

MEDICAL POLICY

POLICY TITLE	ORTHOPEDIC APPLICATIONS OF PLATELET- RICH PLASMA
POLICY NUMBER	MP 4.039

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:	12/1/2024

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I. POLICY

Use of platelet-rich plasma is considered **investigational** for all orthopedic indications. This includes, but is not limited to, use in the following situations:

- Primary use (injection) for the following conditions:
 - Achilles tendinopathy
 - Lateral epicondylitis
 - Plantar fasciitis
 - Osteochondral lesions
 - Osteoarthritis
- Adjunctive use in the following surgical procedures:
 - Anterior cruciate ligament reconstruction
 - Hip fracture
 - Long-bone nonunion
 - Patellar tendon repair
 - Rotator cuff repair
 - Spinal fusion
 - Subacromial decompression surgery
 - Total knee arthroplasty

Cross-reference:

MP 2.033 Recombinant and Autologous Platelet-Derived Growth Factors as Treatment of Wound Healing and Other Non-Orthopedic Conditions
MP 2.061 Prolotherapy
MP 2.080 Orthopedic Applications of Stem Cell Therapy Including Allograft and Bone Substitute Products Used with Autologous Bone Marrow

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II. PRODUCT VARIATIONS

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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

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A variety of growth factors have been found to play a role in wound healing, including platelet-derived growth factors (PDGFs), epidermal growth factor, fibroblast growth factors, transforming 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, osteoblasts, and vascular endothelial growth factors. Recombinant PDGF has also been extensively investigated for clinical use in wound healing (see **MP 2.033**).

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 the various growth factors. The polymerization of fibrin from fibrinogen creates a platelet gel, which can then be used as an adjunct to surgery with the intent of promoting hemostasis and accelerating 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 type of transforming growth factors, 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. Alternatively, PRP may be injected directly into various tissues. PRP injections have been proposed as a primary treatment of miscellaneous conditions, such as epicondylitis, plantar fasciitis, and Dupuytren contracture.

Injection of PRP for tendon and ligament pain is theoretically related to prolotherapy (discussed in **MP 2.061**). However, prolotherapy differs in that it involves injection of chemical irritants that are intended to stimulate inflammatory responses and induce release of endogenous growth factors.

PRP is distinguished from fibrin glues or sealants, which have been used 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) and VITASEAL™ (Johnson & Johnson Surgical Technologies) are examples of commercially available fibrin sealants. Autologous fibrin sealants can be created from platelet-poor plasma. This evidence review does not address the use of fibrin sealants.

REGULATORY STATUS

The U.S. Food and Drug Administration (FDA) regulates human cells and tissues intended for implantation, transplantation, or infusion through the Center for Biologics Evaluation and

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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.

A number of PRP preparation systems are available, many of which were cleared for marketing by the FDA through the 510(k) process for producing platelet-rich preparations intended to be mixed with bone graft materials to enhance the bone grafting properties in orthopedic practices. The use of PRP outside of this setting (e.g., an office injection) would be considered off-label. The Aurix System™ (previously called AutoloGel™; Nuo Therapeutics) and SafeBlood® (SafeBlood Technologies) are two related but distinct autologous blood-derived preparations that can be used at the bedside for immediate application. Both AutoloGel™ and SafeBlood® have been specifically marketed for wound healing. Other devices may be used during surgery (eg, autoLog® Autotransfusion system [Medtronic], the SmartPrePO [Harvest Technologies] device). The Magellan® Autologous Platelet Separator System (Isto Biologics) includes a disposable kit for use with the Magellan Autologous Platelet Separator portable tabletop centrifuge. GPS® II (BioMet Biologics), a gravitational platelet separation system, was cleared for marketing by the FDA through the 510(k) process for use as disposable separation tube for centrifugation and a dual cannula tip to mix the platelets and thrombin at the surgical site (GPS® III [Zimmer Biomet] is now available). Filtration or plasmapheresis may also be used to produce platelet-rich concentrates. The use of different devices and procedures can lead to variable concentrations of activated platelets and associated proteins, increasing variability between studies of clinical efficacy.

IV. RATIONALE

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SUMMARY OF EVIDENCE

Primary Treatment for Tendinopathies

For individuals with tendinopathy who receive platelet-rich plasma injections, the evidence includes multiple randomized controlled trials (RCTs) and systematic reviews with meta-analyses. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, and treatment-related morbidity. Findings from meta-analyses of RCTs have been mixed and have generally found that platelet-rich plasma did not have a statistically and/or clinically significant impact on symptoms (i.e., pain) or functional outcomes. Findings from a subsequently published RCT failed to find improvement compared with placebo. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Primary Treatment for Non-Tendon Soft Tissue Injury or Inflammation

For individuals with non-tendon soft tissue injury or inflammation (e.g., plantar fasciitis) who receive platelet-rich plasma injections, the evidence includes several small RCTs, multiple prospective observational studies, and systematic reviews. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, and treatment-related morbidity. The 2014 systematic review, which identified 3 RCTs on platelet-rich plasma for plantar fasciitis, did not pool study findings. Results among the remaining RCTs were inconsistent. The largest

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RCT showed that treatment using platelet-rich plasma compared with corticosteroid injection resulted in statistically significant improvement in pain and disability, but not quality of life. A 2023 systematic review found improved visual analog scale (VAS) scores with platelet-rich plasma compared to corticosteroid injections out to 6 months duration, but numerical differences between groups were small. Larger RCTs completed over a sufficient duration of time (i.e., 2 years) are still needed to address important uncertainties in efficacy and safety. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Primary Treatment for Osteochondral Lesions

For individuals with osteochondral lesions who receive platelet-rich plasma injections, the evidence includes an open-labeled quasi-randomized study. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, and treatment-related morbidity. The quasi-randomized study found a statistically significant greater impact on outcomes in the platelet-rich plasma group than in the hyaluronic acid group. Limitations of the evidence base include lack of adequately randomized studies, lack of blinding, lack of sham controls, and comparison only to an intervention of uncertain efficacy. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Primary Treatment for Knee or Hip Osteoarthritis

For individuals with knee or hip osteoarthritis who receive platelet-rich plasma injections, the evidence includes multiple RCTs and systematic reviews. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, and treatment-related morbidity. Most trials have compared platelet-rich plasma with hyaluronic acid for knee osteoarthritis. Systematic reviews have generally found that platelet-rich plasma was more effective than placebo or hyaluronic acid in reducing pain and improving function. However, systematic review authors have noted that their findings should be interpreted with caution due to important limitations including significant residual statistical heterogeneity, questionable clinical significance, and high risk of bias in study conduct. RCTs with a follow-up of at least 12 months published subsequent to the systematic reviews found statistically significantly greater 12-month reductions in pain and function outcomes, but these findings were also limited by important study conduct flaws including potential inadequate control for selection bias and limited or unclear blinding. Also, benefits were not maintained at 5 years. Using hyaluronic acid as a comparator is questionable because the evidence demonstrating the benefit of hyaluronic acid treatment for osteoarthritis is not robust. Two systematic reviews evaluating hip osteoarthritis did not report any statistically or clinically significant differences in pain or functional outcomes compared to hyaluronic acid, corticosteroids, or placebo. Additional studies comparing platelet-rich plasma with placebo and with alternatives other than hyaluronic acid are needed to determine the efficacy of platelet-rich plasma for knee and hip osteoarthritis. Studies are also needed to determine the optimal protocol for delivering platelet-rich plasma. The evidence is

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insufficient to determine that the technology results in an improvement in the net health outcome.

Adjunct to Surgery

For individuals with anterior cruciate ligament reconstruction who receive platelet-rich plasma injections plus orthopedic surgery, the evidence includes several systematic reviews of multiple RCTs and prospective studies and a retrospective matched case-control study. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, morbid events, resource utilization, and treatment-related morbidity. In 2 systematic reviews that conducted a meta-analysis, adjunctive platelet-rich plasma treatment did not result in a significant effect on International Knee Documentation Committee (IKDC) scores, a patient-reported, knee-specific outcome measure that assesses pain and functional activity. One systematic review found improvements with platelet-rich plasma compared to controls in outcomes at 6 months, but these differences were determined to be clinically irrelevant with the exception of pain at 6 months which was improved with platelet-rich plasma. Individual trials have shown mixed results. A retrospective matched case-control study found no differences in knee function scores or time to return of activity between platelet-rich plasma and matched-control groups at 2 years; however, the platelet-rich plasma group demonstrated a higher rate of postoperative knee motion loss compared with the control group. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals with hip fracture who receive platelet-rich plasma injections plus orthopedic surgery, the evidence includes an open-labeled RCT. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, morbid events, resource utilization, and treatment-related morbidity. The single open-label RCT failed to show a statistically significant reduction in the need for surgical revision with the addition of platelet-rich plasma treatment. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals with long bone nonunion who receive platelet-rich plasma injections plus orthopedic surgery, the evidence includes 3 RCTs. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, morbid events, resource utilization, and treatment-related morbidity. One trial with a substantial risk of bias failed to show significant differences in patient-reported or clinician-assessed functional outcome scores between patients who received platelet-rich plasma plus allogenic bone graft versus those who received only allogenic bone graft. While the trial showed statistically significant increases in the proportion of bones that healed in patients receiving platelet-rich plasma in a modified intention-to-treat analysis, the results did not differ in the intention-to-treat analysis. An RCT that compared platelet-rich plasma with recombinant human bone morphogenetic protein-7 (rhBMP-7) also failed to show any clinical and radiologic benefits of platelet-rich plasma over rhBMP-7. The third RCT found no difference in the number of unions or time to union in patients receiving platelet-rich plasma injections or no treatment. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals with rotator cuff repair who receive platelet-rich plasma injections plus orthopedic surgery, the evidence includes multiple RCTs and systematic reviews. Relevant outcomes are

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symptoms, functional outcomes, health status measures, quality of life, morbid events, resource utilization, and treatment-related morbidity. Although systematic reviews consistently found significant reductions in pain with platelet-rich plasma at 12 months, important study conduct and relevance weaknesses limit interpretation of these findings. While the systematic reviews and meta-analyses generally failed to show a statistically and/or clinically significant impact on other outcomes, 1 meta-analysis found a statistically significant reduction in re-tear rate in a subgroup analysis of 4 RCTs that were at least 24 months in duration. The findings of a subsequently published 10-year follow-up of a small RCT failed to demonstrate the superiority of platelet-rich plasma over control for clinical and radiologic outcomes. The variability in platelet-rich plasma preparation techniques and platelet-rich plasma administration limits the generalizability of the available evidence. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals undergoing spinal fusion who receive platelet-rich plasma injections plus orthopedic surgery, the evidence includes a single small RCT and a few observational studies. Relevant outcomes include symptoms, functional outcomes, health status measures, quality of life, morbid events, resource utilization, and treatment-related morbidity. Studies have generally failed to show a statistically and/or clinically significant impact on symptoms (i.e., pain). The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals with subacromial decompression surgery who receive platelet-rich plasma injections plus orthopedic surgery, the evidence includes a small RCT. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, morbid events, resource utilization, and treatment-related morbidity. A single small RCT failed to show a reduction in self-assessed or physician-assessed spinal instability scores with platelet-rich plasma injections. However, subjective pain, use of pain medications, and objective measures of range of motion showed clinically significant improvements with platelet-rich plasma. Larger trials are required to confirm these benefits. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals with total knee arthroplasty who receive platelet-rich plasma injections plus orthopedic surgery, the evidence includes systematic reviews. Relevant outcomes are symptoms, functional outcomes, health status measures, quality of life, morbid events, resource utilization, and treatment-related morbidity. The reviews showed no significant differences between the platelet-rich plasma and untreated control groups in range of motion, functional

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outcomes, and long-term pain. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

V. DEFINITIONS

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N/A

VI. BENEFIT VARIATIONS

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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

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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

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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.

Investigational, therefore, not covered when used for orthopedic applications:

Procedure Codes								
P9020	0232T							

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1. 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
2. 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
3. Kevy 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
4. 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
5. 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
6. Hsu WK, Mishra A, Rodeo SR, et al. Platelet-rich plasma in orthopaedic applications: evidence-based recommendations for treatment. *J Am Acad Orthop Surg.* Dec 2013; 21(12): 739-48. PMID 24292930
7. Masiello F, Pati I, Veropalumbo E, et al. Ultrasound-guided injection of platelet-rich plasma for tendinopathies: a systematic review and meta-analysis. *Blood Transfus.* Mar 2023; 21(2): 119-136. PMID 36346880
8. Dai W, Yan W, Leng X, et al. Efficacy of Platelet-Rich Plasma Versus Placebo in the Treatment of Tendinopathy: A Meta-analysis of Randomized Controlled Trials. *Clin J Sport Med.* Jan 01 2023; 33(1): 69-77. PMID 34342296
9. Muthu S, Patel S, Gobbur A, et al. Platelet-rich plasma therapy ensures pain reduction in the management of lateral epicondylitis - a PRISMA-compliant network meta-analysis of randomized controlled trials. *Expert Opin Biol Ther.* Apr 2022; 22(4): 535-546. PMID 35078375
10. Johal H, Khan M, Yung SP, et al. Impact of Platelet-Rich Plasma Use on Pain in Orthopaedic Surgery: A Systematic Review and Meta-analysis. *Sports Health.* 2019; 11(4): 355-366. PMID 31136726
11. Kearney RS, Ji C, Warwick J, et al. Effect of Platelet-Rich Plasma Injection vs Sham Injection on Tendon Dysfunction in Patients With Chronic Midportion Achilles Tendinopathy: A Randomized Clinical Trial. *JAMA.* Jul 13 2021; 326(2): 137-144. PMID 34255009
12. Seth I, Bulloch G, Seth N, et al. The role of corticosteroid injections in treating plantar fasciitis: A systematic review and meta-analysis. *Foot (Edinb).* Mar 2023; 54: 101970. PMID 36774828
13. Peerbooms JC, Lodder P, den Ouden BL, et al. Positive Effect of Platelet-Rich Plasma on Pain in Plantar Fasciitis: A Double-Blind Multicenter Randomized Controlled Trial. *Am J Sports Med.* Nov 2019; 47(13): 3238-3246. PMID 31603721
14. Shetty SH, Dhond A, Arora M, et al. Platelet-Rich Plasma Has Better Long-Term Results Than Corticosteroids or Placebo for Chronic Plantar Fasciitis: Randomized Control Trial. *J Foot Ankle Surg.* Jan 2019; 58(1): 42-46. PMID 30448183

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15. Johnson-Lynn S, Cooney A, Ferguson D, et al. A Feasibility Study Comparing Platelet-Rich Plasma Injection With Saline for the Treatment of Plantar Fasciitis Using a Prospective, Randomized Trial Design. *Foot Ankle Spec.* Apr 2019; 12(2): 153-158. PMID 29779399
16. Tabrizi A, Dindarian S, Mohammadi S. The Effect of Corticosteroid Local Injection Versus Platelet-Rich Plasma for the Treatment of Plantar Fasciitis in Obese Patients: A Single-Blind, Randomized Clinical Trial. *J Foot Ankle Surg.* 2020; 59(1): 64-68. PMID 31882151
17. Mei-Dan O, Carmont MR, Laver L, et al. Platelet-rich plasma or hyaluronate in the management of osteochondral lesions of the talus. *Am J Sports Med.* Mar 2012; 40(3): 534-41. PMID 22253252
18. Anil U, Markus DH, Hurley ET, et al. The efficacy of intra-articular injections in the treatment of knee osteoarthritis: A network meta-analysis of randomized controlled trials. *Knee.* Oct 2021; 32: 173-182. PMID 34500430
19. Trams E, Kulinski K, Kozar-Kaminska K, et al. The Clinical Use of Platelet-Rich Plasma in Knee Disorders and Surgery-A Systematic Review and Meta-Analysis. *Life (Basel).* Jun 25 2020; 10(6). PMID 32630404
20. Laudy AB, Bakker EW, Rekers M, et al. Efficacy of platelet-rich plasma injections in osteoarthritis of the knee: a systematic review and meta-analysis. *Br J Sports Med.* May 2015; 49(10): 657-72. PMID 25416198
21. Chang KV, Hung CY, Aliwarga F, et al. Comparative effectiveness of platelet-rich plasma injections for treating knee joint cartilage degenerative pathology: a systematic review and meta-analysis. *Arch Phys Med Rehabil.* Mar 2014; 95(3): 562-75. PMID 24291594
22. Meheux CJ, McCulloch PC, Lintner DM, et al. Efficacy of Intra-articular Platelet-Rich Plasma Injections in Knee Osteoarthritis: A Systematic Review. *Arthroscopy.* Mar 2016; 32(3): 495-505. PMID 26432430
23. Lai LP, Stitik TP, Foye PM, et al. Use of Platelet-Rich Plasma in Intra-Articular Knee Injections for Osteoarthritis: A Systematic Review. *PM R.* Jun 2015; 7(6): 637-48. PMID 25687110
24. Cole BJ, Karas V, Hussey K, et al. Hyaluronic Acid Versus Platelet-Rich Plasma: A Prospective, Double-Blind Randomized Controlled Trial Comparing Clinical Outcomes and Effects on Intra-articular Biology for the Treatment of Knee Osteoarthritis. *Am J Sports Med.* Feb 2017; 45(2): 339-346. PMID 28146403
25. Duymus TM, Mutlu S, Dernek B, et al. Choice of intra-articular injection in treatment of knee osteoarthritis: platelet-rich plasma, hyaluronic acid or ozone options. *Knee Surg Sports Traumatol Arthrosc.* Feb 2017; 25(2): 485-492. PMID 27056686
26. Kanchanatawan W, Arirachakaran A, Chaijenkij K, et al. Short-term outcomes of platelet-rich plasma injection for treatment of osteoarthritis of the knee. *Knee Surg Sports Traumatol Arthrosc.* May 2016; 24(5): 1665-77. PMID 26387122
27. Xu Z, Luo J, Huang X, et al. Efficacy of Platelet-Rich Plasma in Pain and Self-Report Function in Knee Osteoarthritis: A Best-Evidence Synthesis. *Am J Phys Med Rehabil.* Nov 2017; 96(11): 793-800. PMID 28398969
28. Belk JW, Houck DA, Littlefield CP, et al. Platelet-Rich Plasma Versus Hyaluronic Acid for Hip Osteoarthritis Yields Similarly Beneficial Short-Term Clinical Outcomes: A Systematic Review and Meta-analysis of Level I and II Randomized Controlled Trials. *Arthroscopy.* Jun 2022; 38(6): 2035-2046. PMID 34785294

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29. Gazendam A, Ekhtiari S, Bozzo A, et al. Intra-articular saline injection is as effective as corticosteroids, platelet-rich plasma and hyaluronic acid for hip osteoarthritis pain: a systematic review and network meta-analysis of randomised controlled trials. *Br J Sports Med.* Mar 2021; 55(5): 256-261. PMID 32829298
30. Sdeek M, Sabry D, El-Sdeek H, et al. Intra-articular injection of Platelet rich plasma versus Hyaluronic acid for moderate knee osteoarthritis. A prospective, double-blind randomized controlled trial on 189 patients with follow-up for three years. *Acta Orthop Belg.* Dec 2021; 87(4): 729-734. PMID 35172440
31. Reyes-Sosa R, Lugo-Radillo A, Cruz-Santiago L, et al. Clinical comparison of platelet-rich plasma injection and daily celecoxib administration in the treatment of early knee osteoarthritis: A randomized clinical trial. *J Appl Biomed.* Aug 2020; 18(2-3): 41-45. PMID 34907724
32. Elksniņš-Finogejevs A, Vidal L, Peredistijs A. Intra-articular platelet-rich plasma vs corticosteroids in the treatment of moderate knee osteoarthritis: a single-center prospective randomized controlled study with a 1-year follow up. *J Orthop Surg Res.* Jul 10 2020; 15(1): 257. PMID 32650801
33. Dallari D, Stagni C, Rani N, et al. Ultrasound-Guided Injection of Platelet-Rich Plasma and Hyaluronic Acid, Separately and in Combination, for Hip Osteoarthritis: A Randomized Controlled Study. *Am J Sports Med.* Mar 2016; 44(3): 664-71. PMID 26797697
34. Nouri F, Babaee M, Peydayesh P, et al. Comparison between the effects of ultrasound guided intra-articular injections of platelet-rich plasma (PRP), high molecular weight hyaluronic acid, and their combination in hip osteoarthritis: a randomized clinical trial. *BMC Musculoskelet Disord.* Sep 12 2022; 23(1): 856. PMID 36096771
35. Dallari D, Savarino L, Stagni C, et al. Enhanced tibial osteotomy healing with use of bone grafts supplemented with platelet gel or platelet gel and bone marrow stromal cells. *J Bone Joint Surg Am.* Nov 2007; 89(11): 2413-20. PMID 17974883
36. Moraes VY, Lenza M, Tamaoki MJ, et al. Platelet-rich therapies for musculoskeletal soft tissue injuries. *Cochrane Database Syst Rev.* Apr 29 2014; 2014(4): CD010071. PMID 24782334
37. Lv ZT, Zhang JM, Pang ZY, et al. The efficacy of platelet rich plasma on anterior cruciate ligament reconstruction: a systematic review and meta-analysis. *Platelets.* Feb 17 2022; 33(2): 229-241. PMID 34048294
38. Nin JR, Gasque GM, Azcárate AV, et al. Has platelet-rich plasma any role in anterior cruciate ligament allograft healing?. *Arthroscopy.* Nov 2009; 25(11): 1206-13. PMID 19896041
39. Bailey L, Weldon M, Kleihege J, et al. Platelet-Rich Plasma Augmentation of Meniscal Repair in the Setting of Anterior Cruciate Ligament Reconstruction. *Am J Sports Med.* Oct 2021; 49(12): 3287-3292. PMID 34477016
40. Griffin XL, Achten J, Parsons N, et al. Platelet-rich therapy in the treatment of patients with hip fractures: a single centre, parallel group, participant-blinded, randomised controlled trial. *BMJ Open.* Jun 25 2013; 3(6). PMID 23801709
41. Griffin XL, Wallace D, Parsons N, et al. Platelet rich therapies for long bone healing in adults. *Cochrane Database Syst Rev.* Jul 11 2012; (7): CD009496. PMID 22786528

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42. Calori GM, Tagliabue L, Gala L, et al. Application of rhBMP-7 and platelet-rich plasma in the treatment of long bone non-unions: a prospective randomised clinical study on 120 patients. *Injury*. Dec 2008; 39(12): 1391-402. PMID 19027898
43. Samuel G, Menon J, Thimmaiah S, et al. Role of isolated percutaneous autologous platelet concentrate in delayed union of long bones. *Eur J Orthop Surg Traumatol*. Jul 2018; 28(5): 985-990. PMID 29167980
44. Zhao JG, Zhao L, Jiang YX, et al. Platelet-rich plasma in arthroscopic rotator cuff repair: a meta-analysis of randomized controlled trials. *Arthroscopy*. Jan 2015; 31(1): 125-35. PMID 25278352
45. Yang J, Sun Y, Xu P, et al. Can patients get better clinical outcomes by using PRP in rotator cuff repair: a meta-analysis of randomized controlled trials. *J Sports Med Phys Fitness*. Nov 2016; 56(11): 1359-1367. PMID 26473444
46. Chen X, Jones IA, Park C, et al. The Efficacy of Platelet-Rich Plasma on Tendon and Ligament Healing: A Systematic Review and Meta-analysis With Bias Assessment. *Am J Sports Med*. Jul 2018; 46(8): 2020-2032. PMID 29268037
47. Chen X, Jones IA, Togashi R, et al. Use of Platelet-Rich Plasma for the Improvement of Pain and Function in Rotator Cuff Tears: A Systematic Review and Meta-analysis With Bias Assessment. *Am J Sports Med*. Jul 2020; 48(8): 2028-2041. PMID 31743037
48. Li Y, Li T, Li J, et al. Platelet-Rich Plasma Has Better Results for Retear Rate, Pain, and Outcome Than Platelet-Rich Fibrin After Rotator Cuff Repair: A Systematic Review and Meta-analysis of Randomized Controlled Trials. *Arthroscopy*. Feb 2022; 38(2): 539-550. PMID 34052384
49. Fu CJ, Sun JB, Bi ZG, et al. Evaluation of platelet-rich plasma and fibrin matrix to assist in healing and repair of rotator cuff injuries: a systematic review and meta-analysis. *Clin Rehabil*. Feb 2017; 31(2): 158-172. PMID 26928856
50. Randelli PS, Stoppani CA, Santarsiero G, et al. Platelet-Rich Plasma in Arthroscopic Rotator Cuff Repair: Clinical and Radiological Results of a Prospective Randomized Controlled Trial Study at 10-Year Follow-Up. *Arthroscopy*. Jan 2022; 38(1): 51-61. PMID 34052372
51. Kubota G, Kamoda H, Orita S, et al. Platelet-rich plasma enhances bone union in posterolateral lumbar fusion: A prospective randomized controlled trial. *Spine J*. Feb 2019; 19(2): e34-e40. PMID 28735763
52. Carreon LY, Glassman SD, Anekstein Y, et al. Platelet gel (AGF) fails to increase fusion rates in instrumented posterolateral fusions. *Spine (Phila Pa 1976)*. May 01 2005; 30(9): E243-6; discussion E247. PMID 15864142
53. Tsai CH, Hsu HC, Chen YJ, et al. Using the growth factors-enriched platelet glue in spinal fusion and its efficiency. *J Spinal Disord Tech*. Jun 2009; 22(4): 246-50. PMID 19494743
54. Everts PA, Devilee RJ, Brown Mahoney C, et al. Exogenous application of platelet-leukocyte gel during open subacromial decompression contributes to improved patient outcome. A prospective randomized double-blind study. *Eur Surg Res*. 2008; 40(2): 203-10. PMID 17998780
55. Shu H, Huang Z, Bai X, et al. The Application of Platelet-Rich Plasma for Patients Following Total Joint Replacement: A Meta-Analysis of Randomized Controlled Trials and Systematic Review. *Front Surg*. 2022; 9: 922637. PMID 35860197

MEDICAL POLICY

POLICY TITLE	ORTHOPEDIC APPLICATIONS OF PLATELET- RICH PLASMA
POLICY NUMBER	MP 4.039

56. American Academy of Orthopaedic Surgeons. *Management of Osteoarthritis of the Knee (Non-Arthroplasty)*. 2021
57. American Academy of Orthopaedic Surgeons. *Management of Osteoarthritis of the Hip: Evidence-Based Clinical Practice Guideline*. 2023
58. American Academy of Orthopaedic Surgeons. *Management of Rotator Cuff Injuries Evidence-Based Clinical Practice Guideline*.
59. National Institute for Health and Care Excellence (NICE). *Autologous blood injection for tendinopathy [IPG438]*. 2013
60. National Institute for Health and Care Excellence (NICE). *Autologous blood injection for plantar fasciitis [IPG437]*. 2013
61. National Institute for Health and Care Excellence (NICE). *Platelet-rich plasma injections for knee osteoarthritis [IPG637]*. 2019
62. Blue Cross Blue Shield Association Medical Policy Reference Manual. 2.01.98, *Orthopedic Applications of Platelet-Rich Plasma*. May 2024

X. POLICY HISTORY

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MP 4.039	08/19/2020 Consensus Review. No change to policy statement. Rationale and References updated.
	05/05/2021 Consensus Review. No change to policy statement. References and rationale updated; coding reviewed.
	05/18/2022 Consensus Review. No change to policy statement. FEP and references updated, coding reviewed.
	06/15/2023 Consensus Review. Updated cross references, background, and references. Added HCPCS P9020.
	06/21/2024 Consensus Review. Updates cross-references, FEP, rationale, and references. Removed 86999

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