Cigna Medical Coverage Policies – Musculoskeletal
Shoulder Arthroplasty/ Replacement/Resurfacing/Revision/Arthrodesis

Effective July 1, 2025

Instructions for use

The following coverage policy applies to health benefit plans administered by Cigna. Coverage policies are intended to provide guidance in interpreting certain standard Cigna benefit plans and are used by medical directors and other health care professionals in making medical necessity and other coverage determinations. Please note the terms of a customer's particular benefit plan document may differ significantly from the standard benefit plans upon which these coverage policies are based. For example, a customer's benefit plan document may contain a specific exclusion related to a topic addressed in a coverage policy.

In the event of a conflict, a customer's benefit plan document always supersedes the information in the coverage policy. In the absence of federal or state coverage mandates, benefits are ultimately determined by the terms of the applicable benefit plan document. Coverage determinations in each specific instance require consideration of:

1. The terms of the applicable benefit plan document in effect on the date of service
2. Any applicable laws and regulations
3. Any relevant collateral source materials including coverage policies
4. The specific facts of the particular situation

Coverage policies relate exclusively to the administration of health benefit plans. Coverage policies are not recommendations for treatment and should never be used as treatment guidelines.

This evidence-based medical coverage policy has been developed by eviCore, Inc. Some information in this coverage policy may not apply to all benefit plans administered by Cigna.

CMM-318: Shoulder Arthroplasty/ Replacement/ Resurfacing/ Revision/ Arthrodesis

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Definitions

- **Anatomic Total Shoulder Arthroplasty (Replacement)**: a surgical technique that involves replacing the humeral head and the glenoid. A total shoulder arthroplasty is typically the best option if the glenoid is damaged, but sufficient bone and rotator cuff remain to ensure that the glenoid component will last.
- **Hemi-Arthroplasty (Replacement)**: a surgical technique that involves replacing the humeral head and not replacing the glenoid (socket), which is typically the best option if the glenoid does not have any arthritis or if there is some concern that the glenoid component might fail if it is replaced.
- **Massive Rotator Cuff Tear**: a full-thickness rotator cuff tear >5 cm (Cofield)
- **Non-Surgical Management** (with regard to the treatment of shoulder pain): any provider-directed non-surgical treatment that has been demonstrated in the scientific literature to be efficacious and/or is considered reasonable care in the treatment of shoulder pain. The types of treatment involved can include, but are not limited to, the following: relative rest/activity modification; supervised physiotherapy modalities and therapeutic exercises; prescription and non-prescription medications; assistive devices; and/or, injections.
- **Prosthesis**: an artificial device used to replace a structural element within a joint to improve and enhance function.
- **Reverse Total Shoulder Arthroplasty (Replacement)**: a surgical technique that involves replacing both the humeral head and the glenoid, but the ball and socket are reversed to improve muscle function. This allows the deltoid muscle, which has a longer movement arm, to generate greater force, allowing it to act in place of an inadequate functioning or torn rotator cuff.
- **Revision of Shoulder Arthroplasty (Replacement)**: a surgical technique that involves reconstruction or replacement due to failure or complication of previous shoulder arthroplasty.
- **Rotator Cuff Tear Arthropathy**: a condition that results from **ALL** of the following:
  - Rotator cuff dysfunction (e.g., secondary to unrepairable/irreparable massive rotator cuff tear)
  - Advanced glenohumeral arthritis
  - Radiographically diminished acromio-humeral distance
- **Shoulder Arthrodesis**: a surgical resection and fusion of the shoulder (glenohumeral) joint.
- **Shoulder Arthroplasty/Replacement**: an orthopedic surgical procedure during which the articular surface of the shoulder joint is replaced, remodeled, or realigned.
- **Shoulder Pseudoparesis**: a shoulder dysfunction, particularly in the setting of a massive unrepairable/irreparable rotator cuff tear, in which there is the presence of less than 90 degrees of active elevation.
- **Shoulder Pseudoparalysis**: a shoulder dysfunction, particularly in the setting of a massive unrepairable/irreparable rotator cuff tear, with **ALL** of the following: the presence of true anterosuperior escape; no true active shoulder elevation; and, the individual is only able to demonstrate a shrug.

- **Shoulder Resurfacing:** a surgical technique that involves replacing the diseased part of the shoulder joint without replacing the humeral head. Resurfacing of the humeral head involves a prosthetic metal covering or cap to provide complete or partial coverage. It can be performed alone (hemi-resurfacing) or in combination with glenoid resurfacing (total or partial shoulder resurfacing).
- **Walch Classification of Glenoid Morphology**:
  - **Type A**: centered humeral head, concentric wear, no subluxation of the humeral head
    - A1: minor central erosion
    - A2: major central erosion, humeral head protruding into the glenoid cavity
  - **Type B**: humeral head subluxated posteriorly, biconcave glenoid with asymmetric wear
    - B1: narrowing of the posterior joint space, subchondral sclerosis, osteophytes
    - B2: biconcave aspect of the glenoid with posterior rim erosion and retroverted glenoid
    - B3: monoconcave and posterior wear with >15° retroversion, or >70% posterior humeral head subluxation, or both
  - **Type C**:
    - C1: dysplastic glenoid with >25° retroversion regardless of the erosion
    - C2: biconcave, posterior bone loss, posterior translation of the humeral head
  - **Type D**: glenoid anteversion or anterior humeral head subluxation <40°

General Guidelines

Application of Guideline

- The determination of medical necessity for the performance of shoulder surgery is always made on a case-by-case basis.
- For advanced imaging indications prior to shoulder arthroplasty/shoulder replacement refer to **MS-12: Osteoarthritis** and **MS-19: Shoulder**
- For advanced imaging indications following shoulder arthroplasty/ shoulder replacement refer to **MS-16: Post-Operative Joint Replacement Surgery** and **MS-19: Shoulder**

Hemi-Arthroplasty (Replacement)

Hemi-Arthroplasty (Replacement) Indications

Hemi-arthroplasty (replacement) is considered **medically necessary** for **ANY** of the following conditions when **ALL** of the associated criteria have been met:

Arthritic Conditions with Inadequate Bone Stock and Avascular Necrosis (AVN)

- Radiographic imaging and/or an advanced diagnostic study (e.g., MRI, CT) is conclusive for **EITHER** of the following and that correlates with the individual's reported symptoms and physical exam findings:

- Arthritic conditions in which the glenoid bone stock is inadequate to support a glenoid prosthesis
- Avascular necrosis without glenoid involvement

➤ Function-limiting pain (e.g., loss of shoulder function which interferes with the ability to carry out age-appropriate activities of daily living and/or demands of employment) for at least three (3) months duration

➤ Failure of provider-directed non-surgical management for at least three (3) months duration

Proximal Humerus Fracture NOT Amendable to Internal Fixation

➤ Radiographic imaging and/or an advanced diagnostic study (e.g., MRI, CT) is conclusive for a proximal humerus fracture that is not amenable to internal fixation

Hemi-Arthroplasty (Replacement) Non-Indications

Not Medically Necessary

➤ Hemi-arthroplasty (replacement) is considered **not medically necessary** for **ANY** other indication, condition, or when **ANY** of the following are present:
- Active local or systemic infection
- Paralytic disorder of the shoulder (e.g., flail shoulder due to irreversible brachial plexus palsy, spinal cord injury, or neuromuscular disease)
- One or more uncontrolled or unstable medical conditions that would significantly increase the risk of morbidity (e.g., cardiac, pulmonary, liver, genitourinary, or metabolic disease; hypertension; abnormal serum electrolyte levels)
- Charcot joint
- Advanced destructive degenerative joint disease (i.e., rheumatoid arthritis or osteoarthritis) resulting in marked joint space narrowing
- Rotator cuff tear arthropathy

Total Shoulder Arthroplasty (Replacement)

Total Shoulder Arthroplasty (Replacement) Indications

Total shoulder arthroplasty (replacement) is considered **medically necessary** when **ALL** of the following criteria have been met:

➤ Radiographic imaging and/or an advanced diagnostic study (i.e., MRI, CT) is conclusive for advanced destructive degenerative joint disease (i.e., osteoarthritis, rheumatoid arthritis, avascular necrosis) with marked joint space narrowing **and** that correlates with the individual's reported symptoms and physical exam findings including **ANY** of the following findings:
- Irregular joint surfaces
- Glenoid sclerosis
- Glenoid osteophyte changes
- Flattened glenoid

- Cystic changes in the humeral head

- Function-limiting pain (e.g., loss of shoulder function which interferes with the ability to carry out age-appropriate activities of daily living and/or demands of employment) for at least three (3) months duration
- Failure of provider-directed non-surgical management for at least three (3) months duration

Total Shoulder Arthroplasty (Replacement) Non-Indications

Not Medically Necessary

- Total shoulder arthroplasty (replacement) is considered **not medically necessary** for **ANY** other indication, condition, or when **ANY** of the following are present:
  - Active local or systemic infection
  - Paralytic disorder of the shoulder (e.g., flail shoulder due to irreversible brachial plexus palsy, spinal cord injury, or neuromuscular disease)
  - One or more uncontrolled or unstable medical conditions that would significantly increase the risk of morbidity (e.g., cardiac, pulmonary, liver, genitourinary, or metabolic disease; hypertension; abnormal serum electrolyte levels)
  - Charcot joint

Reverse Total Shoulder Arthroplasty (Replacement)

Reverse Total Shoulder Arthroplasty (Replacement) Indications

Reverse total shoulder arthroplasty (replacement) is considered **medically necessary** for **ANY** of the following conditions when **ALL** of the associated criteria have been met:

Rotator Cuff Tear Pathology

- Dysfunctional rotator cuff with **ANY** of the following additional findings:
  - Rotator cuff tear arthropathy
  - Pseudoparalysis with a massive unrepairable/irreparable rotator cuff tear
  - Pseudoparesis with a massive unrepairable/irreparable rotator cuff tear
  - Failed hemi-arthroplasty with an unrepairable/irreparable rotator cuff tear
  - Failed total shoulder arthroplasty with an unrepairable/irreparable rotator cuff tear
- Physical exam demonstrates findings supporting that the individual has functional use of the deltoid muscle
- Function-limiting pain (e.g., loss of shoulder function which interferes with the ability to carry out age appropriate activities of daily living and/or demands of employment) for at least three (3) months duration
- Failure of provider-directed non-surgical management for at least three (3) months duration

Glenoid Retroversion

- CT confirms glenoid retroversion with Walch Classification B2, B3, or C glenoid changes
- Physical exam demonstrates findings supporting that the individual has functional use of the deltoid muscle
- Function-limiting pain (e.g., loss of shoulder function which interferes with the ability to carry out age appropriate activities of daily living and/or demands of employment) for at least three (3) months duration
- Failure of provider-directed non-surgical management for at least three (3) months duration

Posterior Humeral Head Subluxation

- X-ray **or** advanced imaging shows posterior humeral head subluxation greater than 50%
- Physical exam demonstrates findings supporting that the individual has functional use of the deltoid muscle
- Function-limiting pain (e.g., loss of shoulder function which interferes with the ability to carry out age appropriate activities of daily living and/or demands of employment) for at least three (3) months duration
- Failure of provider-directed non-surgical management for at least three (3) months duration

Reconstruction after Tumor Resection and Shoulder Fracture NOT Amendable to Other Repair/Reconstruction Techniques

- Performed for **EITHER** of the following:
  - Reconstruction after a tumor resection
  - Radiographic imaging and/or an advanced diagnostic study (i.e., MRI, CT) is conclusive for a shoulder fracture that is **not repairable or cannot be reconstructed with other techniques**

Reverse Total Shoulder Arthroplasty (Replacement) Non-Indications

- Reverse total shoulder arthroplasty (replacement) is considered **not medically necessary** for **ANY** other indication, condition, or when **ANY** of the following are present:
  - Active local or systemic infection
  - Paralytic disorder of the shoulder (e.g., flail shoulder due to irreversible brachial plexus palsy, spinal cord injury, or neuromuscular disease)
  - Deltoid deficiency (e.g., axillary nerve palsy)
  - One or more uncontrolled or unstable medical conditions that would significantly increase the risk of morbidity (e.g., cardiac, pulmonary, liver, genitourinary, or metabolic disease; hypertension; abnormal serum electrolyte levels)
  - Charcot joint

Shoulder Resurfacing

Shoulder Resurfacing Non-Indications

Experimental, Investigational, or Unproven (EIU)

- Shoulder resurfacing (total, hemi, or partial resurfacing) is considered **experimental, investigational, or unproven (EIU).**

Revision of Shoulder Arthroplasty (Replacement)

Revision of Shoulder Arthroplasty (Replacement) Indications

Revision of shoulder arthroplasty (replacement) is considered **medically necessary** for an individual who has previously undergone a hemi or total shoulder arthroplasty and when **EITHER** of the following criteria have been met:

- Presence of **ANY** of the following findings:
  - Recurrent prosthetic dislocation unresponsive to a reasonable course of non-surgical care
  - Instability of the components
  - Aseptic loosening
  - Periprosthetic infection
  - Periprosthetic fracture
- Unexplained function-limiting pain (e.g., loss of shoulder function which interferes with the ability to carry out age-appropriate activities of daily living and/or demands of employment) for greater than six (6) months duration that is unresponsive to provider-directed non-surgical management

Revision of Shoulder Arthroplasty (Replacement) Non-Indications

Not Medically Necessary

- Revision of shoulder arthroplasty (replacement) is considered **not medically necessary** for **ANY** other indication or condition, including Charcot joint.

Shoulder Arthrodesis

Shoulder Arthrodesis Indications

Shoulder arthrodesis is considered **medically necessary** when **ALL** of the following criteria have been met:

- Radiographic imaging and/or and advanced diagnostic study (i.e., MRI, CT, EMG/NCV, etc.) is conclusive for **ANY** of the following findings **and** that correlates with the individual's reported symptoms and physical exam findings:
  - Irreparable deltoid and rotator cuff deficiency
  - Failed total shoulder arthroplasty

- Joint infection
- Reconstruction after tumor resection
- Brachial plexus palsy
- Recurrent shoulder instability, which has failed previous repair/reconstruction
- Paralytic disorder in infancy

- Function-limiting pain (e.g., loss of shoulder function which interferes with the ability to carry out age appropriate activities of daily living and/or demands of employment) for at least three (3) months duration
- Failure of provider-directed non-surgical management for at least three (3) months duration **and** is not a candidate for alternative treatments

Shoulder Arthrodesis Non-Indications

Not Medically Necessary

- Shoulder arthrodesis is considered **not medically necessary** for **ANY** other indication, condition, or when **ANY** of the following are present:
  - Deficient functional scapulothoracic motion
  - Paralysis of the trapezius, levator scapulae, and serratus anterior
  - Charcot joint
  - Ipsilateral elbow arthrodesis
  - Contralateral shoulder arthrodesis

Codes (CMM-318)

The inclusion of any code in this table does not imply that the code is under management or requires prior authorization. Refer to the applicable health plan for management details. Prior authorization of a code listed in this table is not a guarantee of payment. The Certificate of Coverage or Evidence of Coverage policy outlines the terms and conditions of the member's health insurance policy.

Code	Code Description/Definition
23470	Arthroplasty, glenohumeral joint; hemiarthroplasty
23472	Arthroplasty, glenohumeral joint; total shoulder (glenoid and proximal humeral replacement [e.g., total shoulder])
23473	Revision of total shoulder arthroplasty, including allograft when performed; humeral or glenoid component
23474	Revision of total shoulder arthroplasty, including allograft when performed; humeral and glenoid component
23802	Arthrodesis, glenohumeral joint; with autogenous graft (includes obtaining graft)

Evidence Discussion (CMM-318)

Shoulder Arthroplasty/ Replacement/ Resurfacing/ Revision/ Arthrodesis)

Risks of shoulder arthroplasty surgery include, but are not limited to, the following: infection; functional limitations; persistent pain or stiffness; neurovascular injury; fracture; instability;, loosening; deep venous thrombosis; pulmonary embolism; anesthesia complications; and, death. Craig et al. (2019) noted alarmingly high rates of adverse events in elderly individuals. Given the potential possibility for significant complications, proper patient selection is crucial to minimize the risk benefit ratio.

The initial approach for individuals with glenohumeral osteoarthritis begins with conservative care. Nonsurgical treatment is also used as the first-line treatment for individuals with irreparable rotator cuff tears and rotator cuff arthropathy. Nonsurgical treatment can be successful in many individuals and improvements may be seen within a few weeks or months.

Imaging findings supporting anatomic total shoulder replacement should demonstrate marked narrowing of the glenohumeral joint space with additional findings that can include cystic changes in the humeral head, irregular joint surfaces, glenoid sclerosis, glenoid osteophyte changes, or glenoid flattening. These findings are indicative of end stage joint disease. As studies have shown that radiologic severity of shoulder osteoarthritis does not correlate with pain intensity, the presence of function-limiting pain should be confirmed for potential candidates for shoulder replacement surgery.

Indications in the literature for reverse total shoulder arthroplasty (RTSA) include individuals with rotator cuff tear arthropathy or pseudoparalysis from an unrepairable/irreparable rotator cuff tear. Additionally, the literature supports RTSA for individuals with osteoarthritis and an intact rotator cuff, in the presence of posterior glenoid wear and/or humeral head subluxation. Deltoid muscle function is essential for RTSA function and stability, therefore, individuals under consideration for RTSA should be carefully screened for deltoid function and any potential cause of deltoid weakness. The presence of function-limiting pain should also be confirmed for potential surgical candidates.

RTSA has also been supported in the literature for reconstruction after tumor resection and for proximal humeral fractures that are not repairable or unable to be reconstructed with other techniques. RTSA is also indicated for failed total shoulder replacement or failed hemiarthroplasty with a dysfunctional rotator cuff that is unrepairable/irreparable.

Shoulder hemiarthroplasty is rarely performed compared to anatomic and reverse total shoulder arthroplasty. The American Academy of Orthopaedic Surgeons (AAOS) *Shoulder and Elbow Registry (SER): 2023 Annual Report* noted that hemiarthroplasty composed .32% of all shoulder arthroplasty procedures performed between 2015 and 2022. Although not a frequently performed procedure, indications for shoulder hemiarthroplasty include arthritic conditions in which the glenoid bone stock is inadequate to support a glenoid prosthesis, avascular necrosis without glenoid involvement, and proximal humerus fractures not amenable to internal fixation.

Contraindications to shoulder arthroplasty procedures include active infection, Charcot arthropathy, severe neurological pathologies, and medical comorbidities which would preclude joint replacement surgery.

There is insufficient high-level evidence to support shoulder resurfacing. von Gerhardt et al. (2022) reported the high overall revision rate of 27% between short- and long-term follow-up reflects the need to limit the use of uncemented resurfacing shoulder hemiarthroplasty for the treatment of glenohumeral osteoarthritis.

Revision rates after shoulder arthroplasty have been reported as high as one in four. Revision surgery may be performed for recurrent dislocations unresponsive to non-surgical care, instability, aseptic loosening, periprosthetic infection, and periprosthetic fracture. Revision surgery may also be recommended for persistent unexplained pain that is unresponsive to conservative care. It should be of note that revision surgery is associated with high complication rates.

Shoulder arthrodesis/fusion is a salvage procedure that is rarely considered as a first-line treatment and is rarely performed. Complication rates as high as 43% [40] and revision surgery rates as high as 62% have been associated with shoulder arthrodesis. Common complications include nonunion, malposition of the involved extremity (malunion), fracture, infection, and need for revision surgery. Also present are general risks of surgery including, but not limited to, the following: neurovascular injury; deep venous thrombosis; pulmonary embolism; anesthesia complications; and, death.. Given the significant risks, other treatment options, including extensive conservative management, should be highly considered before proceeding with shoulder fusion. Function-limiting symptoms should also be present when considering shoulder arthrodesis. Indications for shoulder arthrodesis include brachial plexus injury, prior failed shoulder arthroplasty, reconstruction after tumor resection, and chronic infection. Additional indications include individuals with insufficient function of both the rotator cuff and deltoid musculature, refractory glenohumeral instability, and obstetric injury resulting in a flail extremity. Contraindications include the following: deficient functional scapulothoracic motion; paralysis of trapezius, levator scapulae, and serratus anterior muscles; Charcot arthropathy; ipsilateral elbow arthrodesis; and, contralateral shoulder arthrodesis.

As risk for major complications exists for arthroplasty and arthrodesis procedures, it is critical to optimally ensure that individuals receive treatment that is appropriate, safe, and effective.

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