

Medical Necessity Guidelines

Autologous Chondrocyte Implantation in the Knee

Policy Number: 007

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Overview

The purpose of this document is to describe the guidelines Mass General Brigham Health Plan utilizes to determine the medical appropriateness for autologous chondrocyte implantation (ACI) for repairing cartilage defects of the knee. Mass General Brigham Health Plan will consider FDA-approved matrix-induced chondrocyte implantation (MACI) under the conditions listed in the coverage guidelines below. The treating specialist must request prior authorization for this procedure.

Medicare Advantage

Prior Authorization Required	Yes ☒ No ☐
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Mass General Brigham Health Plan uses guidance from the Centers for Medicare and Medicaid Services (CMS) for medical necessity determinations for its Medicare Advantage plan members. National Coverage Determinations (NCDs), Local Coverage Determinations (LCDs), Local Coverage Articles (LCAs), and documentation included in the Medicare manuals are the basis for medical necessity determinations. When there is no guidance from CMS for the requested service, Mass General Brigham Health Plan's medical policies are used for medical necessity determinations. **At the time of Mass General Brigham Health Plan's most recent policy review, Medicare had no NCD or LCD for autologous chondrocyte implantation in the knee. Refer to the Commercial and Qualified Health Plans section for medical necessity information.**

Mass General Brigham ACO

Prior Authorization Required	Yes ☒ No ☐
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Mass General Brigham Health Plan uses guidance from MassHealth for medical necessity determinations for its Mass General Brigham ACO members. When there is no guidance from MassHealth for the requested service, Mass General Brigham Health Plan's medical policies are used for medical necessity determinations. **At the time**

of Mass General Brigham Health Plan's most recent policy review, MassHealth did not have medical necessity guidelines for autologous chondrocyte implantation in the knee. Refer to the Commercial and Qualified Health Plans section for medical necessity information.

One Care and Senior Care Options (SCO)

Prior Authorization Required	Yes ☒ No ☐
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Mass General Brigham Health Plan uses guidance from CMS for medical necessity determinations for its One Care and SCO plan members. NCDs, LCDs, LCAs, and documentation included in the Medicare manuals are the basis for medical necessity determinations. When there is no guidance from CMS for the requested service, or the member does not meet the medical necessity criteria for the requested service, Mass General Brigham Health Plan uses medical necessity guidelines from MassHealth. **See Medicare Advantage criteria and exclusions above. If Medicare Advantage criteria are not met, then MassHealth criteria are applied.**

Commercial and Qualified Health Plans

Prior Authorization Required	Yes ☒ No ☐
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Medical necessity for autologous chondrocyte implantation in the knee in adults aged 18 years and older is determined through InterQual® criteria using the CP:Procedures, Arthroscopy or Arthroscopically Assisted Surgery, Knee subset. To access the InterQual® criteria, log into Mass General Brigham Health Plan's provider website at MassGeneralBrighamHealthPlan.org and click the InterQual® Criteria Lookup Link under the Resources Menu.

Medical necessity for autologous chondrocyte implantation in the knee in adolescents under the age of 18 years is determined through InterQual® criteria using the CP: Procedures, Arthroscopy or Arthroscopically Assisted Surgery, Knee (Pediatric) subset. To access the InterQual® criteria, log into the Mass General Brigham Health Plan's provider website at MassGeneralBrighamHealthPlan.org and click the InterQual® Criteria Lookup Link under the Resources Menu.

Instability of the knee may adversely affect the success of the procedure and should be corrected. The anterior and posterior cruciate ligaments should be free of laxity as well as stable and intact. It is recommended that cruciate deficiencies be corrected. Abnormal weight-distribution within the joint may adversely affect the success of the procedure and should be corrected. The tibial/femoral joint should be properly aligned.

Exclusions

Mass General Brigham Health Plan does not provide coverage for:

1. Joints other than the knee
2. Active infection of the knee
3. Presence of osteoarthritis

Definitions

Autologous chondrocyte implantation: a two-step procedure in which new cartilage cells are grown and then implanted in the cartilage defect. Healthy cartilage tissue is first removed from a non-weight bearing area of the bone and sent to a laboratory. The cells are cultured and increase in number over a 3- to 5-week period and are then transplanted back via a second procedure.

Full thickness chondral defects are those that extend through to the subchondral bone.



Matrix-induced Autologous Chondrocyte Implantation (MACI): MACI is autologous cultured chondrocytes on porcine collagen membrane. It is an autologous cellularized scaffold product that is indicated for the repair of single or multiple symptomatic, full-thickness cartilage defects of the adult knee, with or without bone involvement.

Codes

The following codes are included below for informational purposes only; inclusion of a code does not constitute or imply coverage or reimbursement.

Authorized Code	Code Description
27412	Autologous chondrocyte implantation, knee
J7330	Autologous cultured chondrocytes, implant

Summary of Evidence

Randomized by Brittberg et al. (2018), Knutsen et al. (2016), and others demonstrate generally favorable long-term outcomes for ACI compared with standard care, with follow-up periods ranging from 2 to 15 years. Multiple systematic reviews, including that by Grossman et al. (2022), show improvement that ACI improves patient-reported outcomes in patients with large ($\geq 2\text{cm}^2$), full-thickness cartilage defects in the knee. A systematic review by Dhillon et al. (2022) suggests that third-generation ACI techniques are superior to microfracture for focal chondral defects. Another systematic review of RCTs by Gou et al. (2020) finds that scores on standardized measures of knee symptoms were no better for ACI than for microfracture at 1-5 years of follow-up, though ACI may offer improved pain relief and quality of life. Niethammer et al. (2021) shows that the improvement in patient-reported outcomes was larger for ACI treatment of femoral cartilage defects than for ACI treatment of patellar cartilage defects. Dibartola et al. (2016) and Hoburg et al. (2019) demonstrate safety and efficacy in adolescents and young adults.

The literature collectively supports ACI as an effective treatment option for large, full-thickness knee cartilage defects. Mass General Brigham Health Plan criteria reflect the inclusion/exclusion criteria of trials mentioned above. Evidence of safety and efficacy in other populations is still lacking.

Effective Dates

October 1, 2026: Annual review. Adopted InterQual® medical necessity guidelines. Code list and references updated.

March 2026: Ad hoc update. Reformatted policy. Removed reference to retired custom InterQual® subset. Fixed typo in previous effective date. Clarified criteria hierarchy in One Care and SCO section.

January 2026: Ad hoc update. Updated prior authorization table and added variation for One Care and SCO members.

August 2025: Annual review. Fixed wording in MassHealth variation. Fixed typos. Updated code disclaimer.

March 2025: Ad hoc update. Summary of evidence added.

November 2024: Ad hoc update. Medicare Variation language clarified. Added language to coverage guidelines pointing to custom subset in InterQual™. MassHealth Variation language added. Codes updated.

August 2024: Annual review. Added BMI restriction.

August 2023: Annual review. Medicare Advantage added to table. Minor editorial refinement to coverage guidelines; intent unchanged. Medicare Variation language added.

August 2022: Annual review. References updated.

August 2021: Annual review. Revised language under Coverage Guidelines to state “Single or multiple full-thickness cartilage each measuring greater than or equal to 2.0 cm^2 ”. References updated.

August 2020: Annual review. References updated.



July 2019: Annual review. Revised language under Overview section to reflect policy only allows for MACI. Removed Carticel. Revised Coverage guidelines. Allow for up to age 55. Removed requirement that member have inadequate response to prior surgical treatment. Under Exclusion section; removed defects of the patella. Updated Code and References.

June 2018: Annual review.

December 2017: Effective date. Codes added.

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