randomized clinical trials. *Br J Clin Pharmacol*. Mar 2018; 84(3): 434-444. PMID 29148070
13. Rees RS, Robson MC, Smiell JM, et al. Becaplermin gel in the treatment of pressure ulcers: a phase II randomized, double-blind, placebo-controlled study. *Wound Repair Regen*. May-Jun 1999; 7(3): 141-7. PMID 10417749
14. Senet P, Vicaut E, Beneton N, et al. Topical treatment of hypertensive leg ulcers with platelet-derived growth factor-BB: a randomized controlled trial. *Arch Dermatol*. Aug 2011; 147(8): 926-30. PMID 21482863
15. Freedman BM, Oplinger EH, Freedman IS. Topical becaplermin improves outcomes in work related fingertip injuries. *J Trauma*. Oct 2005; 59(4): 965-8. PMID 16374289
16. Martinez-Zapata MJ, Marti-Carvajal A, Sola I, et al. Efficacy and safety of the use of autologous plasma rich in platelets for tissue regeneration: a systematic review. *Transfusion*. Jan 2009; 49(1): 44-56. PMID 18954394
17. Martinez-Zapata MJ, Marti-Carvajal AJ, Sola I, et al. Autologous platelet-rich plasma for treating chronic wounds. *Cochrane Database Syst Rev*. May 25 2016; (5): CD006899. PMID 27223580
18. Martinez-Zapata MJ, Marti-Carvajal AJ, Sola I, et al. Autologous platelet-rich plasma for treating chronic wounds. *Cochrane Database Syst Rev*. Oct 17 2012; 10: CD006899. PMID 23076929
19. Carter MJ, Fylling CP, Parnell LK. Use of platelet rich plasma gel on wound healing: a systematic review and meta-analysis. *Eplasty*. 2011; 11: e38. PMID 22028946
20. Picard F, Hersant B, Bosc R, et al. The growing evidence for the use of platelet-rich plasma on diabetic chronic wounds: A review and a proposal for a new standard care. *Wound Repair Regen*. Sep 2015; 23(5): 638-43. PMID 26019054
21. Del Pino-Sedeno T, Trujillo-Martin MM, Andia I, et al. Platelet-rich plasma for the treatment of diabetic foot ulcers: A meta-analysis. *Wound Repair Regen*. Mar 2019; 27(2): 170-182. PMID 30575212
22. Li Y, Gao Y, Gao Y, et al. Autologous platelet-rich gel treatment for diabetic chronic cutaneous ulcers: A meta-analysis of randomized controlled trials. *J Diabetes*. May 2019; 11(5): 359-369. PMID 30182534
23. Qu W, Wang Z, Hunt C, Morrow AS, Urtecho M, Amin M, Shah S, Hasan B, Abd-Rabu R, Ashmore Z, Kubrova E, Prokop LJ, Murad MH. Platelet-Rich Plasma for Wound Care in the Medicare Population. *Technology Assessment Program Project ID 040-353-492*. (Prepared by the Mayo Clinic Evidence-based Practice Center under Contract No. HHS2902015000131.) Rockville, MD: Agency for Healthcare Research and Quality.
24. Ahmed M, Reffat SA, Hassan A, et al. Platelet-Rich Plasma for the Treatment of Clean Diabetic Foot Ulcers. *Ann Vasc Surg*. Jan 2017; 38: 206-211. PMID 27522981
25. Chen HY, Chen CX, Liang Y, Wang J. Efficacy of autologous platelet rich gel in the treatment of refractory diabetic foot. *Chin J New Clin Med*. 2008; 17:1-2.
26. Driver VR, Hanft J, Fylling CP, et al. A prospective, randomized, controlled trial of autologous platelet-rich plasma gel for the treatment of diabetic foot ulcers. *Ostomy Wound Manage*. Jun 2006; 52(6): 68-70, 72, 74 passim. PMID 16799184

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

27. Elsaid A, El-Said M, Emile S, et al. Randomized Controlled Trial on Autologous Platelet-Rich Plasma Versus Saline Dressing in Treatment of Non-healing Diabetic Foot Ulcers. *World J Surg.* Apr 2020; 44(4): 1294-1301. PMID 31811339
28. Friese G, Herten M, Scherbaum WA. The use of autologous platelet concentrate activated by autologous thrombin (APC+) is effective and safe in the treatment of chronic diabetic foot ulcers-a randomized controlled trial. In: eds. *Proceedings of the Fifth International Symposium on the Diabetic Foot, May September 12, 2007, Noordwijkerhout, The Netherlands.* 2007.
29. Game F, Jeffcoate W, Tarnow L, et al. LeucoPatch system for the management of hard-to-heal diabetic foot ulcers in the UK, Denmark, and Sweden: an observer-masked, randomised controlled trial. *Lancet Diabetes Endocrinol.* Nov 2018; 6(11): 870-878. PMID 30243803
30. Gude W, Hagan D, Abood F, et al. Aurix Gel Is an Effective Intervention for Chronic Diabetic Foot Ulcers: A Pragmatic Randomized Controlled Trial. *Adv Skin Wound Care.* Sep 2019; 32(9): 416-426. PMID 31436621
31. Kakagia DD, Kazakos KJ, Xarchas KC, et al. Synergistic action of protease-modulating matrix and autologous growth factors in healing of diabetic foot ulcers. A prospective randomized trial. *J Diabetes Complications.* Nov-Dec 2007; 21(6): 387-91. PMID 17967712
32. Karimi R, Afshar M, Salimian M, et al. The effect of platelet rich plasma dressing on healing diabetic foot ulcers. *Nurs Midwifery Stud.* 2016; 5(3):e30314.
33. Li L, Chen D, Wang C, et al. Autologous platelet-rich gel for treatment of diabetic chronic refractory cutaneous ulcers: A prospective, randomized clinical trial. *Wound Repair Regen.* Jul-Aug 2015; 23(4): 495-505. PMID 25847503
34. Liu GY, Deng XL, Sun Y, Wang MZ, Gao J, Gou J. Effect of autologous platelet-rich gel on the treatment of diabetic foot ulcers. *J Xi'an Jiaotong Univ (Med Sci).* 2016; 37:264-267.
35. Ma L. Clinical efficacy of autologous platelet rich gel in the treatment of diabetic foot and diabetic chronic cutaneous ulcer. *Chin J Mod Drug Appl.* 2014;8:86-88
36. Milek T, Baranowski K, Zydlewski P, et al. Role of plasma growth factor in the healing of chronic ulcers of the lower legs and foot due to ischaemia in diabetic patients. *Postepy Dermatol Alergol.* Dec 2017; 34(6): 601-606. PMID 29422826
37. Qi KQ, Chen TJ P, Shang XL. The application of autologous platelet-rich gel in the treatment of diabetic foot ulcers. *Chin J Diabetes.* 2014; 22: 1102-1105.
38. Saad Setta H, Elshahat A, Elsherbiny K, et al. Platelet-rich plasma versus platelet-poor plasma in the management of chronic diabetic foot ulcers: a comparative study. *Int Wound J.* Jun 2011; 8(3): 307-12. PMID 21470370
39. Saldamacchia G, Lapice E, Cuomo V, et al. A controlled study of the use of autologous platelet gel for the treatment of diabetic foot ulcers. *Nutr Metab Cardiovasc Dis.* Dec 2004; 14(6): 395-6. PMID 15853123
40. Serra R, Grande R, Butrico L, et al. Skin grafting and topical application of platelet gel in the treatment of vascular lower extremity ulcers. *Acta Phlebologica.* 2014 01 Dec; 15(3):129-36.

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

41. Singh SP, Kumar V, Pandey A, et al. Role of platelet-rich plasma in healing diabetic foot ulcers: a prospective study. *J Wound Care*. Sep 02 2018; 27(9): 550-556. PMID 30204574
42. Steed DL, Goslen JB, Holloway GA, et al. Randomized prospective double-blind trial in healing chronic diabetic foot ulcers. CT-102 activated platelet supernatant, topical versus placebo. *Diabetes Care*. Nov 1992; 15(11): 1598-604. PMID 1468291
43. Steed DL, Edington HD, Webster MW. Recurrence rate of diabetic neurotrophic foot ulcers healed using topical application of growth factors released from platelets. *Wound Repair Regen*. Apr-Jun 1996; 4(2): 230-3. PMID 17177818
44. Xie J, Fang Y, Zhao Y, et al. Autologous Platelet-Rich Gel for the Treatment of Diabetic Sinus Tract Wounds: A Clinical Study. *J Surg Res*. Mar 2020; 247: 271-279. PMID 31706541
45. Yang L, Gao L, Lv Y, et al. Autologous platelet-rich gel for lower-extremity ischemic ulcers in patients with type 2 diabetes. *International Journal of Clinical and Experimental Medicine*. 2017 30 Sep; 10(9):13796-801.
46. Zhang L Qiang D, Sun YH. Clinical observation of autologous platelet rich gel in the treatment of diabetic foot ulcers. *Ningxia Med J*. 2016; 38:809-811.
47. Zhou XP, Gong YX, Yang ZD, Wang W. Application value analysis of autologous platelet gel in refractory skin ulcer of diabetic patients. *World Lat Med Inform*. 2015;15:19-20
48. Zhu SF, Liu H, Li L, Wang XF. Preliminary application of autologous platelet rich gel in diabetic neuropathic ulcers. *Med Innov China*. 2012; 9:18-19.
49. Centers for Medicare & Medicaid Services. National Coverage Analysis (NCA) Tracking Sheet for Autologous Blood-Derived Products for Chronic Non-Healing Wounds (CAG-00190R4). 2020.
50. Oliveira BGRB, Carvalho MR, Ribeiro APL. Cost and effectiveness of Platelet Rich Plasma in the healing of varicose ulcer: Meta-analysis. *Rev Bras Enferm*. 2020; 73(4): e20180981. PMID 32609173
51. Saha S, Patra AC, Gowda SP, et al. Effectiveness and safety of autologous platelet-rich plasma therapy with total contact casting versus total contact casting alone in treatment of trophic ulcer in leprosy: An observer-blind, randomized controlled trial. *Indian J Dermatol Venereol Leprol*. May-Jun 2020; 86(3): 262-271. PMID 31997794
52. Zhou SF, Estrera AL, Loubser P, et al. Autologous platelet-rich plasma reduces transfusions during ascending aortic arch repair: a prospective, randomized, controlled trial. *Ann Thorac Surg*. Apr 2015; 99(4): 1282-90. PMID 25661906
53. Serraino GF, Dominijanni A, Jiritano F, et al. Platelet-rich plasma inside the sternotomy wound reduces the incidence of sternal wound infections. *Int Wound J*. Jun 2015; 12(3): 260-4. PMID 23692143
54. El-Anwar MW, Nofal AA, Khalifa M, et al. Use of autologous platelet-rich plasma in complete cleft palate repair. *Laryngoscope*. Jul 2016; 126(7): 1524-8. PMID 27075516
55. Sidman JD, Lander TA, Finkelstein M. Platelet-rich plasma for pediatric tonsillectomy patients. *Laryngoscope*. Oct 2008; 118(10): 1765-7. PMID 18622315
56. Almdahl SM, Veel T, Halvorsen P, et al. Randomized prospective trial of saphenous vein harvest site infection after wound closure with and without topical application of

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

autologous platelet-rich plasma. Eur J Cardiothorac Surg. Jan 2011; 39(1): 44-8. PMID 20634084

57. Alamdari DH, Asadi M, Rahim AN, et al. Efficacy and Safety of Pleurodesis Using Platelet-Rich Plasma and Fibrin Glue in Management of Postoperative Chylothorax After Esophagectomy. *World J Surg. Apr 2018; 42(4): 1046-1055. PMID 28986682*
58. Mohamadi S, Norooznezhad AH, Mostafaei S, et al. A randomized controlled trial of effectiveness of platelet-rich plasma gel and regular dressing on wound healing time in pilonidal sinus surgery: Role of different affecting factors. *Biomed J. Dec 2019; 42(6): 403-410. PMID 31948604*
59. Slaninka I, Fibir A, Kaska M, et al. Use of autologous platelet-rich plasma in healing skin graft donor sites. *J Wound Care. Jan 02 2020; 29(1): 36-41. PMID 31930949*
60. Kazakos K, Lyras DN, Verettas D, et al. The use of autologous PRP gel as an aid in the management of acute trauma wounds. *Injury. Aug 2009; 40(8): 801-5. PMID 18703188*
61. Marck RE, Gardien KL, Stekelenburg CM, et al. The application of platelet-rich plasma in the treatment of deep dermal burns: A randomized, double-blind, intra-patient controlled study. *Wound Repair Regen. Jul 2016; 24(4): 712-20. PMID 27169627*
62. Yeung CY, Hsieh PS, Wei LG, et al. Efficacy of Lyophilised Platelet-Rich Plasma Powder on Healing Rate in Patients With Deep Second Degree Burn Injury: A Prospective Double-Blind Randomized Clinical Trial. *Ann Plast Surg. Feb 2018; 80(2S Suppl 1): S66-S69. PMID 29369904*
63. Qaseem A, Humphrey LL, Forciea MA, et al. Treatment of pressure ulcers: a clinical practice guideline from the American College of Physicians. *Ann Intern Med. Mar 03 2015; 162(5): 370-9. PMID 25732279*
64. Association for the Advancement of Wound Care (AAWC). *Guideline of Pressure Ulcer Guidelines. Malvern, PA: AAWC; 2010.*
65. Association for the Advancement of Wound Care (AAWC). *International Consolidated Venous Ulcer Guideline (ICVUG). 2015.*
66. National Institute for Health and Clinical Excellence (NICE). *Diabetic foot problems: prevention and management [NG19]. 2019.*
67. National coverage determination (NCD) for blood-derived products for chronic non-healing wounds (270.3). Centers for Medicare and Medicaid Services. Effective date of version August 2, 2012.
68. Centers for Medicare & Medicaid Services. *Decision Memo for Autologous Blood-Derived Products for Chronic Non-Healing Wounds (CAG-00190R3). 2012.*
69. Centers for Medicare & Medicaid Services (CMS). *CMS Manual System: Pub 100-3 Medicare National Coverage Determinations (Transmittal 127). 2010 Oct. Accessed March 9, 2022.*
70. Centers for Medicare & Medicaid Services. *Decision Memo for Autologous Blood Derived Products for Chronic Non-Healing Wounds (CAG-00190R2). 2008.*
71. Centers for Medicare & Medicaid Services. *Proposed Decision Memo for Autologous Blood-Derived Products for Chronic Non-Healing Wounds (CAG-00190R4). 2020.*
72. Sridharan K, Sivaramakrishnan G. Growth factors for diabetic foot ulcers: mixed treatment comparison analysis of randomized clinical trials. *Br J Clin Pharmacol. Mar 2018; 84(3): 434-444. PMID 29148070*

MEDICAL POLICY

POLICY TITLE	RECOMBINANT AND AUTOLOGOUS PLATELET-DERIVED GROWTH FACTORS AS A TREATMENT OF WOUND HEALING AND OTHER NON-ORTHOPEDIC CONDITIONS
POLICY NUMBER	MP 2.033

73. Qu W, Wang Z, Hunt C, Morrow AS, Urtecho M, Amin M, Shah S, Hasan B, Abd-Rabu R, Ashmore Z, Kubrova E, Prokop LJ, Murad MH. Platelet-Rich Plasma for Wound Care in the Medicare Population. Technology Assessment Program Project ID 040-353-492. (Prepared by the Mayo Clinic Evidence-based Practice Center under Contract No. HHS2902015000131.) Rockville, MD: Agency for Healthcare Research and Quality.

74. Oliveira BGRB, Carvalho MR, Ribeiro APL. Cost and effectiveness of Platelet Rich Plasma in the healing of varicose ulcer: Meta-analysis. Rev Bras Enferm. 2020; 73(4): e20180981. PMID 32609173

75. Saha S, Patra AC, Gowda SP, et al. Effectiveness and safety of autologous platelet-rich plasma therapy with total contact casting versus total contact casting alone in treatment of trophic ulcer in leprosy: An observer-blind, randomized controlled trial. Indian J Dermatol Venereol Leprol. May-Jun 2020; 86(3): 262-271. PMID 31997794

76. Gupta A, Channaveera C, Sethi S, et al. Efficacy of Intralesional Platelet-Rich Plasma in Diabetic Foot Ulcer. J Am Podiatr Med Assoc. May 01 2021; 111(3). PMID 33231614

77. Verma, R., Kumar, S., Garg, P. et al. Platelet-rich plasma: a comparative and economical therapy for wound healing and tissue regeneration. Cell Tissue Bank **24**, 285–306 (2023). <https://doi.org/10.1007/s10561-022-10039-z>

78. Xu P, Wu Y, Zhou L, et al. Platelet-rich plasma accelerates skin wound healing by promoting re-epithelialization. Burns Trauma. 2020;8:tkaa028. Published 2020 Aug 14. doi:10.1093/burnst/tkaa028

79. Blue Cross Blue Shield Association Medical Policy Reference Manual. 2.01.16, Recombinant and Autologous Platelet-Derived Growth Factors for Wound Healing and Other Non-Orthopedic Conditions. February 2024.

X. POLICY HISTORY

[TOP](#)

MP 2.033	05/15/2020 Consensus Review. Policy statement unchanged. Variation, Background, Rationale, References, and Coding updated.
	05/17/2021 Consensus Review. No change to policy statements. Coding and References Reviewed and Updated
	12/01/2021 Administrative Update. Added G0465. Effective date 1/1/2022
	03/09/2022 Minor Review. Criteria moved from policy guidelines to policy statement. FEP, rationale, references updated.
	01/18/2023 Consensus Review. No changes to policy statements. Coding and references reviewed and updated.
	02/06/2024 Consensus Review. No changes to policy statement. References updated. Coding reviewed, no changes.

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